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Final SBAD Environmental Impact Reported for the Office San Dieguito Water Storage and Recovery Project San Diego, California



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OLIVENHAIN Municipal Water District

Prepared By:

Kleinfelder, Inc. & EDAW, Inc.

December 2004

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FINAL ENVIRONMENTAL IMPACT REPORT FOR THE SAN DIEGUITO WATER STORAGE AND RECOVERY PROJECT SAN DIEGO, CALIFORNIA

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PREFACE

FINAL ENVIRONMENTAL IMPACT REPORT SAN DIEGUITO WATER STORAGE AND RECOVERY PROJECT

SCH# 2002101060

This Final Environmental Impact Report (FEIR), prepared for the Olivenhain Municipal Water District San Dieguito Water Storage and Recovery Project, addresses the potential environmental effects associated with construction and operation of the Project. This FEIR was prepared in response to all comments received during circulation of the Draft EIR (DEIR) for a public review period of 45 days, in compliance with the requirements of the California Environmental Quality Act (CEQA) and CEQA Guidelines (California Code of Regulations, Title 14, Section 15000 *et seq*). A new and separate chapter to this environmental document (Chapter 9.0) has been prepared to provide a list of persons, organizations, and agencies commenting on the DEIR, together with copies of the comments received and the District's response to these comments. Where applicable, the text of the environmental document (i.e., the Executive Summary and Chapters 1.0 through 8.0) has been modified in response to comments received. Marginal notations have been inserted adjacent to modified text in the FEIR, denoting changes made to the text of the DEIR.

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ACRONYMS AND ABBREVIATIONS LIST

| 4S Ranch WWTP | 4S Ranch Wastewater Treatment Plant |
|--------------------|--|
| ACOE | Army Corps of Engineers |
| af/yr | acre-feet per year |
| AMP | active management program |
| AMP | active management program |
| BMPs | best management practices |
| BOD | Biochemical Oxygen Demand |
| CCR | California Code of Regulations |
| CDF | California Department of Fish and Game |
| CEQA | California Environmental Quality Act |
| cfs | cubic feet per second |
| CNPS | California Native Plant Society |
| CRHR | California Register of Historical Resources |
| Del Mar CC | Del Mar Country Club |
| DHS | Department of Health Services |
| EA | Environmental Assessment |
| EDA | Estate Development Area |
| EIR | Environmental Impact Report |
| EIR | Environmental Impact Report |
| Fairbanks Ranch CC | Fairbanks Ranch Country Club |
| HMP | habitat management plan |
| IS | Initial Study |
| JP | San Dieguito River Park Joint Powers Authority |
| mg/l | milligrams per liter |
| MGD | million gallons per day |
| MMRP | mitigation monitoring and reporting program |
| MND | Mitigated Negative Declaration |
| Morgan Run | Morgan Run Resort and Club |
| MPN | Most Probable Number |
| MWD | Metropolitan Water District |
| NEPA | National Environmental Policy Act |
| NOA | Notice of Availability |
| NOP | Notice of Preparation |
| | |

| NPDES | National Pollution Discharge Elimination System |
|-----------------|---|
| NRHP | National Register of Historic Places |
| NTU | nephelometric turbidity units |
| OMWD | Olivenhain Municipal Water District |
| OMWD | Olivenhain Municipal Water District |
| OPR | Office of Planning and Research |
| RWQCB | Regional Water Quality Control Board |
| SCIC | South Coastal Information Center |
| SFID | Santa Fe Irrigation District |
| SMGB | State Mining and Geology Board |
| SUSMP | Standard Urban Storm Water Mitigation Plan |
| SWPPP | Surface Water Pollution Prevention Plan |
| TDS | Total Dissolved Solids |
| TDS | total dissolved solids |
| TSS | Total Suspended Solids |
| USFW | U.S. Fish and Wildlife Service |
| Water Authority | San Diego County Water Authority |
| WRP | Water Reclamation Plant |
| | |

EXECUTIVE SUMMARY

ES-1 PROJECT OVERVIEW

This Environmental Impact Report (EIR) addresses the potential environmental impacts resulting from, or related to, construction and operation of the proposed San Dieguito Water Storage and Recovery Project. Olivenhain Municipal Water District (OMWD) proposes to construct and operate the San Dieguito Water Storage and Recovery Project within the lower San Dieguito River Basin. The general location of the proposed Project is shown in Figure 1-1 of the EIR. The proposed Project is being considered in order to maximize utilization of surface and groundwater storage capacity, improve water quality, and increase the dry-year groundwater supply within the basin.

In an effort to reduce the level of dependency on imported water, to control costs, to ensure safety and reliability, and to promote responsible use and reuse of this county's water resource, OMWD has determined that the use of potable water for irrigation purposes represents an inefficient use of the available water resource. Thus, OMWD operates and maintains the 4S Ranch Wastewater Treatment Plant (4S Ranch WWTP) for the purpose of providing reclaimed water as a replacement for potable water currently being used for irrigation by OMWD customers. OMWD produces tertiary-treated (Title 22) water at the 4S Ranch WWTP in full recognition of and compliance with applicable water quality policies, standards, regulations, codes, and laws. However, one of the requirements stipulated by the Regional Water Quality Control Board in the Master Reclamation Permit calls for OMWD to dispose of up to 1.2 MGD (soon to be increased to 2.0 MGD) during the wet season, when demand for reclaimed water is low. Thus, in compliance with this permit requirement, OMWD has undertaken a search for appropriate locations to either store or dispose of excess reclaimed water during the wet season. Two destinations have been identified. The first delivery destination is Fairbanks Ranch CC and the second delivery location is Morgan Run. Fairbanks Ranch CC is the first phase of the storage and recovery project and Morgan Run is the second phase, as described below.

ES-1.1. Phase I – Fairbanks Ranch CC

Phase I involves the delivery of reclaimed water from the 4S Ranch WWTP during wet weather periods to an existing surface water impoundment in the northern part of Fairbanks Ranch CC and would be implemented first. Delivery of the water would use the same supply system

currently designed for delivery of the irrigation water to this OMWD customer. The reclaimed water would be delivered via pipeline into one of the existing golf course ponds, at the same location where irrigation water is currently delivered. The Phase I site location and delivery point are shown in Figure 2-1 of the EIR. Phase I would not involve installation or modification of water-delivery infrastructure; rather, the small flow control facility on the 6-inch supply line would provide a means of regulating the flow of excess reclaimed water delivered to the site in accordance with the requirements of the golf course and OMWD's wet-weather water delivery needs.

In the event that the four Fairbanks Ranch CC ponds reach capacity, delivery of recycled water to the ponds would cease. This would occur by diversion of the water by an electronically activated valve proposed for installation in the 10-inch diameter delivery pipeline upstream of its delivery to the ponds. The water would be diverted to a proposed approximately 200-foot long 10-inch diameter connector between the valve and the Morgan Run Bridge, which is at the southern end of Morgan Run Golf Course. The excess water would then be discharged directly into the San Dieguito River via a 10-inch diameter pipe attached to the Morgan Run Bridge, which is the third picture depicted in Figure 2-4. Phase I (i.e., the diversion to the Fairbanks Ranch CC ponds, and the discharge to the San Dieguito River) would occur only during "high flow periods" of the wet season, when the flow rate of the San Dieguito River equals or exceeds 30 cubic feet per second (cfs). The maximum flow rate from the discharge pipe would not exceed 3 cfs. Emergency discharge would occur only during wet seasons when the Fairbanks Ranch CC ponds are at capacity and would specifically occur only during the months of October through February due to sensitive breeding seasons of downstream wildlife, as discussed in Section 3.2.

ES-1.2. Phase II – Morgan Run

In Phase II of the Project, OMWD would deliver up to 150 acre-feet per year (AF/yr) of excess Title 22 reclaimed water during wet-weather periods from their 4S Ranch WWTP to Morgan Run for groundwater storage. Delivery would be made via an existing OMWD pipeline to three new groundwater injection/extraction wells to be constructed in the extreme southeastern corner of Morgan Run. Each well would contain a submersible pump and a flow control valve; thus, each well would be capable of pumping and injecting groundwater in and out of an alluvial aquifer located approximately 80 to 150 feet belowground. Figure 2-3 of the EIR shows the Phase II site location. During wet seasons, the estimated total injection would be 150 AF/yr. Withdrawal from the aquifer would vary from year to year, but it would not exceed the net amount of water injected.

Construction of Phase II would involve installation of up to three wells for the groundwater injection and extraction operations. The Project would also include a small flow control structure and on-site pipelines to convey the water to and from the well locations. Once constructed, all pipelines would be located underground and only minor pump and wellhead components would be situated aboveground.

ES-2 ENVIRONMENTAL ANALYSIS

Construction and operation of the Project would result in potentially significant impacts to the three following issue areas:

- Hydrology/Water Quality
- Biological Resources
- Cultural Resources

Potentially significant impacts associated with all of these issues can be mitigated to below a level of significance through Project design features and the mitigation measures outlined in the EIR. Table ES-1 summarizes the results of the environmental analysis completed for both Phase I and Phase II of the proposed Project.

ES-3 EFFECTS FOUND NOT TO BE SIGNIFICANT

This EIR addresses all probable or foreseeable potential effects of the proposed Project. Based on the previous analysis completed for this EIR and the pervious environmental documentation for this project, effects were not found to be significant for the following issue areas: Land Use/Recreation, Visual Quality, Geology and Soils, Traffic, Noise, Air Quality, Public Utilities, Hazards and Hazardous Materials, Agricultural Resources, Energy and Mineral Resources, and Public Services. A complete discussion of each issue found not to be significant is located in Section 5.4 of the EIR.

ES-4 PROJECT ALTERNATIVES

OMWD has identified and considered many alternatives to the proposed Project which could reasonable achieve the goals of the Project. These potential options include alternative Project sites, alternative Project size and configuration, avoiding or minimizing equipment impact, aboveground and belowground storage options, and the No-Project alternative. The alternatives

| Issue Area | Phase | Potentially Significant Impact | Mitigation Measures | Level of Significance after Mitigation |
|------------|----------|---|--|--|
| Hydrology/ | Phase I | Discharging excess tertiary-treated water | Discharge of excess reclaimed water into the San Dieguito River | Less than |
| Water | | into the San Dieguito River during the wet | requires that an NPDES permit be obtained under the National | Significant |
| Quality | | season (October through March)could have | Pollution Discharge Elimination System (NPDES), which is | |
| | | the potential to impact downstream | administered by the Regional Water Quality Control Board | |
| | | hydrologic conditions resulting from | (RWQCB). In obtaining an NPDES permit, potentially | |
| | | erosion, scouring, increased flow and volume, sedimentation, and/or turbidity. | significant Phase I hydrology/water quality impacts would be eliminated as compliance with the terms and conditions of this | |
| | | These potential impacts, individually, or in | permit would reduce any potential water quality or hydrological | |
| | | combination, could result in a significant | impacts that may result from the wet season discharge into the | |
| | | impact to the hydrology and water quality | San Dieguito River. By conforming to state and local design | |
| | | of the San Dieguito River. | standards and complying with permitting requirements, these | |
| | | | measures would be expected to reduce any potential impacts to | |
| | | | below a level of significance and no additional mitigation | |
| | | | measures would be required. | |
| Hydrology/ | Phase I | Discharge into the San Dieguito River could | Mitigation for this impact would be the same as described above. | Less than |
| Water | | result in potentially significant impacts to | Discharge of excess reclaimed water into the San Dieguito River | Significant |
| Quality | | riparian habitat. Impacts could occur from direct removal of habitat if the flow of the | requires an NPDES permit. The necessary measures and | |
| | | river was exceedingly strong, sediment | requirements of obtaining and implementing this permit would reduce potential riparian habitat impacts to below a level of | |
| | | transport and siltation that could blanket | significance and no additional mitigation measures would be | |
| | | existing habitat areas or create excessive | required. | |
| | | turbidity, or altered nutrient balance of the | required. | |
| | | water through increased levels of nitrates, | | |
| | | phosphates and nitrates. | | |
| Hydrology/ | Phase II | It is possible, that under certain | OMWD would develop an active management program (AMP) | Less than |
| Water | | simultaneous conditions during operation of | to monitor and control potentially significant impacts resulting | Significant |
| Quality | | Phase II, injection of water into the target | from the injection and extraction of Project water into the deep | |
| | | aquifer may cause groundwater to migrate | aquifer. The AMP would be designed to monitor and assess | |
| | | through the aquitard sediments into the | ongoing operations and provide operational guidance documents | |
| | | shallow subsurface layer causing a slight | along with management and reporting guidelines. The AMP | |

Table ES-1Summary of Environmental Analysis

| Issue Area | Phase | Potentially Significant Impact | Mitigation Measures | Level of Significance after Mitigation |
|--------------------------------|----------|--|---|--|
| | | rise in the water table. The aquitard may not be completely impermeable, and as such could allow some leakage to occur. The possibility of leakance is considered potentially significant. | would allow OMWD to monitor groundwater levels and quality, surface water levels and quality, and the environmental conditions within the basin during injection/extraction operations. Furthermore, OMWD would use the AMP to adjust operational conditions of the injection/extraction system to mitigate impacts within the operational area of the system. It is anticipated that OMWD could reduce injection rates or durations to mitigate affects caused by this process, and could likewise alter the rate and or duration of extraction to reduce adverse drawdown conditions under their control. Routine monitoring of groundwater elevations in and around the injection/extraction site, including private off-site wells, would allow OMWD to alter the rate and or timing of extraction to reduce the potential impact to groundwater elevations and potential leakance or drawdown in the immediate vicinity of the project site. Use of the AMP during implementation of Phase II of the proposed Project would reduce the potential impacts to leakance, flow, or drawdown to less than significant. | |
| Hydrology/ Water Quality | Phase II | Under Phase II operational conditions, groundwater flow would be away from the injection area during injection periods and into the area during extraction periods. This would alter the direction of groundwater movement in the immediate vicinity of the Project area and could potentially affect the local pumping depression and, therefore, is considered a potentially significant impact. | Use of the AMP described above would mitigate any potentially significant impacts to groundwater flow to below a level of significance. | Less than Significant |
| Hydrology/ Water Quality | Phase II | An operationally induced drawdown of up to 8 feet (in the vicinity of the project well field) could be possible during periods of protracted drought and a demand for stored water within the basin. As such, this could induce from about 1 foot to 5.5 feet of additional drawdown upon surrounding | Use of the AMP described above would mitigate any potentially significant impacts concerning drawdown to below a level of significance. | Less than Significant |

| Issue Area | Phase | Potentially Significant Impact | Mitigation Measures | Level of Significance after Mitigation |
|-------------------------|-------------------------|---|--|--|
| | | wells. This additional drawdown could cause the wells of some nearby property owners' wells to experience reduced yield The potential for significant drawdown impacts could result from implementation of Phase II. | | |
| Biological Resources | Phase I | Operation of Phase I has the potential to indirectly impact offsite downstream southern willow scrub habitat within the San Dieguito River drainage. Potential impacts to this sensitive vegetation community may include sedimentation, erosion, or scour within the river from increased discharge of reclaimed water during the wet season, and would be considered to be a significant impact. | OMWD shall obtain an NPDES permit from the RWQCB to allow for the release of excess water to San Dieguito River during the wet season. Conditions for release of this water shall be specified in the permit, and compliance is required. Conditions shall include water quality sampling, specification of the maximum release permissible, and status reporting. These measures are designed to protect water quality, vegetation communities, wildlife, and their habitat. No additional mitigation would be required. | Less than Significant |
| Biological Resources | Phase I and Phase II | There is a potential for construction noise to potentially impact nesting bird species if Phase II is implemented during the migratory bird breeding season from February 1 through August 31. Under CEQA, impacts to California species of concern, or migratory birds, would be considered significant. | In order to mitigate for potential indirect impacts to sensitive nesting bird species, Phase II construction shall either avoid construction during the migratory bird nesting season (i.e., the period from February 1 through September 30), or conduct a migratory bird nest survey immediately prior to the nesting season to determine if nesting birds are present. If no nesting birds are detected within 500 feet of proposed construction activities, then project construction may be undertaken during the migratory bird nesting season | Less than Significant |
| Biological Resources | Phase I and Phase II | Due to the nature of construction work, potential anticipated impacts to biological resources could occur without measures to safeguard against accidental impacts. | The following general construction mitigation measures shall be required for Phase I and Phase II: Provision shall be made to inform the construction contractor(s), prior to the bidding process, about the biological constraints of this Project. All sensitive habitat areas to be avoided shall be clearly marked on Project maps provided to the contractor, and flagged by the Project biologist prior to the onset of construction activities. A contractor education program shall be implemented to | Less than Significant |

| Issue Area | Phase | Potentially Significant Impact | Mitigation Measures | Level of Significance after Mitigation |
|-------------------------|----------|--|---|--|
| | | | ensure that contractors and all construction personnel are fully informed of the biological resources associated with this Project. 3. Prohibited activities within drainages or other wetland areas include staging areas, equipment access, and disposal or temporary placement of spoils. 4. Vehicles shall use existing access roads to the degree feasible. Where new access is required, all vehicles shall use the same route. All access roads outside of existing roads or the construction corridor shall be delineated on the grading plans and reviewed by a qualified biologist. 5. Fueling of equipment shall take place within existing paved roads, and not within or adjacent to drainages or native habitats. Contractor equipment shall be checked for leaks prior to operation and repaired as necessary. "No-fueling zones" shall be designated on construction maps and will be situated a minimum distance of 50 feet from all drainages. 6. Construction in or adjacent to sensitive areas shall be appropriately scheduled to minimize potential impacts to biological resources. 7. Erosion and siltation of off-site areas during construction shall be minimized. An erosion control plan (Storm Water Pollution Prevention Program, SWPPP) shall be required of the contractor. The construction contract supervisor shall be responsible for ensuring that best management practices are employed in developing and implementing the erosion control plan. | |
| Biological Resources | Phase II | Construction of Phase II could potentially result in sedimentation and erosion in the open water and freshwater marsh habitats within the Project area. | The SWPPP for Phase II construction shall specifically address the implementation of control measures to minimize sedimentation and erosion in to the open water and freshwater marsh habitats within the Project area, and in offsite drainages immediately to the south of the site, including the downstream portions of the San Dieguito River. The Project biologist shall flag all native habitat and jurisdictional areas on, or adjacent to, | Less than Significant |

| Issue Area | Phase | Potentially Significant Impact | Mitigation Measures | Level of Significance after Mitigation |
|-----------------------|-------------------------|--|--|--|
| | | | the Project area. Any impact to these areas shall require habitat mitigation at a ratio of 5-to-1 (i.e., replace 5 acres for every 1 acre impacted). | |
| Cultural Resources | Phase I and Phase II | Due to the possibility of previously unknown prehistoric resources buried on- site within the floodplain, the impact to cultural resources during ground disturbing activities is considered potentially significant. Therefore, the impact to cultural resources during ground-disturbing activities is considered potentially significant. | Construction monitoring of any ground-disturbing activity shall be required. If cultural material is encountered during ground disturbance, the monitor shall direct work to another area until a qualified archaeologist can assess the find. If intact cultural deposits or features are found during monitoring efforts, then ground-disturbing construction activities would be directed elsewhere and OMWD shall be notified. | Less than Significant |

considered included both above and belowground storage and recovery options. The following alternative sites were considered and their locations are shown in Figure 6-2 of the EIR.

- Coast Sand Quarry
- El Apajo
- Fairbanks Ranch CC
- Morgan Run
- North Polo Fields
- Rancho Paseana
- San Dieguito Reservoir

Each of the seven individual alternatives was rated on the following criteria: cost; engineering/constructability; land use/landownership; population/housing; water impacts; biological resources; noise; cultural resources; and recreation. The results of the comparison showed a similarity in overall suitability ratings between the seven sites, indicating that OMWD had identified sites that are reasonable candidates as host sites for the Project. However, there are certain factors that also influence the site evaluation process and are explained in detail in Section 6.1.4 of the EIR. When considering these other factors, the only two sites that remain a viable alternative in the near term are Morgan Run and Fairbanks Ranch CC.

ES-5 CUMULATIVE IMPACTS

OMWD has considered the location and scope of ten past, present, and reasonably foreseeable future projects in the Project area. Chapter 4 of the EIR provides details on each of the ten area projects. Impacts from these projects in conjunction with the proposed Project would not result in an additive effect that would be "cumulatively considerable," as defined in Section 15130 of the CEQA Guidelines. The typical potential impacts would not necessarily be additive to OMWD's proposed Project, including traffic, construction dust, and noise, as the proposed Project would not generate these types of impacts.

ES-6 SIGNIFICANT IRREVERSIBLE IMPACTS

Because of the relatively small scale of both phases of the proposed Project, there would not be significant irreversible environmental changes to energy or natural resource usage resulting from implementation of this groundwater storage Project. The proposed Project would result in the consumptive use of nonrenewable energy sources and labor required to operate construction equipment used to install various components of the proposed Project. This commitment of

resources could otherwise have been applied to projects other than the proposed Project. Overall, the proposed Project would not require a substantial amount of resources and construction would be short term in nature.

ES-7 GROWTH INDUCING IMPACTS

The proposed Project would not directly create or induce growth in the region. OMWD does not have land use authority and does not make decisions that directly plan or approve land use development, rather provides water services on an as-needed basis as land development is planned by cities, counties, or other land use authorities. The areas that would receive reclaimed water through the proposed Project are already developed.

The overall purpose of the proposed Project is to maximize utilization and storage capacity of reclaimed water. This would allow for water treated at the 4S Ranch WWTP to be stored and used at a future time when needed. However, by increasing the amount of available reclaimed water, the demand on potable water for uses such as landscape irrigation would be reduced. The increased storage capacity of reclaimed water that would result from the proposed Project could indirectly be considered a growth-inducing impact, as more water, both reclaimed and potable, would be available for use. Water is typically a constraining factor in new or expanded development in the region and the proposed Project would result in an increased availability of water. The proposed Project would not, however, provide infrastructure that would facilitate the use of this water for new or expanded growth.

ES-8 APPROVALS AND PERMITS

It is anticipated that the following permits and approvals would be required from other public agencies for the proposed Project:

| | Permit Type / Action | Agency |
|---|--|---------------------|
| • | General Construction Activity/Storm Water Permit/ Construction activity in areas greater than 5 acres | RWQCB |
| • | Waste Discharge Requirement Permit | RWQCB |
| • | National Pollution Discharge Elimination System (NPDES) Permit | RWQCB |
| • | Well Installation Permit | County of San Diego |
| • | Review and Approval of Engineering Report | DHS |

CHAPTER 1.0 INTRODUCTION

1.1 PROJECT BACKGROUND

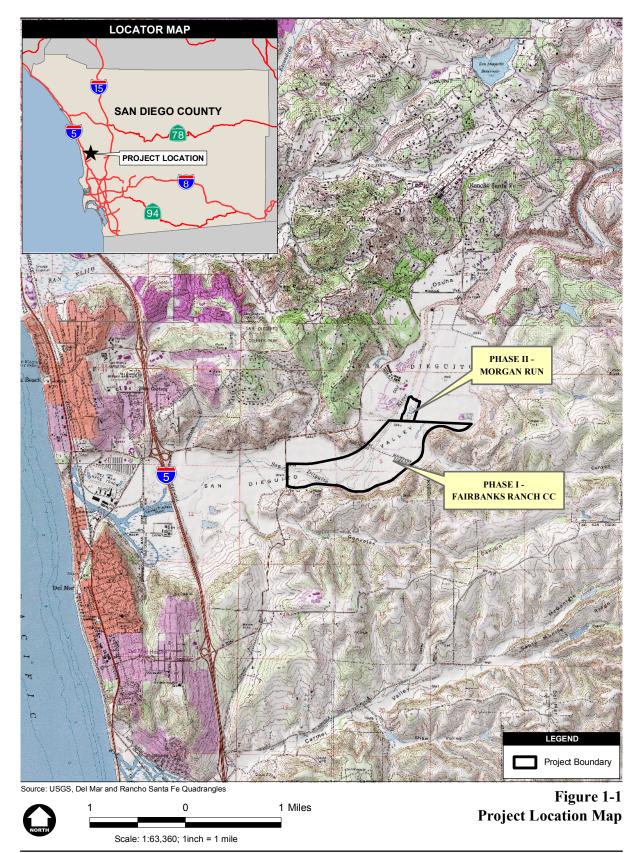
Olivenhain Municipal Water District (OMWD) proposes to construct and operate the San Dieguito Water Storage and Recovery Project within the lower San Dieguito River Basin. The general location of the proposed Project is shown in Figure 1-1.

OMWD is the lead agency and has primary responsibility for preparation of this Environmental Impact Report (EIR) in compliance with the California Environmental Quality Act (CEQA) of 1970, as amended (California Public Resources Code, §21000 et seq.) and in accordance with related implementing regulations (CEQA Guidelines), codified in the California Code of Regulations (CCR), Title 14, §15000 et seq. Currently, there is no federal action in conjunction with this Project; thus, there is no requirement to comply with the National Environmental Policy Act (NEPA). However, there is a potential need for federal funding in the event that project costs exceed current expectations. In that event, OMWD would seek federal funding, which would be a NEPA-invoking action as defined by the Act. This EIR would then become a source document for preparation of an Environmental Assessment (EA) in compliance with NEPA.

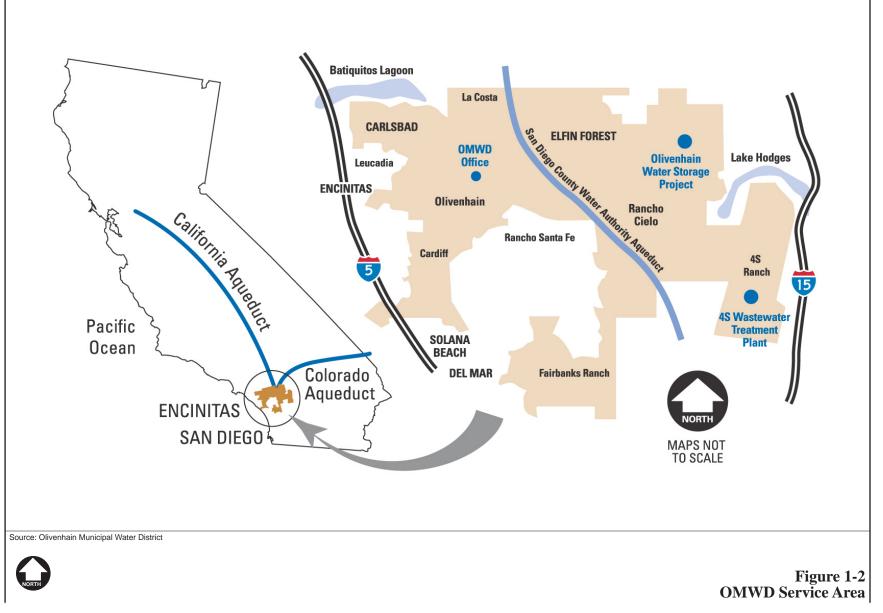
OMWD's mission is designed to serve present and future customers with a safe, reliable, highquality water supply that meets or exceeds all regulatory requirements in a cost-effective and environmentally responsible manner. To this end, OMWD has undertaken this storage and recovery project to improve the quality and reliability of water provided to customers in the western portion of its service area. The OMWD service area is shown in Figure 1-2.

1.1.1 <u>Project Overview</u>

OMWD is responsible for serving the various needs of 52,000 customers throughout its 48-square-mile service area. As one of the 23 member agencies associated with the San Diego County Water Authority (Water Authority), OMWD purchases water from the Water Authority and then stores and distributes water to its customers on an as-needed basis. However, water purchased from the Water Authority comes predominantly from sources outside San Diego County, in particular, from northern California (the State Water Project) via the California



San Dieguito Storage and Recovery Project EIR GIS/2003/2k035/Mxd/Figure 1-1 Project Location.mxd SP83f F6 (E. Coughlin) 6/17/04



San Dieguito Storage and Recovery Project EIR Graphics 2K035 OMWD Groundwater Recharge Jonwed service area. Fh11 3/31/04

Aqueduct and from the Colorado River. This imported water is purchased from the Metropolitan Water District (MWD) and comprises more than 90 percent of the water consumed throughout San Diego County, including the OMWD service area.

In an effort to reduce the level of dependency on imported water, to control costs, to ensure safety and reliability, and to promote responsible use and reuse of this county's water resource, OMWD has determined that the use of potable water for irrigation purposes represents an inefficient use of the available water resource. Thus, OMWD operates and maintains the 4S Ranch Wastewater Treatment Plant (4S Ranch WWTP) for the purpose of providing reclaimed water as a replacement for potable water currently being used for irrigation by OMWD customers. This is in keeping with the goals of the California Water Code, Division 7, Chapter 7, *Water Recycling Law*, whereby water purveyors are encouraged to make good use of recycled water.

The Regional Water Quality Control Board (RWQCB) supports the practice of water reclamation and reuse and is responsible for reviewing and permitting all projects involving the delivery of reclaimed water. Use of reclaimed water is further controlled by statewide reclaimed water use standards developed by the State Department of Health Services (DHS), in conformance with CCR, Title 22. These criteria permit use of reclaimed water for, among other uses:

- Landscape irrigation of golf courses, cemeteries, freeway landscapes, and similar areas;
- Irrigation of parks, playgrounds, schoolyards, and similar areas;
- Landscape impoundments (for aesthetic enjoyment or other functions, but where no body contact is allowed); and
- Groundwater recharge of domestic water supply aquifers (RWQCB 1994).

OMWD produces tertiary-treated (Title 22) water at the 4S Ranch WWTP in full recognition of and compliance with applicable water quality policies, standards, regulations, codes, and laws, and with the intent of augmenting the supply of water available to customers in the OMWD service area. Discharge specifications for the 4S Ranch WWTP are shown in Table 1-1.

| Constituent | Units | Daily Max ¹ | Monthly Average ² | 12-Month Average ³ |
|--|--|------------------------|------------------------------|----------------------------------|
| Biochemical Oxygen Demand (BOD ₅ at 20°C) | mg/l | 45 | 30 | |
| Total Suspended Solids (TSS) | mg/l | 45 | 30 | |
| pH | Within the limits of 6.0 to 9.0 at all times | | | |
| Total Dissolved Solids (TDS) | mg/l | 1,200 | | * |
| Chloride | mg/l | 350 | | |
| Sulfate | mg/l | 350 | | |
| Percent Sodium | % | 65 | | 60 |
| Iron | mg/l | 1.0 | 0.85 | |
| Manganese | mg/l | 0.20 | 0.15 | |
| Methylene Blue Active Substances | mg/l | 0.6 | 0.5 | |
| Boron | mg/l | 1.0 | | 0.75 |
| Fluoride | mg/l | 1.2 | 1.0 | |

Table 1-14S Ranch WWTP Discharge Specifications

¹ The daily maximum effluent limitation applies to the result of a single composite or grab sample.

² The monthly average effluent limitation applies to the arithmetic means of the results of all samples collected during any 12 consecutive calendar day period.

³ The 12-month average effluent limitation applies to the arithmetic mean of the results of all samples collected during any 12 consecutive calendar day period.

* The increment of TDS in effluent over supply water cannot exceed 400 mg/L, up to a maximum value of 1,500 mg/L.

In issuing the Master Reclamation Permit to OMWD for the production of recycled water at the 4S Ranch WWTP (RQWCB 2003), the RWQCB imposed certain discharge requirements, as follows:

- <u>Flow Rate</u> The average daily flow rate of reclaimed water from the facility is required to be limited to 1.6 million gallons per day (MGD); however, approval of an increase in the flow rate to 2.0 MGD to allow for wet-weather storage is currently pending.
- <u>Treatment Level</u> Recycled water used for landscape irrigation purposes requires treatment to the most restricted level in conformance with the provisions of California Code of Regulations, Title 22, Division 4, Chapter 3 (Reclamation Criteria).
- <u>Water Quality Limitations</u> Recycled water produced at the facility is required to meet the following water quality limitations:
 - <u>Bacteria</u> The median concentration of total coliform bacteria measured in the disinfected recycled water effluent cannot exceed a Most Probable Number (MPN) of 2.2 per 100 milliliters over a period of seven sample analyses, and cannot exceed an MPN of more that 23 per 100 milliliters in more than one sample in any 30-day period.

<u>Turbidity</u> - Turbidity concentration of the recycled water effluent cannot exceed a daily average value of 2 NTU (nephelometric turbidity units), and cannot exceed 5 NTU more than 5% of the time during a 24-hour period. Turbidity cannot exceed 10 NTU at any time.

Monitoring and reporting (monthly, quarterly, and annually) are an integral part of the Master Reclamation Permit. These procedures are designed to assure that all recycling processes are in compliance with the terms and conditions of the permit.

In accordance with RWQCB Order No. R9-2003-0007 (Master Reclamation Permit with Waste Discharge Requirements for the Production and Purveyance of Recycled Water for Olivenhain Municipal Water District 4S Ranch Wastewater Treatment Plant, San Diego County) (RWQCB 2003), OMWD proposes to deliver tertiary-treated reclaimed water from 4S WWTP to four specific customer locations in the lower San Dieguito Valley. The customers include Fairbanks Ranch Country Club (Fairbanks Ranch CC), Morgan Run Resort and Club (Morgan Run), Del Mar Country Club (Del Mar CC), and Rancho Santa Fe Farms Golf Course. These customers will be provided reclaimed water under separate contracts with OMWD as a customary procedure for new customer hook-ups.

However, one of the requirements stipulated by the RWQCB in the Master Reclamation Permit calls for OMWD to dispose of up to 1.2 MGD (soon to be increased to 2.0 MGD) during the wet season, when demand for reclaimed water is low. Thus, in compliance with this permit requirement, OMWD has undertaken a search for appropriate locations to either store or dispose of excess reclaimed water during the wet season. Two destinations have been identified. The first delivery destination is Fairbanks Ranch CC and the second delivery location is Morgan Run. Fairbanks Ranch CC is the first phase of the storage and recovery project and Morgan Run is the second phase, as described below.

Phase I (Fairbanks Ranch CC) involves the delivery of water to an existing surface water impoundment in the northern part of Fairbanks Ranch CC and would be constructed first. OMWD would deliver the water via an existing connection to a raw water pipeline (Main Extension 153), which is planned to be operationally converted to a nonpotable water conveyance structure to deliver tertiary treated water from the 4S Ranch WWTP to the San Dieguito Valley. The location of Fairbanks Ranch CC is shown in Figure 1-1.

In Phase II of the Project (Morgan Run), OMWD would deliver tertiary-treated water from their 4S Ranch WWTP to Morgan Run for groundwater storage. Delivery would be made via the

existing OMWD pipeline to three groundwater injection/extraction wells to be constructed in the extreme southeastern corner of Morgan Run. Each well would contain a submersible pump and a flow control valve; thus, each well would be capable of pumping and injecting groundwater. The Project would also include on-site pipelines to convey the water to and from the well locations. The boundaries of the storage/recovery site are depicted in Figure 1-1 and generally coincide with the Morgan Run property line on the east and south, the Morgan Run driving range fence and the San Dieguito River on the west; and on the north, by the cart path separating Fairway 1E from Fairways 2E and 1S. The southern boundary of Morgan Run coincides with the jurisdictional boundary between the County of San Diego to the north and the City of San Diego to the south. Morgan Run is wholly situated in San Diego county and the OMWD service area.

1.1.2 <u>Previous Environmental Documentation</u>

In October 2002, a project similar to the proposed Project that is the subject of this EIR was proposed and evaluated. An environmental document was prepared, entitled *Initial Study and Draft Mitigated Negative Declaration for the San Dieguito Groundwater Recharge and Recovery Project* (SCH #2002101060) (EDAW 2002). This document is included in Appendix A. The underground storage project evaluated in the previous environmental document was much larger in scale than Phase II of the proposed Project. In response to comments made at the public hearing in November 2002 by concerned citizens from the Whispering Palms Community, the OMWD Board of Directors instructed staff to prepare an EIR. The Initial Study (IS)/Mitigated Negative Declaration (MND) was not adopted and the environmental review process was terminated in December 2002 in favor of preparing a Draft EIR.

Subsequent studies and analyses were undertaken during 2003 and continued into 2004, focusing on the identification and evaluation of alternative sites, further testing and evaluation of the groundwater aquifer, and the conduct of protocol surveys for least Bell's vireo and arroyo toad. Light-footed clapper rail (*Rallus longirostris levipes*) 2004 survey data was obtained from biologist Richard Zembal for the portion of the San Dieguito River adjacent to the Fairbanks Ranch CC. The results of these investigations are included in this EIR.

1.2 PURPOSE AND SCOPE OF REPORT

The purpose of this EIR is to identify and assess potential impacts to the physical environment with the implementation of the San Dieguito Water Storage and Recovery Project. This EIR has

been prepared to assist decision-makers in their evaluation of the potential environmental consequences of the proposed Project.

Under CEQA, an IS is used in part to determine the most appropriate CEQA compliance action, such as a Negative Declaration or EIR. Additionally, if an EIR is required, an IS is used to assist the preparation of the EIR by:

- Focusing the Draft EIR on the effects determined to be potentially significant;
- Identifying the effects not found to be significant; and
- Explaining the reasons for determining that potentially significant effects would not be significant.

As described in Section 1.1.2, an IS/MND (Appendix A) was prepared for the previously proposed Project. That IS/MND was based in part on technical studies, field investigations, and other analyses that had been undertaken for the full range of environmental issues associated with preparation of an IS under Section 15063(f) of the CEQA Guidelines. Based on the analyses presented in the IS/MND, only three issues were deemed potentially significant: hydrology, biological resources, and cultural resources. This holds true for the Fairbanks Ranch CC (Phase I) component as well. Therefore, this EIR focuses only on those three issues. All issue areas not evaluated in detail in Chapter 3.0 of this EIR are addressed, as required by CEQA, in Section 5.4 (Effects Found Not to Be Significant).

1.3 ENVIRONMENTAL PROCEDURES UNDER CEQA

This EIR is prepared to evaluate and disclose the potential environmental effects associated with the proposed Project. OMWD is the lead agency under CEQA (Public Resources Code, §21000 et seq., as amended) and the implementing guidelines (CCR, Title 14 §15000 et seq.).

In accordance with the CEQA Guidelines, OMWD distributed a Notice of Preparation (NOP) on November 10, 2003, to public agencies and organizations as well as to individuals with a possible interest in the proposed Project. The purpose of a NOP is to disclose that the lead agency plans to prepare a Draft EIR and to solicit input on the scope and contents of the Draft EIR. One written response to the NOP was received. The response and the NOP are included in Appendix B. After completion of the Draft EIR, OMWD filed a Notice of Availability (NOA) with the San Diego County Clerk and issued the NOA (Appendix B) to all Responsible and Trustee Agencies and to all persons or organizations requesting a copy of the document. In addition, the NOA was published in local newspapers and mailed to residents and owners of properties contiguous to the proposed Project site.

Concurrent with the notice provided by the NOA, OMWD filed a Notice of Completion (of the Draft EIR) with the Governor's Office of Planning and Research (OPR), which among other duties serves as the State Clearinghouse for CEQA coordination. OPR has taken responsibility for the timely distribution of the Draft EIR to Responsible and Trustee Agencies for their review and comment. OMWD was responsible for distributing, or making available, copies of the document to the public. A copy of the Draft EIR for this Project was also posted on OMWD's internet website (www.olivenhain.com).

The Draft EIR was available for review by the public and interested parties, agencies, and organizations for a 45-day review period, in compliance with §15105 of the CEQA Guidelines. During the public review period, reviewers provided comment on the adequacy of the document in identifying and analyzing significant effects on the environment, together with the ways in which the impacts might be mitigated. Following the close of the 45-day public comment period, responses to comments on the Draft EIR were prepared and published in the Final EIR. The Draft EIR was revised based on comments received.

Prior to approval of the proposed Project, CEQA requires the lead agency to adopt "findings" with respect to each significant environmental effect identified in the EIR (Public Resources Code, §21981; CEQA Guidelines §15091). In the event that the lead agency (OMWD) concludes that the Project will result in significant effects, which are identified in the EIR but are not substantially lessened or avoided by feasible mitigation measures and alternatives, OMWD must adopt a "statement of overriding considerations" prior to approval of the project. Such statements are intended under CEQA to provide a written measure by which a lead agency balances the benefits of the project and the significant and unavoidable environmental impacts. Where the lead agency concludes that the economic, legal, social, technological, or other benefits outweigh the unavoidable environmental impacts, the lead agency may find such impacts acceptable and approve the project.

In addition, pursuant to \$21081.06 of the Public Resources Code, public agencies, when approving a project, must also adopt a mitigation monitoring and reporting program (MMRP) for the changes that were incorporated into the project or made a condition of project approval to

mitigate or avoid significant effects on the environment. The MMRP is adopted at the time of project approval and must be designed to ensure compliance during project implementation. Upon approval of the project, OMWD will be responsible for implementation of the MMRP, using guidance provided by OPR in their CEQA Technical Advice publication entitled "Tracking CEQA Mitigation Measures Under AB 3180."

1.4 ORGANIZATION OF THE ENVIRONMENTAL IMPACT REPORT

Consistent with the policies and guidelines set forth in CEQA, the purpose of this EIR is to provide decision-makers and the public with information about the environmental consequences and benefits of the proposed Project and Project alternatives. The EIR is intended to facilitate the objective evaluation of potentially significant direct, indirect, and cumulative impacts of the proposed Project, and to identify potential feasible mitigation measures and alternatives that reduce or avoid the proposed Project's significant effects. Project-related consequences are determined by describing the existing environmental setting, superimposing the proposed Project were implemented. Each phase of the Project (Phase I – Fairbanks Ranch CC and Phase II – Morgan Run) are analyzed separately and in combination.

This EIR includes all required contents to comply with CEQA and the CEQA Guidelines. Following this introductory chapter, Chapter 2.0 (Project Description) provides a detailed characterization of the proposed Project, the existing baseline environmental setting against which OMWD can determine whether any given potential Project-related impact is considered to be significant, and identification of the approvals required to construct and operate the proposed Project as well as a general description of Project alternatives. Chapter 3.0 (Environmental Analysis) contains an evaluation of the potential impacts of the proposed Project and their significance, together with measures that have been proposed to avoid, reduce, or otherwise mitigate the potential significant adverse effects of the proposed Project. In Chapter 4.0 (Cumulative Impacts), the incremental additive effect of the proposed Project is considered in relation to other projects that have been proposed or are under construction within the impact area of the proposed Project. In Chapter 5.0 (Other Considerations Required by CEQA), several other potential effects of the proposed Project are evaluated, including significant environmental effects that cannot be avoided if the proposed Project is implemented, significant irreversible environmental changes that would be caused by the proposed Project should it be implemented, growth-inducing impacts of the proposed Project, and effects found not to be significant. Project alternatives are identified and assessed in Chapter 6.0 (Alternatives). References used during the preparation of this EIR are itemized in Chapter 7.0 (References). In Chapter 8.0 (List of Preparers and Contributors), the individuals/organizations responsible for preparation of the EIR or who were consulted during its preparation are identified. Chapter 9.0 (Comments and Responses to Comments) includes the letters that were received during the public review period and the responses to those comments. Appendix A contains the IS/MND. Appendix B includes notices and scoping information. Appendix C contains the hydrology study.

Each phase of the proposed Project (Phase I – Fairbanks Ranch CC and Phase II – Morgan Run) is described and analyzed independently in Chapters 2.0 and 3.0, and then in combination in Chapter 5.0 to determine the combined cumulative effect of the proposed Project.

1.5 AREAS OF KNOWN CONTROVERSY

Based on comments received on the NOP, during the public scoping meeting (see Appendix B), during public review of the Draft EIR, and via correspondence and other communications, the areas of concern expressed by members of the public and agency representatives are as follows: Biological Resources, Cultural Resources, and Hydrology/Water Quality. Each of these issue areas is addressed at an appropriate level of detail in this EIR.

1.6 CONSULTATION AND COORDINATION

Agencies

As lead agency for this proposed Project, OMWD has coordinated with the following agencies:

- California Water Quality Control Board, Region 9 (RWQCB)
- California Department of Fish and Game (CDFG)
- U.S. Fish and Wildlife Service (USFWS)
- San Dieguito Planning Group
- San Dieguito River Park Joint Powers Authority (JPA)
- San Diego Air Pollution Control District
- San Diego County Water Authority
- Metropolitan Water District (MWD)

- San Diego County Department of Health Services (DHS)
- San Diego County Department of Planning and Land Use (DPLU)

Project meetings and discussions were held with resource agency personnel and expert biologists throughout the EIR process in order to address potential effects to the federally and state-listed endangered light-footed clapper rail, which occurs within the San Dieguito River adjacent to the project area. A field site meeting was conducted on October 28, 2004, where USFWS and CDFG biologists were able to assess the habitat and flow conditions along the San Dieguito River adjacent to the project following a relatively heavy storm event. On November 3, 2004, a meeting was held between project staff, the USFWS, CDFG, and light-footed clapper rail expert Richard Zembal. The meeting addressed the general biology of the species, as well as site-specific topics, such as behavior, distribution, and habitat availability. As a result of the various discussions, the USFWS and CDFG determined that they had sufficient information to prepare a letter addressing the resource agencies' analysis of potential effects of the project on the species.

<u>Public</u>

As required by CEQA, various public meetings have been held throughout the environmental documentation process. In addition, OMWD has organized and conducted multiple meetings and otherwise coordinated with the Whispering Palms Homeowners Association and other homeowners situated in proximity to the proposed Project. OMWD met with and corresponded with the Whispering Palms Community Council, related Homeowners Associations, and other interested parties on several occasions, including the following events:

| <u>Date</u> | Purpose |
|-------------------|--|
| November 18, 2002 | Community Meeting at Morgan Run County Club, including a presentation to Whispering Palms Community Council and related Homeowners Associations to brief the residents about the proposed Project |
| November 27, 2002 | Public hearing at OMWD Board Meeting |
| October 24, 2003 | Project status letter to Whispering Palms Community Council, property owners, and residents |

| March 16, 2004 | Presentation at the Whispering Palms Community Council annual meeting to provide updated status of the Project, the hydrology study results, plans for future hydrogeologic testing, and the new above-ground (Phase I) water storage alternative |
|----------------------|--|
| August 17, 2004 | Presentation to the Whispering Palms Community Council to provide a project status update |
| September 22, 2004 | Public hearing at OMWD Board Meeting |
| December 8, 2004 | Public hearing at OMWD Board Meeting |
| <u>Organizations</u> | |

The District also strived to coordinate with key planning organizations throughout the course of the environmental review period, including the following meetings:

| Date | <u>Purpose</u> | | | | | | | | |
|--------------------|---|--|--|--|--|--|--|--|--|
| October 28, 2002 | Project status meeting with San Dieguito River Park Project Review Committee | | | | | | | | |
| November 7, 2002 | Public meeting at San Dieguito Planning Group | | | | | | | | |
| February 24, 2003 | Project status meeting with San Dieguito River Park Project Review Committee | | | | | | | | |
| September 20, 2004 | Project status meeting with San Dieguito River Park Project Review Committee | | | | | | | | |
| November 18, 2004 | Public meeting at San Dieguito Planning Group | | | | | | | | |

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CHAPTER 2.0 PROJECT DESCRIPTION

2.1 **PROJECT LOCATION**

Both Phases of the proposed project are located within San Diego County with Phase I situated within the jurisdiction of the City of San Diego, while the Phase II site is located wholly within the OMWD service area and the jurisdiction of the County of San Diego (lower San Dieguito Valley). As depicted in Figure 1-1, Phase I (the surface water component of the Project) is situated on Fairbanks Ranch CC. Phase II (the groundwater component) is located in the extreme southeastern corner of Morgan Run.

2.2 **PROJECT OBJECTIVES**

The proposed Project is being considered in order to maximize utilization of surface and groundwater storage capacity, improve water quality, and increase the dry-year groundwater supply within the basin.

Specific objectives for Phase I and Phase II of the Project are as follows:

<u>Phase I – Delivery and Storage of Reclaimed Water at Fairbanks Ranch CC Surface Water</u> <u>Impoundments</u>

- Comply with applicable water quality objectives under the Clean Water Act; the Porter-Cologne Water Quality Control Act; and with other applicable federal, state, and local policies and goals, as set forth in the RWQCB's current *Water Quality Control Plan for the San Diego Basin (9)* (1994);
- Deliver high-quality, treated water to partially offset the dependence on potable water for general landscape irrigation purposes;
- Store excess reclaimed water in Fairbanks Ranch CC surface water impoundments, where it can be modulated for use throughout the facility on an as-needed basis;
- Satisfy the RWQCB's requirement for an 84-day emergency storage period of reclaimed water for the 4S Ranch WWTP, as specified in OMWD's Master Reclamation Permit (RWQCB 2003); and

• Provide for intermittent storage and discharge and release of excess water to Fairbanks Ranch and the San Dieguito River, as required, and with approval of the RWQCB.

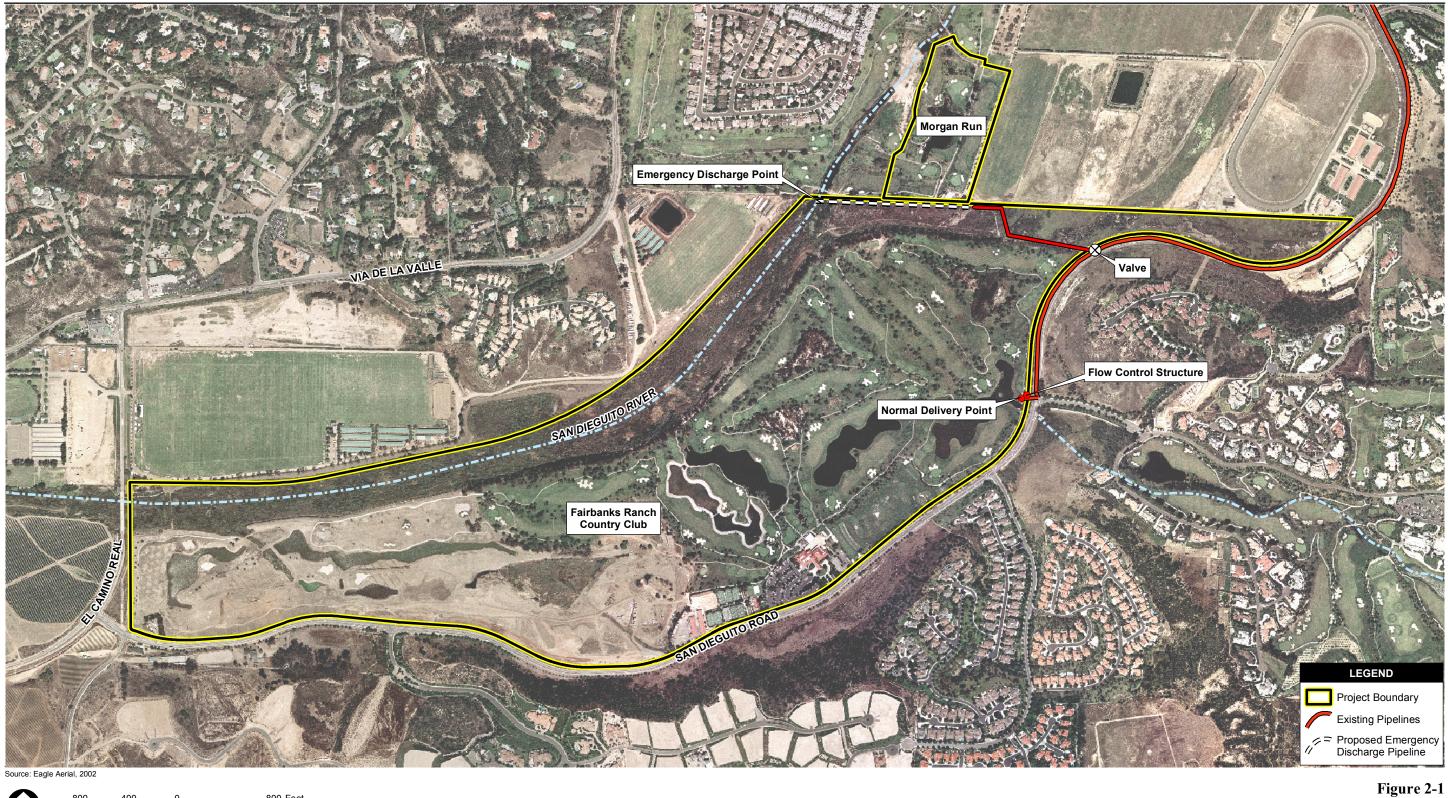
<u>Phase II – Delivery and Storage of Reclaimed Water in Groundwater Aquifer at Morgan</u> <u>Run</u>

- Comply with applicable water quality objectives under the Clean Water Act; the Porter-Cologne Water Quality Control Act; and with other applicable federal, state, and local policies and goals, as set forth in the RWQCB's current *Water Quality Control Plan for the San Diego Basin (9)* (1994);
- Store excess reclaimed water in the San Dieguito basin during the wet season for future extraction and use as irrigation water during the dry season;
- Satisfy the RWQCB's requirement for an 84-day emergency storage period of reclaimed water for the 4S Ranch WWTP, as specified in OMWD's Master Reclamation Permit (RWQCB 2003); and
- Improve groundwater quality in the basin.

2.3 ENVIRONMENTAL SETTING

The proposed Project is situated in rural San Dieguito Valley, where the openness of large landholdings, residential estates, recreational facilities, and the San Dieguito River riparian corridor dominate the environmental setting within the valley floor. Bordering the valley in upland areas to the north and south are the residential communities of Rancho Santa Fe and Fairbanks Ranch, respectively. The Phase I site is situated within the jurisdiction of the City of San Diego, while the Phase II site is located wholly within the OMWD service area and the jurisdiction of the County of San Diego. Refer to Figure 1-1.

The boundary of the Phase I Fairbanks Ranch CC site is depicted in Figure 2-1; however, the Project footprint only includes only the connected series of surface water impoundments on that property. These impoundments extend from the northern-most impoundment, where an existing connection to the OMWD Main Extension 153 Pipeline is in place to deliver water to Fairbanks





San Dieguito Storage and Recovery Project EIR GIS/2003/2k035/Mxd/Figure 2-1 Site Layout.mxd SP83fF6 (E. Coughlin) 11/22/04

Figure 2-1 Phase I Site Location

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Ranch CC in fulfillment of a service agreement. Thus, the site-specific environmental setting for the Phase I component is predominated by the fairways, greens, cart paths, landscaping, and surface water impoundments that characterize Fairbanks Ranch CC. San Dieguito Road, a two-lane arterial, completes the setting. Recently, Fairbanks Ranch CC has added a 9-hole expansion to the existing 18-hole golf course at a location approximately 0.75 mile west of the Phase I site, in an area bordered by San Dieguito Road (on the south), El Camino Real (on the west), the San Dieguito River (on the north), and the existing 18 holes (on the east). Refer to the photos in Figure 2-2 for a depiction of the Phase I area.

Morgan Run, the Phase II site, is surrounded by various land uses and developments, as depicted in Figure 2-3. Situated in the extreme southeastern corner of Morgan Run, the site of the proposed Project is bordered by the Morgan Run Driving Range and the San Dieguito River on the west, the green for Hole 1E (on Morgan Run's East Course) on the north, open pasture and grazing at Rancho Paseana on the east, and Fairbanks Ranch CC on the south. A residential area (the Whispering Palms Community) exists across the San Dieguito River approximately 750 feet west of the westernmost portion of the proposed Project site. Currently, the entire site area is dedicated to Morgan Run golf course facilities, including Holes 1S and 2S on the South Course; Holes 2E and 3E on the East Course; and South Lake, an impoundment approximately 3 acres in size that provides surface storage for golf course irrigation water. Paved golf cart paths, unpaved maintenance roads, and grassed fairway/green fringe areas generally surround the aforementioned facilities. Figure 2-4 shows views of the area.

The environmental setting (pre-Project baseline conditions) at Fairbanks Ranch CC and Morgan Run are discussed in greater detail in Chapter 3.0 of this document.

2.4 OVERVIEW OF PROPOSED PROJECT

2.4.1 <u>Phase I – Surface Water Component</u>

Phase I of the proposed Project is designed to deliver an unspecified quantity of excess Title 22 (tertiary-treated) reclaimed water from 4S Ranch WWTP to the Fairbanks Ranch CC during wetweather periods using the same supply system currently designed for delivery of the irrigation water to this OMWD customer.

Phase I would not involve the installation or modification of water-delivery infrastructure; rather, the small flow control facility on the 6-inch supply line would provide a means of regulating the flow of excess reclaimed water delivered to the site in accordance with the requirements of the





Figure 2-2 Views of Fairbanks Ranch



San Dieguito Storage and Recovery Project EIR 2002/2K035/GIS/mxd/Figure 2-3 Phase 2 Site Location.mxd SP83 z6f (E.Coughlin) 7/15/04



Figure 2-4 Views of Morgan Run Resort and Club

golf course and OMWD's wet-weather water delivery needs. The location of the supply pipeline and flow control structure is illustrated in Figure 2-1.

Phase I Construction

No construction activities would be necessary for Phase I (i.e., no installation or modification of water-delivery infrastructure would be necessary) because OMWD would deliver the excess water, not to exceed 6.13 AF/day (2 million gallons per day), via the existing Main Extension 153, which is planned to be operationally converted to a nonpotable water conveyance structure to deliver water from the 4S Ranch WWTP to the San Dieguito Valley. In the event that the four Fairbanks Ranch CC ponds reach capacity, delivery of recycled water to the ponds would cease. This would occur by diversion of the water by an electronically activated valve proposed for installation in the 10-inch diameter delivery pipeline upstream of its delivery to the ponds. The water would be diverted to a proposed approximately 200-foot long 10-inch diameter connector between the valve and the Morgan Run Bridge, which is at the southern end of Morgan Run Golf Course. The excess water would then be discharged directly into the San Dieguito River via a 10-inch diameter pipe attached to the Morgan Run Bridge, which is the third picture depicted in Figure 2-4. Phase I (i.e., the diversion to the Fairbanks Ranch CC ponds, and the discharge to the San Dieguito River) would occur only during "high flow periods," or the wet season, when the flow rate of the San Dieguito River equals or exceeds 30 cubic feet per second (cfs). The maximum flow rate from the discharge pipe would not exceed 3 cfs. Emergency discharge would occur only during wet seasons when the Fairbanks Ranch CC ponds are at capacity and would specifically occur only between the months of October to February avoid discharge during the month of March due to sensitive breeding seasons of downstream wildlife, as discussed in Section 3.2.

Phase I Project Operation

Operation of the Project would require occasional servicing of pipeline valves and the flow control structure to maintain proper functioning, but that would be undertaken during the normal course of operation and maintenance activities conducted to assure the safe and reliable delivery of water in fulfillment of the contract between Fairbanks Ranch CC and OMWD.

At the 4S Ranch WWTP, OMWD produces and purveys reclaimed water in accordance with the terms of its Master Reclamation Permit. Wastewater is treated to a level that meets or exceeds California Title 22 Regulations for unrestricted irrigation.

2.4.2 Phase II – Groundwater Component

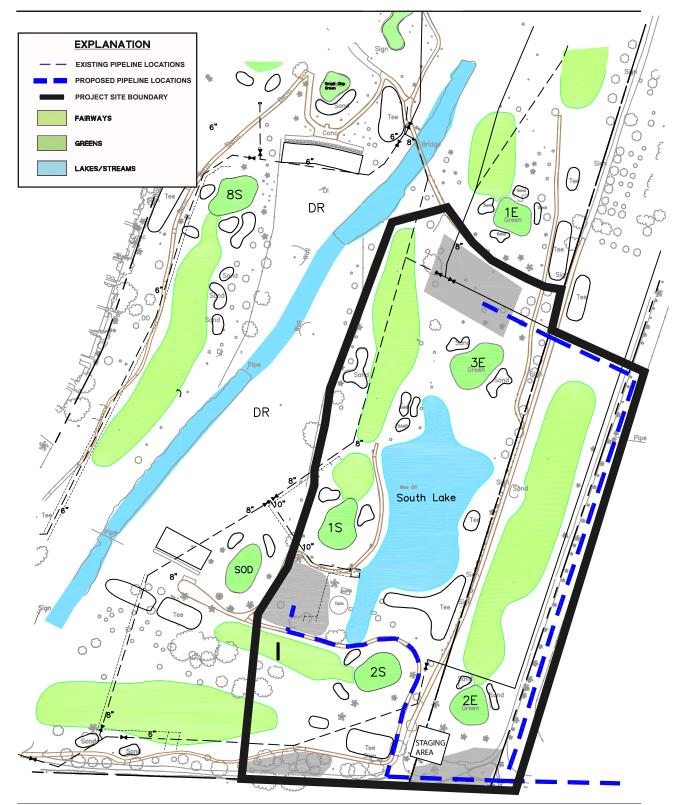
To implement Phase II of the proposed Project, OMWD plans to deliver up to 150 acre-feet per year (AF/yr) of excess Title 22 (tertiary-treated) reclaimed water during wet-weather periods. The water would be delivered to the Morgan Run site via an existing water delivery system, Main Extension 153, to designated injection well locations, as shown in Figure 2-5. The injection wells would be used to store the water in an alluvial aquifer located approximately 80 to 150 feet belowground. During wet seasons, the estimated total injection would be 150 AF/yr. Withdrawal from the aquifer would vary from year to year, but it would not exceed the net amount of water injected. Existing water resource demands on the basin consist primarily of groundwater pumping for irrigation. Surveys of local groundwater users indicate that approximately 1,700 AF/yr is currently pumped out of the basin from 32 wells.

Phase II of the proposed Project would involve installation of multiple (3 to 4) wells for the groundwater injection and extraction operations. Although the exact location and number of wells needed have not yet been fully determined, this EIR takes into account the construction of three well locations on the Morgan Run golf course, as identified in Figure 2-5. Each well would contain a submersible pump and a flow control valve. Thus, each well would be capable of pumping and injecting groundwater. Typical aboveground and vaulted wellheads are shown in Figure 2-6.

Phase II would also include a small flow control structure and pipelines installed onsite at Morgan Run to convey the water to and from the well locations. A filtration/chlorination system may also be installed. It is anticipated that the pipeline network would be located in previously disturbed areas within the boundaries of the Project as described above and, where necessary, the pipeline would extend into the interior portions of the golf course to connect to individual wellheads as depicted in Figure 2-5. OMWD owns an existing raw water pipeline, Main Extension 153, which currently transports raw water from a connection with the Water Authority's Second Aqueduct at Artesian Road to nonpotable uses in the San Dieguito Valley. It is anticipated that this pipeline would be operationally converted to a combination raw and reclaimed water pipeline and utilized by the proposed Project.

Phase II Construction

Phase II construction activities would include the installation of up to three injection/recovery wells, and construction of associated pipeline connections between the source water delivery



Source: Hargis +Associates, Inc.



Figure 2-5 Site Layout (Phase II)

San Dieguito Storage and Recovery Project EIR Graphics 2K035 OMWD Groundwater Recharge/fig2_5welllocsBTR.ai (dbrady) 12/2/04



Example of typical aboveground wellhead.



Example of typical belowground vault.

Figure 2-6 Photographs of Aboveground and Vaulted Wellheads point and each of the wellheads. The anticipated scope of construction activities for well and pipeline construction is discussed below.

Injection/Recovery Wells – Wells would typically consist of a housing that contains the instrumentation and underground pipes associated with the injection and extraction of the water. In each well, a submersible pump and a control valve would be installed below grade, enabling the well to pump and inject water. Typically, construction of a well involves drilling to the necessary depth, installing the well casing, and completing the well to land surface. Drilling to a depth of approximately 100 to 150 feet belowground is anticipated. Control of hazardous materials, such as fuel and drilling mud waste, would be maintained. Easements and rights-ofway would be required from Morgan Run and the County of San Diego for construction, installation, operation, and future servicing of the well system. Each well would take 4 to 7 days to drill and construct and would require a workforce of approximately four persons throughout the construction process. Construction would take place between 7 a.m. and 7 p.m., 6 days a week excluding Sunday, as specified in Title 3, Division 6, Section 36.410 of the County of San Diego Code of Regulatory Ordinances. The equipment typically needed for installation of wells and related wellhead equipment includes a backhoe, drilling rig, support trucks, and pickup trucks. The wells would then be connected to the source water via the pipeline network (refer to Figure 2-5).

One staging area would be necessary to store construction equipment, materials, and vehicles for well construction. The potential staging area is illustrated on Figure 2-5. Three to four smaller laydown areas may also be required, the locations of which would be coordinated with the golf course manager.

Pipeline Network – The 6-inch pipeline network would be installed using the trenching method. This cut-and-cover construction technique involves a certain length of trench excavation (typically 300 to 500 feet at a time). Pipe is then laid and joined to the previous length, and the trench is backfilled. This type of pipeline installation is surface disturbing and may require landscape restoration, noise control, relocation of existing utilities, and other measures to reduce disruption to both human and environmental resources. Typical construction equipment needed for pipeline trenching includes a backhoe, crane, rubber-tire bulldozer, forklift, roller compactor, and dump trucks. A construction corridor of approximately 25 feet is assumed, based on the installation of a 10-inch pipe. Narrower widths may be achievable in certain areas, if necessary. It would be necessary to obtain easements and rights-of-way from Morgan Run for installation and future servicing of the pipelines. The trench would be excavated to a depth of approximately 3 to 6 feet. Pipeline construction is estimated to occur over a period of approximately 6 months

and would require a workforce of approximately 6 to 10 persons throughout the duration of the construction. Construction activities would take place between 7 a.m. and 7 p.m., 6 days a week (excluding Sundays). The staging and laydown areas described above for wellhead construction could potentially also be used as staging for pipeline construction.

Phase II Project Operation

Once constructed, all pipelines would be located underground and only minor pump and wellhead components would be situated aboveground. The aboveground components related to the pumps and wellheads would consist of vaults installed flush with land surface or small shed-like structures. Operation of the Project would require occasional servicing of the pipeline and wellhead components to maintain proper function. Existing golf course service roads and cart paths would be used for this purpose.

Multiple water reclamation facilities are under consideration to provide reclaimed water for injection into the aquifer. The three potential sources for reclaimed water include the 4S Ranch WWTP, Santa Fe Valley Water Reclamation Plant (WRP), and the City of San Diego North City Wastewater Reclamation Plant, via Black Mountain Ranch pipelines. Reclaimed water facilities treat wastewater to a level that meets or exceeds California Title 22 Regulations for unrestricted irrigation. Each facility is described below.

- The 4S Ranch WWTP is located east of Dove Canyon Road in the 4S Ranch Community. This plant currently operates as a secondary treatment facility with a capacity of approximately 2.0 million gallons per day (MGD). The plant has existing tertiary capacity at 1.0 MGD that will be increased to 2.0 MGD by September 2004. OMWD owns, operates, and maintains this facility.
- The Santa Fe Valley WRP is a water reclamation facility in the Santa Fe Valley Specific Planning Area near Artesian Road. The facility has tertiary treatment capacity of up to 0.5 MGD.
- The City of San Diego North City Wastewater Reclamation Plant is an existing facility located adjacent to I-805 and Miramar Road. That facility's pipelines and pumping stations will supply Title 22 treated water to the Black Mountain development area and a future connection to the MWD's system at the OMWD Main Extension 153 pipeline at Artesian Road by January 2005.

Once the proposed Project is in operation, results would be monitored. The process of monitoring the aquifer would involve measuring flow rates and water levels in the extraction and injection wells and nearby monitoring wells, and monitoring water quality in wells in the proposed Project area.

2.5 **PROJECT ALTERNATIVES**

Throughout the course of planning for this Project, OMWD has identified and considered many options, including alternative Project sites, alternative Project size and configuration, avoiding or minimizing equipment impact, aboveground and belowground storage options, and the No-Project alternative. With the exception of the No-Project alternative, the range of alternatives considered by OMWD represents the options that could reasonably achieve the purpose of the Project and meet the objectives identified in Section 2.2 of this chapter.

The process employed to identify, evaluate, and compare feasible Project alternatives is detailed in Chapter 6.0 (Alternatives), together with the results of the analysis that led to OMWD's focus on the proposed Project. A comparison matrix presents the criteria used in the analysis and is employed to illustrate a structured and reasoned choice. The rationale for eliminating alternatives deemed not to meet the Project purpose and need is also addressed in Chapter 6.0, together with an evaluation of the No-Project alternative.

2.6 APPROVALS AND PERMITS

It is anticipated that the following permits and approvals would be required from other public agencies for the proposed Project:

| | Permit Type / Action | <u>Agency</u> |
|---|--|---------------------|
| ٠ | General Construction Activity/Storm Water Permit/ Construction activity in areas greater than 5 acres | RWQCB |
| • | Waste Discharge Requirement Permit | RWQCB |
| • | National Pollution Discharge Elimination System (NPDES) Permit | RWQCB |
| • | Well Installation Permit | County of San Diego |
| • | Review and Approval of Engineering Report | DHS |

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CHAPTER 3.0 ENVIRONMENTAL ANALYSIS

This section describes the existing conditions of the Project study area and the environmental impacts that would occur with implementation of each phase of the proposed Project. As mentioned in Chapter 1.0, this analysis focuses only on those environmental issues determined to be potentially significant: hydrology/water quality, biological resources, and cultural resources. All other issue areas were found not to be potentially significant and are addressed in Chapter 5.0.

The analysis of each of these three subject environmental issue areas includes a description of the existing conditions within the project study area; the thresholds for determining significance; an evaluation of how the specific resources would be affected by implementation of the proposed Project; mitigation measures to reduce significant impacts; and the residual impacts after mitigation.

3.1 HYDROLOGY/WATER QUALITY

3.1.1 <u>Existing Conditions</u>

Phase I

Fairbanks Ranch CC (Phase I of the proposed Project) is located within the lower San Dieguito River Basin. This basin drains the San Dieguito Valley west to the Pacific Ocean. The basin is considered to be impaired with high sulfate, chloride, and TDS concentrations (DWR 2003).

The San Dieguito River is situated along the western boundary of Fairbanks Ranch CC, and flows from northeast to southwest (refer to Figure 1-1). The San Dieguito River is not listed as an impaired water body on the Clean Water Act Section 303(d) list of impaired water bodies (SWRCB 2002). However, the river does appear on the 303(d) list in conjunction with the mouth of the San Dieguito Lagoon. The river collects water from the San Dieguito River Basin and empties into the San Dieguito Lagoon. At this location, the river and lagoon mouth are listed as impaired by bacterial indicators, which implies the impairment is due to coliform, bacteria, or a number of other possible pathogens.

San Dieguito River is classified an intermittent stream, in that it does not flow continuously each month throughout the year. The flows are greatest during the wet season, and some periods during the dry summer months the river has no flow at all. This fact is illustrated in Table 3-1.

Fairbanks Ranch CC is situated immediately south of the San Dieguito River, and currently stores golf course and landscape irrigation water in a series of interconnected water impoundments that also forms a part of the overall aesthetic of the golf course. Irrigation water currently stored in the ponds is piped to the golf course from nearby groundwater supplies. Throughout the golf course, the ponds are connected by a belowground pipeline network that allows water to flow between the ponds. The water impoundments are concrete-lined and are bermed along the outer rims. Because the edges are elevated, the ponds do not act as catch basins for water runoff. The ponds operate as a closed system and do not discharge or overflow under normal conditions.

Phase II

The Phase II site is also located within the San Dieguito Basin; however, because the water would be injected into and stored in the underlying aquifer, the primary focus of the Phase II hydrology/water quality assessment is on hydrogeologic conditions within the underlying aquifer. The target aquifer is comprised of coarse-grained channel deposits within a depositional zone exhibiting desirable porosity and permeability characteristics. Situated above this target aquifer is the aquitard, which is comprised of fine-grain sediments that have considerably lower permeability. The aquitard confines groundwater in the underlying aquifer, such that groundwater in the aquifer is actually under pressure. Above the aquitard is the surface layer, which includes sands and fine-grained silty sediments (refer to Appendix C).

Based on well-sampling data collected by the California Department of Water Resources during the 1950s and early 1960s, groundwater in the San Dieguito basin has exhibited a wide variation in quality, as indicated by a range in total dissolved solids (TDS) of 304 to 19,360 milligrams per liter (mg/l) (Luke-Dudek 1988). These data illustrated that the quality of the basin's groundwater generally improved at distances farther from the ocean and the effects of salt water intrusion, which plagues those sectors of the basin west of El Camino Real. Information obtained from existing well users in the upper portion of the basin indicates that TDS ranges from about 1,600 to 2,500 mg/l (HYA 1997). These values were supported by investigations conducted by Hargis, where TDS values ranged between 1,600 and 5,100 mg/l at wells in the vicinity of Morgan Run (Appendix C).

| | Flow | El Camino Real Bridge ¹ | | | | | | Morgan Run ² | | | | |
|-----------|-----------|------------------------------------|------|------|--------|------|------|-------------------------|-------------------|-------|-------|-------------------|
| Month | Rate(cfs) | 1983 ³ | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 ³ | 2001 ³ | 2002 | 2003 | 2004 ³ |
| January | Max | | 68.0 | 3.0 | 1.2 | 41.0 | 8.5 | 0.5 | | 62.6 | 52.6 | 34.5 |
| | Min | | 21.0 | 0.5 | 0.6 | 0.4 | 0.3 | 0.2 | | 0.0 | 11.0 | 27.5 |
| February | Max | | 27.0 | 14.0 | 386.0 | 1.3 | 29.0 | 1.1 | | 10.3 | 280.8 | 270.8 |
| | Min | | 12.0 | 0.6 | 0.2 | 0.3 | 0.4 | 0.3 | | 0.0 | 10.7 | 26.9 |
| March | Max | | 10.0 | 0.8 | 1010.0 | 1.5 | 1.8 | 2.0 | | | 238.7 | 99.9 |
| | Min | | 0.5 | 0.3 | 1.1 | 0.2 | 0.1 | 0.1 | | | 13.9 | 30.5 |
| April | Max | | 0.8 | 0.4 | 99.0 | 0.5 | 34.0 | 0.3 | | | | |
| | Min | | 0.2 | 0.1 | 0.7 | 0.1 | 0.0 | 0.0 | | | | |
| May | Max | | 0.3 | 0.1 | 0.7 | 0.4 | 0.6 | 0.5 | | | | |
| | Min | | 0.1 | 0.0 | 0.2 | 0.1 | 0.0 | 0.0 | | | | |
| June | Max | | 0.2 | 0.0 | 0.3 | 0.5 | 0.3 | 0.3 | | | | |
| | Min | | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 | 0.0 | | | | |
| July | Max | | 0.1 | 0.0 | 0.2 | 0.0 | 0.1 | 0.0 | | | | |
| | Min | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | |
| August | Max | | 0.1 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | | | | |
| | Min | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | |
| September | Max | | 1.3 | 0.0 | 1,7 | 0.0 | 0.0 | 0.0 | | | | |
| | Min | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | |
| October | Max | 0.0 | 0.1 | 0.0 | 0.8 | 2.0 | 0.4 | | | | 3.4 | |
| | Min | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | | | | 2.9 | |
| November | Max | 0.0 | 1.7 | 49.0 | 4.2 | 6.1 | 1.7 | | 387.0 | 9.4 | 39.2 | |
| | Min | 0.0 | 0.1 | 0.0 | 0.2 | 0.3 | 0.0 | | 3.0 | 0.0 | 12.6 | |
| December | Max | 0.0 | 87.0 | 28.0 | 6.9 | 30.0 | 4.9 | | | 135.6 | 43.5 | |
| | Min | 0.0 | 0.3 | 0.3 | 0.4 | 0.3 | 0.0 | | | 11.0 | 26.4 | |

 Table 3-1

 Measured Flow Rates on Lower San Dieguito River (1983-2004)

¹ Monitored at 15 minute intervals by U.S. Geological Survey. River monitoring location at El Camino Real Bridge over San Dieguito River. Data retrieved from National Water Information System files, called ADAPS.

² Monitored at 15-minute (2001-2003) and 5-minute (2004) intervals. River monitoring location at northern property boundary of Morgan Run Golf Course, at El Apajo Road. Data collected an supplied by MEC Analytical, Inc.

³ Shaded months signify periods prior to initiation of the USGS and MEC monitoring programs, the period following the termination of the USGS monitoring program, and the period not yet monitored in the on-going MEC wet-season monitoring program.

3.1.2 <u>Significance Criteria</u>

The significance thresholds for hydrology and water quality apply to both Phase I and Phase II of the proposed Project. A significant impact to Hydrology/Water Quality would result if the project would:

- Substantially change the absorption rates, drainage patterns, or the rate and amount of surface runoff;
- Discharge into surface waters or other alteration of surface water quality (e.g., temperature, dissolved oxygen or turbidity);
- Changes in the amount of surface water in any water body;
- Changes in currents, or the course of direction of water movements, in either marine or fresh waters;
- Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations;
- Adversely alter the direction or rate of flow of groundwater;
- Adversely impacts groundwater quality; or
- Substantially reduce the amount of water otherwise available for public water supplies.

3.1.3 Impact Analysis

Phase I

Water Impoundments

Excess reclaimed water would be piped into the existing ponds at Fairbanks Ranch CC during wet-weather conditions. The reclaimed water would be tertiary-treated water from the 4S Ranch WWTP which produces high-quality reclaimed water as described in Chapter 1.0. All reclaimed water from the 4S Ranch WWTP meets or exceeds treatment requirements set forth by the RWQCB, which is responsible for regulating the quality of all reclaimed water produced under Title 22 of the CCR. Once reclaimed water has passed through the tertiary treatment cycle, it can be used for a number of purposes, including agriculture, landscaping, and some recreational uses. The level of the ponds would be monitored and would not be allowed to overflow. The

excess reclaimed water would be controlled by a valve along San Dieguito Road as shown on Figure 2-1. When the existing ponds reach capacity, the reclaimed water delivery would be stopped and redirected to the emergency discharge point at the San Dieguito River.

Phase I of the Project would be consistent with the state's non-degradation policy (Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California) and the Porter-Cologne Water Quality Act, codified as Division 7 of the California Water Code, which encourages the use of reclaimed water as a substitute for the use of potable water for irrigation purposes. This is one of the objectives of Phase I, as described in Section 2.2 of this environmental document.

As demonstrated by the strict effluent limitations in Table 1-1, the addition of reclaimed water to the existing water impoundments on the golf course would not significantly impact the quality of the surface water. As described previously, the quality of the reclaimed water is high and would meet or exceed all applicable requirements. The existing open ponds are subject to pollutants such as fecal matter from waterfowl and other ambient environmental pollution. The reclaimed water that would be added with implementation of Phase I of the proposed Project would not significantly degrade or adversely impact water quality of the receiving ponds.

San Dieguito River

The Project would provide the capability for OMWD to deliver excess reclaimed water during wetweather periods using the same supply system currently designed for delivery of the irrigation water. The amount of reclaimed water delivered during the wet season would vary, but would not exceed 6.13 AF/day (2 million gallons daily [mgd]). This water would be delivered to the existing water impoundment system in the same manner as the current water supply system, and would pass from pond to pond through the existing pipeline network. The ponds would maintain a consistent water level as the excess water would continue to pass through to the next pond. When the excess water reaches the final pond, nearest the San Dieguito River, it would be discharged into the San Dieguito River; however, this would only occur during the wet season.

Discharging water into the San Dieguito River could have the potential to impact downstream hydrologic conditions. Impacts to the streambed could potentially result from scouring if the discharged water were released at a greater flow rate than the surrounding ambient river flow and proper energy dissipation measures were not in place. The process of scouring (erosion) physically alters the receiving channel and moves streambed materials downstream by the force of the water being introduced to the waterway. Eroded materials, along with any sediment load

in the discharged water, could potentially result in increased sedimentation and turbidity of the river. These potential impacts, individually, or combined, could result in a significant impact to the hydrology and water quality of the San Dieguito River.

The potential impacts would not only affect the downstream hydrology of the channel, but could potentially affect the downstream riparian habitat. Riparian habitat could potentially be impacted through direct removal of the habitat if the flow of the river was exceedingly strong. Habitat could also be impacted by sediment transport and siltation that could blanket existing habitat areas or create excessive turbidity that would reduce water clarity and the ability for organisms to respire. Potential impacts to riparian habitat could also occur if the nutrient balance of the water was altered through increased levels of nitrates, phosphates, etc.

The additional 2 mgd of reclaimed water would equal approximately 3 cubic feet per second (cfs) of flow volume added to the San Dieguito River. This increase in volume is relatively small in comparison to the flow carried by the river during the wet season, as shown by the flow data provided in Table 3-1.

Phase II

Water Quality

The purpose of the proposed Project is to inject reclaimed water into the San Dieguito basin during the wet season for storage and use as irrigation water during the dry season. Tertiary-treated reclaimed water would be acquired from the 4S Ranch WWTP. As described above, this water is of high quality and meets or exceeds all current treatment requirements. Similar to Phase I, Phase II would be consistent with the state's non-degradation policy and the Porter Cologne Water Quality Act.

Phase II of the Project would have a less than significant impact on groundwater quality inasmuch as Phase II is being developed as a source of irrigation water for Morgan Run and other potential irrigation water users in the San Dieguito basin. It is proposed to use reclaimed water that fully meets appropriate Title 22 requirements, thus posing no threat to public health and complying fully with the policies and regulations set forth to moderate the use of reclaimed water. The addition of the project's low-TDS water to the basin's aquifer would potentially have a beneficial effect on the general quality of water in the basin. The potential benefit would in general be a reduction in the TDS of groundwater in the immediate vicinity of the project site,

and the application of lower TDS recovered groundwater over a larger area, potentially generating a reduction in overall TDS over a period of time.

Phase II of the proposed Project would have no effect on absorption rates, drainage patterns, or in the rate or amount of surface runoff. The construction contractor would be required to prepare a Surface Water Pollution Prevention Plan (SWPPP), which would be approved by RWQCB. This plan would stipulate the use of best management practices (BMPs) to control surface water runoff and erosion and generally protect water quality throughout the construction period.

Groundwater Leakance, Flow, and Drawdown

It is possible, that under certain simultaneous conditions (higher basin water levels coupled with a period of higher volume injection into the aquifer), injection of water into the target aquifer may cause groundwater to migrate through the aquitard sediments into the shallow subsurface layer causing a slight rise in the water table. The aquitard may not be completely impermeable, and as such may allow some leakage to occur. "Leakance" is a term used to define the amount of water that potentially could migrate through the aquitard. Leakance would be most likely to occur during periods when water levels in the basin are high, i.e., "wet-weather" periods. Based on the injection testing conducted to date, the potential for leakance to occur is minimal unless an existing well in the zone of pressurization is not fitted with a water-tight seal at the top of the casing.

Overall, general groundwater flow direction is south and then west, toward the ocean. However, during the summer and fall local groundwater pumping causes pumping depressions to develop toward which groundwater tends to flow. The primary area of groundwater extraction (pumping depression) is located just east of the San Dieguito River, and is centered near the intersection of El Apajo and Via De Santa Fe Roads (Appendix C). A second smaller pumping depression typically forms near the extraction well at the north end of the Rancho Santa Fe Polo Club on the western side of the basin near Via de la Valle and El Camino Real.

Under Phase II operational conditions, groundwater flow would be away from the injection area during injection periods, and into the area during extraction periods. This would alter the direction of groundwater movement in the immediate vicinity of the project area. Furthermore, injection operations could reduce the existing pumping depression; however, extraction operations could exacerbate the pumping depressions as it becomes additive to the existing depression. OMWD operations would inject up to 150 AF of reclaimed water over a period of 84 days and subsequently extract the same volume over a period of about 6 months. The preliminary hydrogeologic evaluation conducted for this project suggests that an operationally induced drawdown of up to 8 feet (in the vicinity of the project well field) could be possible during periods of protracted drought and a demand for stored water within the basin (Appendix C). As such, this could induce from about 1 foot to 5.5 feet of additional drawdown upon surrounding wells. This additional drawdown could cause some nearby property owners' wells to experience reduced yield depending on the location, depth of the well, and depth of the pump. Another factor affecting the drawdown would be the timing of extractions, specifically during drought conditions. The potential for significant drawdown impacts could result from implementation of Phase II of the proposed Project.

Surface Water

The injection of tertiary-treated effluent into the subsurface should have no adverse impact upon existing surface water quality. The amount of potential surface water changes would most likely 1) be infrequent if at all, 2) be of a minimal quantity compared to the existing quantity of surface water, and 3) not change surface water quality conditions.

In the unlikely event that injected water directly enters into the San Dieguito River, or causes existing groundwater to enter the river, the course of direction of the river should not be altered. The quantity of leaked water should be minimal compared to the quantity of existing surface water, and as such should not cause any diversion in the river course. Currently, changes in the river flow rate and water quality occur naturally due to seasonal changes and the ephemeral nature of the waterway. Therefore, potentially significant impacts to surface water resources are unlikely.

3.1.4 <u>Mitigation Measures</u>

Phase I

Discharge of excess reclaimed water into the San Dieguito River requires that an NPDES permit be obtained from the RWQCB, as described in Section 2.6, Approvals and Permits. The excess water discharge during the wet season would be considered a point source, and the required NPDES permit would set discharge conditions and requirements that must be met in order to protect the river. As part of the permit application process, OMWD would be required to meet similar conditions that are specified in the City of San Diego Land Development Manual, Storm Water Standards (City of San Diego 2003). A technical analysis would be required to evaluate discharge water quality, background water quality, and identify conditions of concern. This study would also discuss conditions such as topography, location within the basin, flow volumes, rainfall information, etc. After identifying pollutants and conditions of concern, the study would outline BMPs to be implemented to minimize any potential impacts (i.e., through site design, source control, or treatment control). In addition to actual field sampling (background) and effluent testing, a drainage study report would be required to evaluate hydrologic and environmental factors and impacts associated with the proposed Project. The City of San Diego Land Development Manual provides information on how to comply with the permanent and construction storm water quality requirements as well as BMPs, as described in the Model Standard Urban Storm Water Mitigation Plan (SUSMP) (City of San Diego 2002).

Specific designs would be required for the permit application to demonstrate protective measures for water quality and hydrology. The point of discharge to the San Dieguito River may require an energy dissipater to spread out the flow and decrease velocity (i.e., scour potential) prior to entering the stream channel. This might include rip-rap, a baffle box, or another type of energy diffuser, as well as discharging the overflow in the direction of the flow rather than perpendicular to the flow. Incorporating a discharge pipeline valve to shut off any potential flow during the dry season would also be desirable.

Most importantly, the Monitoring and Reporting Program mandated by the NPDES permit would be key to maintaining water quality. The RWQCB would likely require water quality testing upstream and downstream of the discharge point to determine the actual water quality impact of the discharged water on the San Dieguito River.

Relative to reclaimed water discharges, the terms and conditions of the NPDES permit would require stringent measures to mitigate any potential water quality or hydrology impacts to the San Dieguito from Phase I of the proposed Project. The compliance requirements of the NPDES permit would be designed to reduce any potential water quality or hydrologic impacts to below a level of significance, which would likely need to be demonstrated though a strict water quality monitoring program.

In obtaining an NPDES permit, potentially significant impacts would be eliminated for Phase I of the proposed Project. As part of applying for and complying with this permit, measures would

be required to reduce any potential water quality or hydrological impacts that may result from the wet season discharge into the San Dieguito River. By conforming to state and local design standards and complying with permitting requirements, these measures would be expected to reduce any potential impacts to below a level of significance and no additional mitigation measures would be required.

Phase II

Using data collected during previous testing and routine monitoring within the basin, OMWD would develop an active management program (AMP) to monitor and control potentially significant impacts resulting from the injection and extraction of Project water into the deep aquifer. The AMP would be designed to monitor and assess ongoing operations and provide operational guidance documents along with management and reporting guidelines. The objectives of the AMP would be to monitor, assess, and manage injection/extraction operations such that impacts are minimized. As an operational management tool, the AMP would allow OMWD to monitor groundwater levels and quality, surface water levels and quality, and the environmental conditions within the basin during injection/extraction operations. Furthermore, OMWD would use the AMP to adjust operational conditions of the injection/extraction system to mitigate impacts within the operational area of the system. In the event that the monitoring system detects seepage at existing wells due to pressurization of the deep aquifer, OMWD would work with the well owner to seal the well, if necessary.

It is anticipated that OMWD could reduce injection rates or durations to mitigate affects caused by this process, and could likewise alter the rate and or duration of extraction to reduce adverse drawdown conditions under their control. The AMP would not control off-site pumping beyond the control of OMWD; however, the monitoring component of the AMP would provide a means to adjust the operation of the injection/extraction field such that impact directly attributable to Phase II of the Project could be reduced.

3.1.5 Level of Impact after Mitigation

Phase I

Mitigation is not required for Phase I of the proposed Project because potentially significant impacts would be mitigated through the compliance requirements of the NPDES permit application process and permit implementation. Potential water quality and hydrology impacts resulting from Phase I would be less than significant.

Phase II

Water Quality

Impacts to water quality would remain less than significant and would provide potential improvements to water quality throughout the aquifer as a result of Phase II.

Groundwater Leakance, Flow, and Drawdown

OMWD would manage injection/extraction such that minimal impact occurs, even during drought conditions. Recognizing this as a potential impact that could be mitigated, OMWD would rely upon the AMP described above. Routine monitoring of groundwater elevations in and around the injection/extraction site, including private off-site wells, would allow OMWD to alter the rate and or timing of extraction to reduce the potential impact to groundwater elevations and potential leakance or drawdown in the immediate vicinity of the project site. Use of the AMP during implementation of Phase II of the proposed Project would not result in potentially significant impacts to leakance, flow, or drawdown.

Surface Water

The AMP described above would allow for alternations in the injection rates which would minimize the potential for affecting surface water adjacent to the injection/extraction area. Water levels in the river and water quality would be monitored during operation of Phase II, and potential effects from the injection/extraction program would be monitored, as discussed above. No significant impact to surface water would result from implementation of Phase II of the proposed Project.

3.2 BIOLOGICAL RESOURCES

This section describes the flora and fauna within the Project study area, the significance criteria, impact analysis, mitigation measures, and level of impact after mitigation. Biological resources are discussed in terms of vegetation types, wildlife habitat, and species that have been detected or that have the potential to occur within and adjacent to the Project study area. Detailed descriptions of the wildlife resources occurring on, or adjacent to, the Project site are discussed in detail within the *Biological Technical Report for San Dieguito Water Storage and Recovery Project* (EDAW 2004).

Scientific nomenclature used throughout this document conforms to Hickman, ed. (1993) and Skinner and Pavlik (1994) for plants; Holland (1986) for vegetation communities; and Laudenslayer et al. (1991) for amphibians, reptiles, birds, and mammals.

3.2.1 Existing Conditions

Phase I

Vegetation

Background information regarding the biological resources within the study area was reviewed, including the California Natural Diversity Database (CDFG 2004). Existing vegetation and wildlife habitat data were interpreted through an analysis of aerial photographs of the Phase I site. The dominant vegetation communities found on the Phase I Project site consist of ornamental vegetation and developed areas associated with the Fairbanks Ranch CC. There are four vegetation communities within the Phase I site, classified as ornamental, developed, open water, and eucalyptus woodland. A southern willow scrub community also exists south (downstream) of the Phase I site, and is also described because of potential impacts under certain operational scenarios. A description of these vegetation communities is provided below.

Ornamental

Ornamental vegetation is dominated by exotic species, most of which are grasses, trees, and shrubs planted for aesthetic and functional purposes in association with the operation and use of the golf course at Fairbanks Ranch CC. Ornamental species have been planted within the Phase I Project site, and are primarily used for landscaping purposes throughout the golf course.

Developed

Developed lands support no native vegetation and may be additionally characterized by the presence of man-made structures such as buildings or paved roads. San Dieguito Road and the paved cart paths located within the Phase I site can be classified as developed.

Open Water

Though not considered a plant community, because of the lack of vegetation, open water is occasionally associated with wetland communities. Open water provides habitat for a variety of wildlife species and is regulated as "waters of the U.S." by the U.S. Army Corps of Engineers. This habitat type consists of any open water body including lakes, reservoirs, bays, flowing water within a river channel, and small ponds along stream courses. Open water bodies provide important habitat for a variety of aquatic organisms and waterfowl. Within the Phase I site, the surface water impoundments within Fairbanks Ranch CC would be classified as open water.

Eucalyptus Woodland

Eucalyptus woodland is typically characterized by stands of gum trees (*Eucalyptus* spp.). Plants in this genus, imported primarily from Australia, were originally planted in groves throughout many regions of coastal California as a potential source of lumber and building materials, for their use as windbreaks, and for their horticultural novelty. These introduced species produce large amounts of leaf and bark litter, the chemical composition of which inhibits the establishment and growth of other species, especially natives, in the understory. They have increased their cover through natural regeneration, particularly in moist areas sheltered from strong coastal winds. Gum trees naturalize readily, and, where they form dense stands, tend to completely supplant native vegetation, greatly altering community structure and dynamics. Very few native plants are compatible with eucalyptus.

Southern Willow Scrub

Southern willow scrub is a dense, broad-leaved, winter deciduous riparian thicket dominated by several species of willows (*Salix* sp.) in association with mule fat (*Baccharis salicifolia*). Scattered individuals of cottonwood (*Populus* sp.) and western sycamore (*Platanus racemosa*) may exist as canopy emergents. This is an early seral community that requires periodic flooding for its maintenance (Holland 1986). In the absence of periodic flooding, this community would develop into a riparian woodland or forest. This vegetation community exists in portions of the Fairbanks Ranch CC property, as well as immediately south (downstream) of the Phase I site.

<u>Wildlife</u>

Although the Phase I site is no longer composed of native vegetation, adjacent vegetation communities are known to support a variety a wildlife species that may also use the modified

habitats found within the Project area. Birds typically associated with ornamental trees found on and adjacent to the site include Anna's hummingbird (*Calypte anna*), house finch (*Carpodacus mexicanus*), and red-tailed hawk (*Buteo jamaicensis*). Mammals commonly associated with the habitats found on and adjacent to the Project site include Audubon's cottontail (*Sylvilagus audubonii*) and California ground squirrel (*Spermophilus beecheyi*).

Wetland/riparian habitats associated with the San Dieguito River also provide potential foraging and nesting areas for raptors and other birds, such as the red-tailed hawk, black phoebe (*Sayornis nigricans*), and great blue heron (*Ardea herodias*). The southern willow scrub also provides shelter and food resources for a variety of other wildlife species observed or detected within this area.

New information concerning the light-footed clapper rail was discovered during review of the Draft EIR. Meetings and discussions were held with resource agency personnel and expert biologists to address potential effects to the federally and state-listed endangered light-footed clapper rail, which occurs within the San Dieguito River adjacent to the project area. As described in Section 1.6, Coordination and Consultation, a field site meeting was conducted so USFWS and CDFG biologists could assess the habitat and flow conditions along the San Dieguito River adjacent to the project following a relatively heavy storm event. In addition, a meeting was held between project staff, USFWS, CDFG, and light-footed clapper rail expert Richard Zembal that addressed the general biology of the species, as well as site-specific topics, such as behavior, distribution, and habitat availability. Also, 2004 light-footed clapper rail survey data was obtained from biologist Richard Zembal for the portion of the San Dieguito River adjacent to the Fairbanks Ranch CC. As a result of the various discussions, this Final EIR has incorporated measures into the project description in order to further protect the light-footed clapper rail during potential discharge events.

The light-footed clapper rail (*Rallus longirostris levipes*) is a federally listed and fully protected state-listed endangered species. It is restricted to coastal salt marshes in southern California where cord grass and pickleweed are the dominant vegetation. This species forages in higher marsh vegetation and along tidal creeks and requires dense vegetation for nesting and escape cover. The light-footed clapper rail ranges in disjunct populations from Santa Barbara County to San Diego County and into Baja California, Mexico.

Phase II

Vegetation

Background information regarding the biological resources within the study area was reviewed, including the California Natural Diversity Database (CDFG 2004). Existing vegetation and wildlife habitat data were field-verified for the Phase II study area on March 30, 2004. The dominant vegetation communities found on the Phase II Project site consist of ornamental vegetation, developed areas, and open water at South Lake, one of three impoundments associated with the irrigation system used to maintain the golf course and associated landscape. A small patch of freshwater marsh exists at South Lake (Figure 3-1). A description of these vegetation communities is provided below.

The adjacent properties to the east and south have the potential to support sensitive species. The agricultural fields to the east, although disturbed, support areas of nonnative grassland. To the south and southeast of the Phase II Project site, bands of eucalyptus trees, southern willow scrub, and floodplain present. Because of their proximity to the site and their potential biological importance, the areas to the north and east are also discussed below.

Ornamental

Ornamental vegetation is described in greater detail in the Phase I discussion. Ornamentals have been planted within the Phase II Project site, and are primarily used for landscaping purposes throughout the 27-hole Morgan Run golf course. Approximately 14.35 acres of this habitat occur within the Phase II site.

Developed

The Phase I discussion provides a detailed description of developed areas. The paved cart paths and golf course maintenance shed located within the Phase II Project site can be classified as developed. Approximately 1.01 acres of developed land currently exists within the area.

Open Water

Open Water is more thoroughly discussed above in Phase I. Within the Phase II Project area, South Lake is classified as open water, and accounts for 1.85 acres of the site.



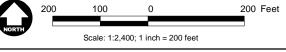


Figure 3-1 Phase II Vegetation Map

San Dieguito Storage and Recovery Project EIR 2002/2K035/GIS/mxd/Figure 3-1 Phase 2 Vegetation.mxd SP83 z6f (E.Coughlin) 6/22/04

Freshwater Marsh

Freshwater marsh is a community dominated by perennial, emergent monocots (flowering plants that have one seed leaf), which grow in standing fresh water. This plant community can be found along the fringe of the open water habitat of the southern Morgan Run water hazard, providing excellent habitat for animals and birds. Freshwater marsh species common to this community include cattails (*Typha* spp.), bulrushes (*Scirpus* spp.), and sedges (*Carex* spp.). Approximately 0.19 acre of freshwater marsh vegetation occurs within the Phase II Project area.

Nonnative Grassland

Exotic, annual grasses of Mediterranean origin dominate most of the grasslands in the coastal and foothill areas of San Diego County. Nonnative grassland generally occurs on fine-textured loam or clay soils that are moist or even waterlogged during the winter rainy season and very dry during the summer and fall. It is characterized by a dense to sparse cover of annual grasses, often with native and nonnative annual forbs (Holland 1986). This habitat is a disturbance-related community most often found in old fields or openings in native scrub habitats. Typical grasses within the region include wild oat, soft chess (*Bromus mollis*), red brome, ripgutgrass (*Bromus diandrus*), and foxtail fescue (*Vulpia megalura*). Characteristic forbs include red-stem filaree (*Erodium cicutarium*), mustard (*Brassica spp.*), tarweed (*Hemizonia spp.*), California goldfields (*Lasthenia chrysostoma*), and owl's clover (*Orthocarpus purpurascens*).

No nonnative grassland occurs within the Phase II Project area; however, the open fields at Rancho Paseana used as grazing areas for horses immediately east of the site support this habitat community.

Eucalyptus Woodland

Eucalyptus woodland is described in further detail under Phase I. A narrow band of eucalyptus woodland occurs immediately to the south of the Phase II area along the edge of the San Dieguito River.

Southern Willow Scrub

Southern willow scrub vegetation is described in detail under Phase I. This vegetation community does not exist within the Phase II Project area boundary, but it does exist on the Fairbanks Ranch CC property immediately south of the Phase II site.

Floodplain Scrub

Floodplain scrub is a transitional vegetation community between riparian and upland areas, which may be periodically scoured by inundation. Floodplain scrub is dominated by decumbent goldenbush (*Isocoma menziesii*), and the periodic inundation or relatively high water table prevent either riparian scrub, or uplands such as coastal sage scrub, from establishing. No floodplain scrub vegetation occurs within the Phase II Project area, although a small pocket of this community occurs immediately offsite to the south of Morgan Run.

<u>Wildlife</u>

Although the Phase II site has been modified and is no longer composed of native vegetation, adjacent vegetation communities are known to support a variety a wildlife species that may also use the modified habitats found within the area. The area in proximity to Morgan Run supports amphibians and reptiles such as the western spadefoot toad (*Scaphiopus hammondii*), the bullfrog (*Rana catesbeiana*), the Pacific tree frog (*Hyla regilla*), and the western fence lizard (*Sceloporus occidentalis*). Birds associated with the southern willow scrub and ornamental trees found on and adjacent to the site include Anna's hummingbird, common yellowthroat (*Geothlypis trichas*), and blue grosbeak (*Guiraca caerulea*). Mammals commonly associated with the habitats found on and adjacent to the Phase II Project site include Audubon's cottontail, San Diego black-tailed jackrabbit (*Lepus californicus bennetti*), California ground squirrel (*Spermophilus beecheyi*), and coyote (*Canis latrans*).

Nonnative grassland and wetland/riparian habitats adjacent to the Phase II site also provide potential foraging and nesting areas for raptors and other birds, such as the red-tailed hawk, black phoebe (*Sayornis nigricans*), and great blue heron. The southern willow scrub also provides shelter and food resources for a variety of other wildlife species observed or detected within this area.

3.2.2 Significance Criteria

The significance thresholds for biological impacts apply to both Phase I and Phase II of the proposed Project. Significant biological impacts include, but are not restricted to:

- All impacts to federally or state listed species or habitats or narrow endemic species;
- Severe impacts to MSCP-covered/non-listed, but highly sensitive or vulnerable species;
- Impacts to high-quality or undisturbed biological communities, vegetation associations, and habitats that are restricted on a regional basis or serve as wildlife corridors; and
- Impacts to habitats that serve as breeding, foraging, nesting, or migrating ground and are limited in availability or serve as core habitats for regional plant and wildlife populations.

Adverse but non-significant impacts would include:

- Impacts that adversely affect biological resources but would not significantly change or stress the resources on a long-term basis;
- Impacts to biological resources that are already disturbed or lack importance in the preservation of local or regional native biological diversity and productivity; and
- Impacts to Tier IV (other uplands) habitats.

3.2.3 Impact Analysis

The following section includes an assessment of the biological resources that may be impacted by the proposed Project. Development of the proposed Project would potentially result in two types of impacts to biological resources: direct and indirect.

In general, biological resources may be either directly or indirectly impacted by a project. Direct and indirect impacts may furthermore be either permanent or temporary in nature. These impact types are defined below.

- **Direct Impacts:** Any alteration, disturbance, or destruction of biological resources that would result from project related activity is considered a direct impact. Examples include clearing vegetation, encroaching into wetlands, diverting surface water flows, and the loss of individual species and/or their associated plant communities.
- **Indirect Impacts:** As a result of project related activities, biological resources may also be affected in an indirect manner. Examples include elevated noise and dust levels, soil compaction, increased human activity, decreased water quality, and the introduction of invasive wildlife (i.e., domestic cats and dogs) and plants.

- **Permanent Impacts:** All impacts that result in the irreversible removal of biological resources are considered permanent. Examples include constructing a building or permanent road on an area containing biological resources.
- **Temporary Impacts:** Any impacts considered to have reversible effects on biological resources can be viewed as temporary. Examples include the generation of fugitive dust during construction or the removal of vegetation for construction activities and subsequently allowing the natural vegetation to re-colonize the impact area.

The following section discusses the potential effects of the proposed Project on sensitive vegetation communities, plant, and wildlife species onsite.

Phase I

Direct Impacts

Inasmuch as no construction or ground-disturbing activities are planned for the Phase I Project, no direct impacts to biological resources would occur.

Indirect Impacts

Sensitive Vegetation Communities

Under certain conditions, operation of the proposed Phase I Project has the potential to indirectly impact offsite downstream southern willow scrub habitat within the San Dieguito River drainage. Potential impacts to this sensitive vegetation community may include sedimentation, erosion, or scour within the river from an estimated maximum discharge of 2.0 mgd of reclaimed water during the wet season, and would be considered to be a significant impact.

Sensitive Wildlife Species

The proposed Phase I Project has the potential to release up to 3 cfs of reclaimed water into the San Dieguito River during the wet season. This increase would be nominal relative to the volume of water in the river during the wet season. A release at the rate of 3 cfs during the wet season is not expected to result in the adverse inundation of light-footed clapper rail nests, protective cover, or foraging habitat. However, to provide an additional margin of safety, the

District would refrain from releasing reclaimed water into San Dieguito River during the month of March, which is the first month of the breeding season for the light-footed clapper rail. The restraint on March releases would persist until such a time that the wildlife agencies determined that such releases did not represent a significant impact to the species. Therefore, the proposed release of water into the San Dieguito River associated with the Phase I Project during the period October through February would not significantly impact the light-footed clapper rail.

No indirect impacts to other biological resources (i.e., sensitive plants and wildlife movement corridors) would occur through implementation of Phase I of the proposed Project.

Phase II

Direct Impacts

Sensitive Vegetation Communities

Phase II of the proposed Project would involve trenching and excavating in areas of nonsensitive ornamental vegetation (manicured lawns associated with the Morgan Run golf course) and previously developed areas (golf cart paths). Direct impacts would include impacts to 0.15 acre of previously developed area, and 1.12 acres of ornamental plantings. No sensitive vegetation communities would be directly impacted through implementation of Phase II.

Sensitive Plant Species

No direct impacts would occur to native vegetation communities, and the Phase II footprint has been established to maximize use of ornamental vegetation and previously developed areas. Therefore, no direct impacts to sensitive plant species are expected to occur through the implementation of Phase II.

Sensitive Wildlife Species

Even though open water and freshwater marsh vegetation exists within the Phase II site at South Lake and have the potential to support sensitive wildlife species, including California special concern species such as the tricolored blackbird (*Agelaius tricolor*), or other riparian nesting bird species that are protected under the federal Migratory Bird Treaty Act, the design of the proposed pipelines and wellheads would not directly impact the open water or freshwater marsh. Thus, no direct impacts to sensitive wildlife or migratory species are expected.

Wildlife Corridors

Since Phase II of the Proposed Project would occur in areas that are previously developed or disturbed, and the majority of the Project features would be placed underground, no direct impacts to wildlife corridors are expected to occur as a result of Phase II of the proposed Project.

Indirect Impacts

Sensitive Vegetation Communities

Only one sensitive vegetation community, freshwater marsh, occurs within the Phase II area. However, construction and operation would not include use of or disturbance to South Lake or its vegetation. Thus, no indirect impacts to sensitive vegetation communities are anticipated.

Sensitive Plant Species

Two sensitive plant species known from the region have a potential to occur within the freshwater marsh habitat within the Phase II area. San Diego marsh-elder (*Iva hayesiana*) is a California Native Plant Society (CNPS) List 2 species, and blooms during the period from April to September in creeks or intermittent streambeds, playas, marshes, and swamps. Southwestern spiny rush (*Juncus acutus* var. *leopoldii*) is a CNPS List 4 species associated with wetlands and drainages. However, construction and operation of Phase II of the proposed Project does not include use of or disturbance to South Lake or its vegetation. Thus, no indirect impacts to sensitive plant species are anticipated.

Sensitive Wildlife Species

There is a potential for construction noise to potentially impact nesting bird species if Phase II is implemented during the migratory bird breeding season from February 1 through August 31. Under CEQA, impacts to California species of concern, or migratory birds, would be considered significant.

Wildlife Corridors

No indirect impacts to wildlife movement corridors would occur through implementation of Phase II of the proposed Project.

3.2.4 <u>Mitigation Measures</u>

Because of the selection of a highly disturbed and developed sites to develop Phases I and II of the proposed Project, the only sensitive resources associated with the study area are the Fairbanks Ranch CC water impoundments, South Lake on the Morgan Run CC, and the downstream offsite portion of the San Dieguito River, all of which would remain free of direct disturbance throughout Project development. The artificial water impoundments on either golf course would remain undisturbed throughout the operation of the proposed Project, as water levels are expected to maintain a generally consistent level and the reclaimed water quality is high. However, the San Dieguito River has the potential to be disturbed through erosion or sedimentation during the wet season when reclaimed water may be discharged into the river at a maximum rate of 2.0 MGD. There are, however, several measures that can be taken to assure that the biological resources at the existing surface water bodies on either golf course, as well as the offsite downstream segment of the San Dieguito River, remain safeguarded throughout operation of the Project. The following guidelines include both general and resource-specific measures designed to avoid Project impacts.

Phase I

For Phase I, OMWD would obtain an NPDES permit from the RWQCB to allow for the release of excess water to San Dieguito River during the wet season. Conditions for release of this water would be specified in the permit, and compliance is required. Conditions would include water quality sampling, specification of the maximum release permissible, and status reporting. These measures are designed to protect water quality, vegetation communities, wildlife, and their habitat.

Phase II

General mitigation measures are as follows:

1. Provision will be made to inform the construction contractor(s), prior to the bidding process, about the biological constraints of this Project. All sensitive habitat areas to be avoided shall be clearly marked on Project maps provided to the contractor, and flagged by the Project biologist prior to the onset of construction activities.

- 2. A contractor education program will be implemented to ensure that contractors and all construction personnel are fully informed of the biological resources associated with this Project.
- 3. Prohibited activities within drainages or other wetland areas include staging areas, equipment access, and disposal or temporary placement of spoils.
- 4. Vehicles will use existing access roads to the degree feasible. Where new access is required, all vehicles will use the same route. All access roads outside of existing roads or the construction corridor will be delineated on the grading plans and reviewed by a qualified biologist.
- 5. Fueling of equipment will take place within existing paved roads, and not within or adjacent to drainages or native habitats. Contractor equipment will be checked for leaks prior to operation and repaired as necessary. "No-fueling zones" will be designated on construction maps and will be situated a minimum distance of 50 feet from all drainages.
- 6. Construction in or adjacent to sensitive areas will be appropriately scheduled to minimize potential impacts to biological resources.
- 7. Erosion and siltation of off-site areas during construction will be minimized. An erosion control plan (Storm Water Pollution Prevention Program) will be required of the contractor. The construction contract supervisor will be responsible for ensuring that best management practices are employed in developing and implementing the erosion control plan.

The SWPPP for Phase II construction will specifically address the implementation of control measures to minimize sedimentation and erosion in to the open water and freshwater marsh habitats within the Project area, and in offsite drainages immediately to the south of the site, including the downstream portions of the San Dieguito River. The Project biologist will flag all native habitat and jurisdictional areas on, or adjacent to, the Project area. Any impact to these areas will require habitat mitigation at a ratio of 5-to-1 (i.e., replace 5 acres for every 1 acre impacted).

In order to mitigate for potential indirect impacts to sensitive nesting bird species, Phase II construction would either avoid the migratory bird nesting season (i.e., avoid construction during the period from February 1 through September 30), or conduct a migratory bird nest survey

immediately prior to the nesting season if construction cannot feasibly avoid this period. If no nesting birds are detected within 500 feet of proposed construction activities, then the Project may proceed.

3.2.5 Level of Impact after Mitigation

Phase I

Following the effective implementation of the proposed mitigation measures, the potential significant impacts would be mitigated to below a level of significance.

Phase II

Similar to Phase I, implementation of the proposed mitigation measures, the potential significant impacts would be mitigated to below a level of significance.

3.3 CULTURAL RESOURCES

EDAW, Inc. conducted a records search for the previous IS/MND, as described in Section 1.1.2, in 2003. The search area included a 1 mile radius centered on Morgan Run. This 1 mile radius includes Fairbanks Ranch CC, encompassing the entire Project area for both Phase I and Phase II. The archival search conducted by for the Project consisted of an archaeological and historical records and literature review. The records search provided background on the types of sites that would be expected in the region. The records and literature review included examination of the archives at the South Coastal Information Center (SCIC) at San Diego State University. The information obtained from this review was used to determine if previous surveys had been conducted in the area, what resources might be expected, and if any cultural resources had been recorded within the Project limits. The data reviewed included historic maps, the National Register of Historic Places (NRHP), and the California Register of Historical Resources (CRHR), and a check of listings on the Directory of Historic Properties data for San Diego County. Based on this information, EDAW, Inc. prepared a cultural resources report entitled, Literature Review for the Olivenhain Municipal Water District Water Injection and Recovery System, San Dieguito Groundwater Basin, San Diego County Project (EDAW 2004). This report is bound separately. The information and results of the literature review provided the basis for the following analysis.

3.3.1 Existing Conditions

No cultural resources have been previously identified within the Project area, including both Phase I and Phase II. Therefore, the existing conditions for both Phase I and Phase II are discussed together.

Phase I and Phase II

The archival search conducted for the proposed Project consisted of an archaeological and historical records and literature review that encompassed the Project site for both Phase I and Phase II. Within a 1-mile radius of the Project area, 78 surveys have been conducted. No survey sites are located within the Project area. An overview for the entire area surrounding the proposed Project was conducted by Gallegos in 1988. The records search identified 84 prehistoric sites, 4 multi-component sites, and 20 isolated finds within the 1-mile radius.

The Project site's location, both Phase I and Phase II, in a major drainage system may help account for the large number of habitation areas and temporary camps identified by the records search. There are relatively few lithic scatters documented, suggesting that heavy vegetation or other factors have resulted in these sites being underreported or that this was not prime source area for lithic tool stone. However, at least one quarry has been identified within the records search limits.

Only one survey site (Fink 1975) lies within the Phase I area along the eastern edge of the Morgan Run.

3.3.2 <u>Significance Criteria</u>

The significance thresholds for cultural resource impacts apply to both Phase I and Phase II of the proposed Project. An impact to an archaeological or historical site is potentially significant if the site meets the following criteria established in §5024.1 (Public Resources Code) of the CEQA Guidelines:

- a resource listed in, or determined to be eligible by, the State Historical Resources Commission for listing in the California Register of Historical Resources;
- a resource included in a local register of historical resources or identified as significant in an historical resource survey; or

• a resource that a lead agency determines to be historically significant, based upon considerations such as significantly contributing to California's history and cultural heritage, associated with the lives of persons important in our past, containing distinctive cultural characteristics, or possessing high artistic values.

3.3.3 Impact Analysis

No previous cultural resources were identified within the proposed Project area, including both Phase I and Phase II, during the archival research; however, investigations have shown the possibility of prehistoric buried deposits within floodplains.

Phase I

Due to the possibility of previously unknown prehistoric resources buried on-site within the floodplain, the impact to cultural resources during ground disturbing activities is considered potentially significant. Therefore, the impact to cultural resources during ground-disturbing activities is considered potentially significant.

Phase II

Similar to Phase I, the possibility of previously unknown prehistoric resources buried on-site within the floodplain is considered potentially significant during ground disturbing activities. Therefore, the impact to cultural resources during ground-disturbing activities is considered potentially significant.

3.3.4 <u>Mitigation Measures</u>

Phase I and Phase II

Mitigation for both phases of the project is the same and is described below.

Construction monitoring of any ground-disturbing activity shall be required. If cultural material is encountered during ground disturbance, the monitor shall direct work to another area until a qualified archaeologist can assess the find. If intact cultural deposits or features are found during monitoring efforts, then ground-disturbing construction activities would be directed elsewhere and OMWD shall be notified.

3.3.5 Level of Impact after Mitigation

Phase I and Phase II

Incorporation of the mitigation measures listed above would reduce the potential impact to cultural resources to below a level of significance. As noted above in the second measure, if cultural resources were found during construction, further investigation would be necessary to determine the significance of the resource and the appropriate treatment required.

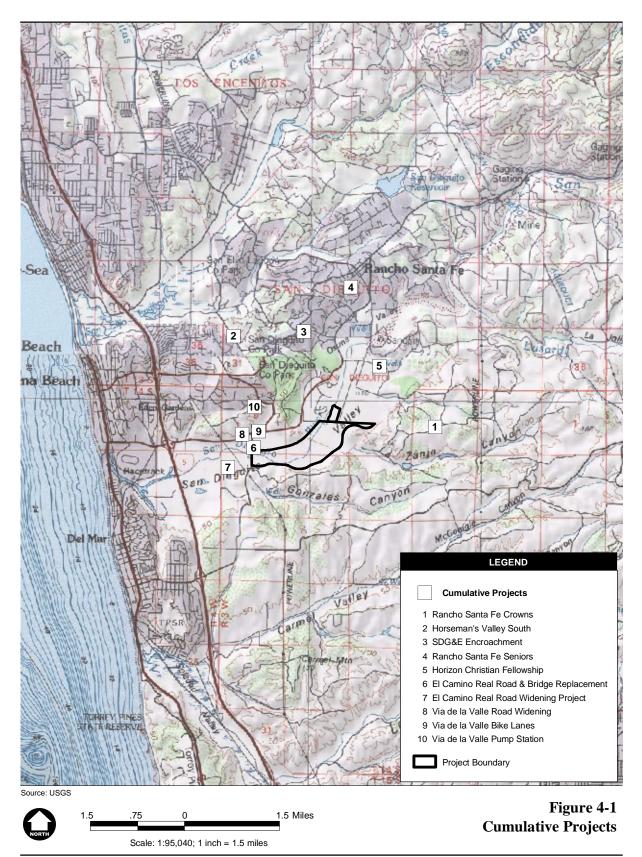
CHAPTER 4.0 CUMULATIVE IMPACTS

In Chapter 3.0 of this EIR, the specific environmental effects resulting from the proposed Project are evaluated. Such Project-specific effects, however, are not the only factors in the Project vicinity affecting the human and natural environment. The effects of past and present land uses in the Project vicinity, together with future land uses, are also considered, as they may have a combined associated effect. These future uses are projects that will be approved by the municipalities having jurisdiction over land in the Project vicinity, as well as other reasonably foreseeable actions, such as land developments or infrastructure improvements that are anticipated to occur based on disseminated site-specific or regional plans. The combined effects of these past, present, and reasonably foreseeable future developments, together with the incremental effect of the current proposed action, are referred to as "cumulative impacts" (40 CFR 1508.7).

Evaluation of a project's cumulative effects is required under CEQA. Section 15355 of the CEQA Guidelines states that "cumulative impacts refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." It is possible for a project to have only minor or incremental impacts, yet when its impacts are considered with impacts from closely related past, present, and reasonably foreseeable future projects, the overall cumulative impacts may be adverse. The discussion of cumulative impacts must reflect the anticipated severity of impacts and their likelihood of occurrence, but the discussion need not be provided in as much detail as other issue analyses. The analysis of cumulative impacts should be guided by practicality and reasonableness.

4.1 DESCRIPTION OF CUMULATIVE PROJECTS

The following list of past, present, and probable future projects was derived through coordination with San Diego County Department of Planning and Land Use and the City of San Diego Planning Department. Information was also gathered concerning projects through the San Dieguito River Park Joint Powers Authority. This list serves as the basis for an analysis of the proposed Project's incremental effect on environmental conditions within the areas of overlapping (additive) impact for each project noted. A total of 11 projects have been identified as planned for implementation within the same general timeframe as the proposed Project within the appropriate geographical study area, including (see Figure 4-1):



San Dieguito Storage and Recovery Project EIR GIS/2002/2k035/Mxd/Figure 4-1 Cumulative Projects.mxd SP83f F6 (E. Coughlin) 6/22/04

County of San Diego

- Rancho Santa Fe Crowns
- Horseman's Valley South
- SDG&E Encroachment
- Rancho Santa Fe Seniors
- Horizon Christian Fellowship

City of San Diego

- El Camino Real Road and Bridge Replacement
- El Camino Real Road Widening
- Via de la Valle Road Widening
- Via de la Valle Bike Lanes
- Via de la Valle Pump Station

San Dieguito River Park Joint Powers Authority

• San Dieguito Wetland Restoration Project

There is another project known in the area. This project is titled Palma de la Reina and would construct an elderly group residential development. This project has been in litigation and is currently on hold.

Projects within County of San Diego Jurisdiction

Rancho Santa Fe Crowns

This project is located south of Rancho Santa Fe Farms Golf Club and east of San Dieguito Road in the Fairbanks Ranch community. The project would divide an 11.9-acre parcel into four single-family residential parcels. The proposed lots would range in size from 2.4 to 4.4 acres. Access to two of the lots would be via a private access road that connects to Circo Diegueno and access to the remaining two lots would be via a private driveway that connects to Paseo Valencia. A Negative Declaration was approved for this project in November of 1999.

Horseman's Valley South

The project is located on El Camino Real between Highland Drive and Rancho Serena Road in the community of Rancho Santa Fe. The project is a major subdivision of 17.9 acres into 10 residential lots ranging in size from 1 to 3 acres. The project includes dedication of open space easements over approximately 3.5 acres of southern maritime chaparral and 0.85 acre of Diegan coastal sage scrub. Access to the site would be provided via a private easement road that connects to El Camino Real.

SDG&E Encroachment

The project is located in the Rancho Santa Fe community. The project would grant an Administrative Permit to allow for the encroachment onto an established steep slope open space easement for the purpose of constructing and maintaining an unpaved utility access road for SDG&E. The proposed encroachment would be approximately 250 feet in a parcel that has an easement dedicated to protect steep slopes. The road would follow the natural contour of the slope and would require minimal grading. A previous Negative Declaration was prepared for this project in 1994 and did not necessitate any subsequent documentation.

Rancho Santa Fe Seniors

This project is located on La Gracia in Rancho Santa Fe. This project would change the use of the property from Private Residential to Administrative Services. The Major Use Permit would allow the property to be used as a counseling and administrative facility for senior citizens in the community. The physical changes would include access and parking modifications. Parking spaces would be increased to 13 with 2 reserved handicapped spaces. A Mitigated Negative Declaration was prepared for this project and was approved in February 2003.

Horizon Christian Fellowship

This project is located along El Apajo in Rancho Santa Fe. The project would include a Major Use Permit modification allowing soccer and baseball fields, restrooms, an equipment storage building, and associated parking. The site is 8.5 acres and 3 acres would be used for the project. No field lighting or sound amplification would be allowed. New parking would include the addition of 64 parking stalls. This modification to the existing Major Use Permit was granted in September of 2000.

Projects within City of San Diego Jurisdiction

El Camino Real Road and Bridge Replacement

The project is located along El Camino Real between Via de la Valle and San Dieguito Road. The project would widen a 0.5-mile section of El Camino Real to a four-lane major road with curbs, gutters, pedestrian walkways, bike lanes, pedestrian/equestrian crossings, and landscaped medians. The existing bridge would be replaced with a new structure and a portion of the San Dieguito River channel would be deepened and widened.

El Camino Real Road Widening

This project is also located along El Camino Real. The project would continue the widening through the 1400 block of El Camino Real. The project would widen the road to four lanes and include curbs, gutters, bike lanes, etc.

Via de la Valle Road Widening

This project is in very preliminary stages. It is assumed that the project would widen Via de la Valle from the 2600 block to the 3200 block. No environmental work has been prepared at this point, but it is anticipated that a Coastal Development Permit and a Site Development Permit would be required.

Via de la Valle Bike Lanes

This project would construct temporary Class II and III bike lanes prior to the Via de la Valle road widening project described above. The temporary bike lanes would be located on Via de la Valle beginning east of San Andres Drive and continuing to El Camino Real. The temporary lanes would be replaced during the planned road widening project.

Via de la Valle Pump Station

This project would construct a pump station at the intersection of El Camino Real and San Dieguito Road. This new pump station would replace an existing pump station at that same location. A Mitigated Negative Declaration was prepared for this project and is currently pending approval from the City of San Diego.

Projects within San Dieguito River Park Joint Powers Authority Jurisdiction

San Dieguito Wetland Restoration Project

This project is located along the San Dieguito River corridor, spanning from the Pacific Ocean east to El Camino Real. The project involves the development, design, and ultimate implementation of a comprehensive restoration plan for approximately 440 acres in the western San Dieguito River Valley. An EIR was prepared for this project and the Notice of

Determination was adopted in September of 2000. Construction of the project is expected to begin in spring 2005 and continue through 2008.

4.2 ANALYSIS OF CUMULATIVE IMPACTS

OMWD has considered the location and scope of each of the 11 projects listed above in conjunction with the location and scope of the proposed Project and has concluded that the additive effect of these projects is not "cumulatively considerable," as defined in Section 15130 of the CEQA Guidelines. The typical potential impacts would not necessarily be additive to OMWD's proposed Project, including traffic, construction dust, and noise, as the proposed Project would not generate these types of impacts.

CHAPTER 5.0 OTHER CONSIDERATIONS REQUIRED BY CEQA

This section addresses other topics required by CEQA in an EIR. These include an analysis of significant environmental effects that cannot be avoided if the proposed Project is implemented (CCR, Title 14, §15126.2(b)); significant irreversible environmental changes that would be caused by the proposed Project should it be implemented (CCR, Title 14, §15126.2(c)); an analysis of growth-inducing impacts of the proposed Project (CCR, Title 14, §15126.2(d)); a discussion of effects found not to be significant (CCR, Title 14, §15128); and mandatory findings of significance (CCR, Title 14, §15065).

5.1 SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED IF THE PROPOSED PROJECT IS IMPLEMENTED

Based on the analysis performed for this EIR and in preparation of the previous IS/MND, it was determined that the proposed Project could result in potentially significant impacts in the areas of Hydrology/Water Quality, Biological Resources, and Cultural Resources. Thus, the EIR concentrated on an evaluation of the proposed Project with respect to these three environmental issues (see the analysis presented in Chapter 3.0). A description of the significant environmental effects that cannot be avoided if the proposed Project is implemented is summarized below.

5.1.1 <u>Hydrology/Water Quality</u>

Phase I

As described in Section 3.1, the reclaimed water that would be delivered to Fairbanks Ranch CC with implementation of Phase I of the proposed Project would not significantly degrade or adversely impact water quality of the receiving ponds. However, the emergency discharge of water into the San Dieguito River could have the potential downstream hydrologic impacts. These potential impacts including scouring, sedimentation, increased turbidity, nutrient loading, and other impacts specifically described in Section 3.1. This could result in a significant impact to the hydrology and water quality of the San Dieguito River. These impacts would also affect the downstream riparian habitat. Therefore, as described in Section 3.1.4, OMWD must meet all compliance requirements of the NPDES permit application process and permit implementation. By conforming to state and local design standards and complying with permitting requirements,

these measures would be expected to reduce any potential impacts to below a level of significance. No significant water quality or hydrology impacts would result from Phase I of the proposed Project.

Phase II

As outlined in Section 3.1, it would be possible, that injection of water into the target aquifer may result in the migration of water into the shallow subsurface layer resulting in a slight rise in the water table, or seepage at poorly sealed deep wells. It is also possible that operation of Phase II could result in a change in the direction of groundwater movement as well as increased drawdown, both of which would be considered potentially significant impacts. Consequently, as discussed in Section 3.1.4, OMWD would implement an AMP in order to reduce the potential impacts resulting from Phase II. The AMP has been developed to monitor and manage groundwater issues during operation of the proposed Project. The AMP would rely upon ongoing monitoring within the basin. As such, this monitoring would include groundwater quality and water level measurements in on-site injection/extraction wells, shallow and deeper groundwater monitoring wells, and select off-site wells; monitoring off-site groundwater usage; and surface water level and quality monitoring.

The AMP would include interpretation of the data obtained during monitoring to assess trends in groundwater and surface water elevation and movement changes, and groundwater and surface water quality changes. The plan would use these assessments to determine whether operational alterations in the rates or duration of either injection or extraction are required to reduce the impacts from the project upon groundwater and surface water conditions within the basin. Implementation of the AMP would reduce potential impacts from Phase II to less than significant.

5.1.2 Biological Resources

Following the effective implementation of the proposed mitigation measures, the potential indirect significant impacts to biological resources would be mitigated to below a level of significance.

Phase I

For Phase I, OMWD would obtain an NPDES permit from the RWQCB to allow for the release of excess water to San Dieguito River during the wet season. Conditions for release of this water

would be specified in the permit, and compliance is required. Conditions would include water quality sampling, specification of the maximum release permissible, and status reporting. These measures are designed to protect water quality, vegetation communities, wildlife, and their habitat.

Phase II

The SWPPP for Phase II construction will specifically employ control measures to minimize sedimentation and erosion in to the open water and freshwater marsh habitats within the Project area, and in offsite drainages immediately to the south of the site, including the downstream portions of the San Dieguito River. The Project biologist will flag all native habitat and jurisdictional areas on, or adjacent to, the Project area. Any impact to these areas will require habitat mitigation at a ratio of 5-to-1 (i.e., replace 5 acres for every 1 acre impacted).

In order to mitigate for potential indirect impacts to sensitive nesting bird species, Phase II construction should either avoid the migratory bird nesting season (i.e., avoid construction during the period from February 1 through September 30), or conduct a migratory bird nest survey immediately prior to the nesting season if construction cannot feasibly avoid this period. If no nesting birds are detected within 500 feet of proposed construction activities, then the Project may proceed.

As outlined in Section 3.2, there are four different habitat types within the proposed Project area: open water, freshwater marsh, ornamental, and developed. All of the Phase II well locations would be situated within landscaped areas of the Morgan Run golf course. The pipeline alignments would be located in either developed cart paths or through landscaped areas of the golf course. No direct impacts would occur to sensitive vegetation communities or native vegetation communities.

5.1.3 <u>Cultural Resources</u>

As discussed in Section 3.3, there are cultural resources sites in the vicinity of Phase I or Phase II of the proposed Project; however, no known sites are located within the Project boundaries. Due to the potential for buried deposits in the floodplain within the Project boundaries, potentially significant impacts could result if a resource were to be impacted during ground-disturbing activities.

Mitigation would include a qualified archaeological monitor to be present during all grounddisturbing construction activities. If resources were to be found during construction monitoring, work would be halted or moved and further investigation would be necessary to determine the significance of the resource and the appropriate treatment required. With implementation of these measures, the potential impacts to cultural resources would be reduced to less than significant.

5.2 SIGNIFICANT IRREVERSIBLE CHANGES THAT WOULD BE CAUSED BY THE PROPOSED PROJECT SHOULD IT BE IMPLEMENTED

Resources that are irreversibly committed to the construction and operation of a project are those that are typically used on a long-term or permanent basis; however, some are considered short-term resources that cannot be recovered and are thus considered irretrievable. These resources may include the use of nonrenewable resources such as fuel, wood, or other natural resources. Human labor is also considered a nonretrievable resource because labor used for the project would not be used for other purposes. The unavoidable destruction of natural resources that limit the range of potential uses of that particular environment would also be considered an irreversible or irretrievable commitment of resources.

Because of the relatively small scale of both phases of the proposed Project, there would not be significant irreversible environmental changes to energy or natural resource usage resulting from implementation of this groundwater storage Project. The proposed Project would result in the consumptive use of nonrenewable energy sources and labor required to operate construction equipment used to install various components of the proposed Project. This commitment of resources could otherwise have been applied to projects other than the proposed Project. Overall, the proposed Project would not require a substantial amount of resources and construction would be short term in nature.

5.3 GROWTH-INDUCING IMPACTS

The CEQA Guidelines (§15126.2(d)) require a discussion of growth-inducing impacts of the proposed Project. A project may be considered growth inducing when it:

- fosters economic growth, population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment;
- removes obstacles to population growth or additional housing;

- burdens existing community service facilities beyond current/projected capacities; or
- encourages or facilitates other activities that could significantly affect the environment.

One factor affecting growth is the availability of existing utilities and public services in an area. The provision of new utilities and services in an undeveloped area can induce growth in that area. Such growth may or may not be anticipated in local land use planning documents. If a project stimulates development of urban uses, it would have a significant growth-inducing effect. Growth inducement can also occur if the proposed Project makes it more feasible to increase the density of development in surrounding areas. Growth may be considered beneficial, detrimental, or of little significance to the environment, depending on its actual impacts to the environmental resources present and the secondary effects growth may have on the resources.

Direct Growth-Inducing Impacts

The proposed Project would not directly create or induce growth in the region. OMWD does not have land use authority and does not make decisions that directly plan or approve land use development. OMWD provides water services on an as-needed basis as land development is planned by cities, counties, or other land use authorities. The areas that would receive reclaimed water through the proposed Project are already developed. Therefore, the proposed Project cannot directly effect or foster growth in the surrounding region.

Indirect Growth-Inducing Impacts

The overall purpose of the proposed Project is to maximize utilization and storage capacity of reclaimed water. This would allow for water treated at the 4S Ranch WWTP to be stored and used at a future time when needed. This would be a beneficial outcome from implementation of the proposed Project as the quantity of reclaimed water that would normally be wasted due to the existing lack of availability and storage capacity would be saved as a result of Project implementation. The storage and increased availability of reclaimed water would also be beneficial because they provide a means of saving raw water normally used for irrigation for uses such as drinking water, which requires potable water only.

OMWD's reclaimed water delivery system was designed to be able to deliver reclaimed water to Fairbanks Ranch CC, Morgan Run, Del Mar CC, and Rancho Santa Fe Golf Course, based on water demands and potable-reclaimed water use conversion goals identified in the *OMWD Water Master Plan* (2000). OMWD has already purchased the excess capacity available in Main

Extension 153 to service the reclaimed water needs at Fairbanks Ranch CC and Morgan Run, and the existing 4S Ranch WWTP already produces enough reclaimed water to meet the needs of the San Dieguito Storage and Recovery Project.

By increasing the amount of available reclaimed water, the demand on potable water for uses such as landscape irrigation would be reduced. In addition, the proposed Project would increase the overall quality in the aquifer, providing a benefit to local well users. For these reasons, the increased storage capacity of reclaimed water that would result from the proposed Project could indirectly be considered a growth-inducing impact, as more water, both reclaimed and potable, would be available for use. Water is typically a constraining factor in new or expanded development in the region and the proposed Project would result in an increased availability of water. The proposed Project would not, however, provide infrastructure that would facilitate the use of this water for new or expanded growth.

5.4 EFFECTS FOUND NOT TO BE SIGNIFICANT

The CEQA Guidelines (§15128) require that the environmental document include a brief discussion of various environmental issues that were determined not to be significant. This EIR addresses all probable or foreseeable potential effects of the proposed Project. Based on the previous analysis completed for the IS/MND (EDAW 2002), effects were not found to be significant for the following issue areas: Land Use/Recreation, Visual Quality, Geology and Soils, Traffic, Noise, Air Quality, Public Utilities, Hazards and Hazardous Materials, Agricultural Resources, Energy and Mineral Resources, and Public Services. A more detailed evaluation of issues not addressed in this EIR follows. A portion of the information concerning these issues is summarized from the analysis completed for the IS/MND (refer to Appendix A).

Three issue areas (Hydrology/Water Quality, Biological Resources, and Cultural Resources) were determined to be potentially significant in the IS/MD, and each is addressed in Chapter 3.0.

5.4.1 Land Use

Phase I

Phase I of the proposed Project would not conflict with any of the land use goals and objectives of the Fairbanks Ranch County Club Specific Plan (City of San Diego 1982). The Project would be in compliance with applicable environmental plans or policies adopted by those agencies with jurisdiction over water-related issues. Within the Fairbanks Ranch community, Phase I of the

proposed Project would not divide the physical arrangement of the community because the Project would utilize infrastructure already in place to deliver excess reclaimed water to Fairbanks Ranch CC and new pipeline construction would be minimal. No significant land use impacts would result with implementation of Phase I of the proposed Project.

Phase II

The Project site for Phase II is currently developed as a golf course, with an associated country club resort. In conjunction with the resort, a residential development, the Whispering Palms Community is situated within 750 feet of the site. Phase II of the proposed Project is located within the regional land use category of Estate Development Area (EDA) of the San Diego County General Plan Regional Land Use Element (County 1995). The proposed Project is also located within the San Dieguito Community Plan Area (County 1996). The state agency with primary responsibility for maintaining the quality of groundwater and surface water in the basin is the RWQCB, San Diego Region. The local responsible agency is OMWD. In addition, the DHS regulates activities involving the use of reclaimed water.

Phase II of the proposed Project would not conflict with any of the land use goals and objectives of the San Dieguito Community Plan. There would be no conflicts with any of the policies or standards for development within the EDA category. Phase II would be in compliance with any applicable environmental plans or policies adopted by those agencies with jurisdiction over water-related issues. Within the Whispering Palms Community, the proposed Project would not divide the physical arrangement of the community because the Project components are situated at some distance from the community (separated by a driving range and the San Dieguito River), and wellheads and pipelines would be located belowground. Aboveground components would consist of vaults installed at land surface or small shed-like structures, which, again (because of geographic separation) would not physically divide the established community or conflict with any planning or land use policy. No significant land use impacts would result with implementation of Phase II.

5.4.2 <u>Visual Quality</u>

Phase I

The visual environment of the Phase I portion of the Project is dominated by the golf course and residential developments within the vicinity of the site. San Dieguito Road is also a prominent feature in the immediate area of Phase I.

Phase I would result in an operational change to the Fairbanks Ranch CC. The proposed emergency discharge pipeline would not alter the existing environment as the components would be generally below ground. Therefore, Phase I would have no demonstrable negative aesthetic effect, obstruct a scenic vista or view open to the public, or result in the creation of an aesthetically offensive site open to public view. No significant visual impacts would result with implementation of Phase I of the proposed Project.

Phase II

The golf course and the areas of residential development currently dominate the visual environment in the vicinity of the Phase II site. Via de la Valle, situated 2,500 feet west of the Project site is designated as a Scenic Highway Corridor (County 1996). Visible elements of the proposed Project would not be seen from Via de la Valle.

Similar to Phase I, the components of Phase II would not have a demonstrable negative aesthetic effect, obstruct a scenic vista or view open to the public, or result in the creation of an aesthetically offensive site open to public view. The majority of the components associated with Phase I would be located belowground. The golf course manager would be consulted concerning final placement of the aboveground equipment housing structures. The proposed Project would not create added light or glare sources, and no significant visual impacts would result with implementation of Phase II of the proposed Project.

5.4.3 Geology/Soils

Phase I

Temporary impacts to soils would occur in localized areas around the emergency delivery pipeline during construction. The excavated trench would be backfilled to match the existing grade. Due to the localized nature of the soil disturbance and the location on a previously graded and landscaped golf course, Phase I of the proposed Project would not significantly disrupt, displace, compact, or cover over soil in the study area.

Phase II

Phase II of the proposed Project would not present a significant risk for subsidence within the basin. Extraction will not exceed the net injection of water and as such should reduce the

likelihood that subsidence will occur within the basin. Under periods of severe drought and extraction by all well-users in the basin, it is possible that subsidence could occur. However, the basin was significantly stressed within the last 50 years and most likely has already experienced subsidence to some extent, creating a "prestressed" condition. As such, this has most likely reduced the risk of subsidence and along with the planned operation of Phase II should reduce the risk of reinitiating further subsidence within the basin. Detailed discussion of the local hydrologic conditions is provided in Section 3.1.

Temporary impacts to soils would occur in localized areas around the proposed wellheads and distribution pipelines during construction. Similar to Phase I, the excavated trench would be backfilled to match the existing grade and construction of wells would involve local disturbance of surface soil for the drilling and installation of the well components. Due to the localized nature of the soil disturbance and the location on a previously graded and landscaped golf course, Phase II of the proposed Project would not significantly disrupt, displace, compact, or cover over soil in the study area. No significant geologic or soils-related impacts would result with implementation of Phase II of the proposed Project.

5.4.4 <u>Traffic</u>

Phase I

Construction of the project would involve minimal construction work along San Dieguito Road to install the shutoff valve on the existing pipeline. Installation of this valve would not require road closures or detours and travel in each direction would be maintained. The remainder of necessary construction work to install the emergency delivery pipeline would not occur along a roadway or in an area that would disrupt traffic. Construction traffic would be minimal for this short pipeline and no impacts to traffic or circulation would occur.

Operation of Phase I would require only minimal maintenance of the flow control facility and occasional adjustments to the shutoff valve. The periodic maintenance trips would not impact traffic on San Dieguito Road. The operation of Phase I would not result in significant traffic impacts.

Phase II

General access to the Phase II site is provided by Via de la Valle. No new roads would be constructed and construction would not generate a significant amount of additional vehicle trips.

Because the proposed well and pipeline locations are on a private golf course, construction and maintenance activities would not require the obstruction of public roads. During the construction of this phase, approximately 4 to 10 vehicle roundtrips per day would be expected, most of which would be construction-related commuter vehicles. After construction, maintenance vehicles would periodically visit the site. Phase II of the proposed Project would not have significant impacts on the number of vehicle trips or traffic congestion. The relatively small number of construction and maintenance vehicle trips that would be generated by Phase II would have a less than significant impact on traffic flow.

Phase II of the proposed Project would not impact parking capacity on- or off-site. Residential and golf course parking at Morgan Run would not be impacted during construction or operation of the proposed Project. During construction, a staging area would be set up that would be adequate to accommodate construction-related vehicles. The staging area is part of the Project proposal as described in Section 2.4.1. No traffic or parking impacts would result from implementation of Phase II.

5.4.5 <u>Noise</u>

Phase I

Construction of Phase II would result in temporary increased noise levels near construction sites. Construction noise is governed by the City of San Diego Noise Ordinance Section 59.5.0404. This ordinance restricts times of construction activities from 7:00 a.m. to 7:00 p.m., Monday through Saturday, and prohibits construction on Sundays and holidays. Further, the noise levels from construction activities to residential receptors are not to exceed 75 dBA, averaged over a 12-hour period. Construction of the pipelines would generate noise from diesel-powered engines of the construction equipment, such as a backhoe. Pipeline construction would be approximately 600 feet from the nearest residences and would not exceed noise standards. Any increase in ambient noise would be temporary and last only the duration of the pipeline construction. Construction of the emergency discharge pipeline for Phase I would be below City construction noise standards and no significant impact would result.

Operation of Phase I would generate no noise as the flow control facility would not be power operated. The water would simply flow through the flow control valve with no noise generated as a result. Therefore, Phase I would not generate noise levels exceeding the City noise ordinance limits.

Phase II

Construction of Phase II would result in temporary increased noise levels near construction sites. The County Code of Regulatory Ordinance regulates construction noise in the Project area separate from operational noise limits (County 2000b). The regulations state that construction noise levels may not exceed 75 dBA L_{eq} for more than 8 hours in any 24-hour period. The noise regulations also state that construction activities are limited to the hours of 7 a.m. to 7 p.m., Monday through Saturday. Similar to Phase I, construction of the pipelines would generate noise from diesel-powered engines of the construction equipment, such as a backhoe. Installation of the wells and pumps would require the use of a drill/auger rig, which would generate the highest construction noise levels at 85 dBA L_{eq} at 50 feet from the source during maximum power output. The potential well locations are approximately 750 feet from the nearest residences. Based on noise attenuation rates over the landscaped terrain, the noise generated by the drill rig would be below 50 dBA L_{eq} at the nearest residence. Construction of Phase II of the proposed Project would be below County construction noise standards and no significant impact would result.

Phase II is located entirely within San Diego County and the relevant operational noise regulation within the County Code of Regulatory Ordinance states that the noise limit (1-hour average sound level) for the zoning of the Project site is 50 dBA L_{eq} between the hours of 7 a.m. to 10 p.m., and 45 dBA between the hours of 10 p.m. to 7 a.m. (County 2000a). Noise measurements were taken at various relevant locations throughout the Phase II Project site. These measurements indicated that the existing ambient noise levels were typically above the 50 dBA L_{eq} noise limit. Measurements showed that existing noise levels near Whispering Palms residences ranged from 50 to 70 dBA. Operation of the pumps would not generate significant noise levels above the ambient noise in the area. The submersible pumps would be located belowground, which would absorb almost all noise generated by the pumps. No significant noise impacts would result from the operation of the Project.

5.4.6 Air Quality

Phase I

Construction of Phase I would require only the installation of the short emergency discharge pipeline. This minimal ground disturbance and construction machinery operation would not exceed the federal General Conformity Rule de minimis threshold limits and, therefore; would

not conflict with the applicable air quality plans nor significantly contribute to existing air quality violations.

Operation of Phase I would require minimal vehicle trips to perform periodic maintenance and upkeep resulting in negligible, if any, traffic increases. There are no anticipated sources of significant objectionable odors associated with the Project. No significant regional or local ambient air quality impacts are anticipated from the operational activities associated with Phase I of the proposed Project.

Phase II

The construction air emissions analysis used in the IS/MND (EDAW 2002) employed a conservative assumption of construction of up to 13 potential wells. Based on current development plans, Phase II of the proposed Project would only construct approximately three of these wells. All construction criteria pollutant emissions were calculated to be below the federal General Conformity Rule de minimis threshold limits. Estimated construction emissions resulting from Phase II would be less than the de minimis threshold limits and, therefore; would not conflict with the applicable air quality plans nor significantly contribute to existing air quality violations.

Operation of Phase II would result in minimal emissions from the pumps and would not expose sensitive receptors to pollutants. Phase II of the Project utilizes submersible pumps powered by electric motors; therefore, operational air pollutant emissions would be negligible and not significant. Operation would require minimal vehicle trips to perform periodic maintenance and upkeep of the pumps resulting in negligible, if any, traffic increases. No significant regional or local ambient air quality impacts are anticipated from the operational activities associated with Phase II of the proposed Project.

5.4.7 <u>Public Utilities</u>

Phase I

Phase I would not interfere with any existing utilities. Modifications would be made on the existing OMWD Main Extension 153 pipeline to include a valve and flow control structure. No new water treatment facilities would be required for the operation of the proposed Project. The existing reclaimed water system is designed to accept and blend the recovered water. Operation

of the proposed Project would not generate solid waste and would not interfere with any existing solid waste disposal.

Phase II

The analysis provided above for Phase I is applicable to Phase II also. Phase II of the proposed Project would not result in significant impacts to existing utilities for the reasons explained above.

5.4.8 <u>Hazards and Hazardous Materials</u>

Phase I

Operation of Phase I would deliver reclaimed water into existing water impoundments on the Fairbanks Ranch golf course for irrigation purposes and for emergency discharge into the San Dieguito River. The reclaimed water would meet all water quality requirements for reclaimed water. No health hazards would result from construction or operation of Phase I of the proposed Project.

Phase II

Construction of Phase II of the proposed Project could result in potentially significant release of hazardous substances unless mitigated. Hazardous substances, such as fuel and oil for the operation of construction equipment, would be used during construction, and waste drilling muds would be generated during well-drilling activities. All hazardous materials would be handled according to applicable safety regulations that are incorporated into standard construction procedures, such as containment of all drilling muds, no discharge of excess drilling slurry or site runoff into drainages or wetlands, and other measures necessary to control drilling site runoff. All standard best management practices and contractor requirements discussed under Phase I would be implemented for Phase II also. With implementation of the appropriate measures, the potential for significant hazardous material impacts resulting from Phase II would be less than significant.

Operation of Phase II would result in the injection of reclaimed water into an aquifer currently used for irrigation by well users in the vicinity. None of the wells in the basin are used for potable water; however, it should be noted that one potable well exists at an upland location south of the basin, and is completed into the bedrock adjacent to the basin. The reclaimed water

injected into the aquifer would meet all water quality requirements for tertiary-treated reclaimed water under Title 22 of the California Code of Regulations and would be equal to, or better than, the quality of the water currently in the aquifer. No health hazards would result from construction or operation of Phase II of the proposed Project.

5.4.9 Agricultural Resources

Phase I

The land within the Phase I Project site is not designated as Prime Farmland, Farmland of Statewide Importance, or Farmland of Local Importance (California Department of Conservation 2002). The land in the site is currently recreational space and developed land, not agricultural. While there are agricultural operations in the general vicinity of the study area, Phase I of the proposed Project would not disrupt those agricultural operations or convert those lands to nonagricultural uses. No significant adverse impact to agricultural resources would result with implementation of Phase I.

Phase II

Similar to Phase I, the Project site for Phase II is not designated as Prime or Important farmland (California Department of Conservation 2002). The land is currently in recreational use and does not include agricultural operations. While there are agricultural operations to the north and east of the study area, Phase II of the proposed Project would not disrupt those agricultural operations or convert those lands to nonagricultural uses. The groundwater resource utilized by the agricultural operations would not be diminished or degraded. Project injection and withdrawal from the aquifer would not change the amount of groundwater available for extraction by other wells located in the basin. No significant adverse impact to agricultural resources would result with implementation of Phase II.

5.4.10 Energy and Mineral Resources

Phase I

Phase I of the proposed Project would not conflict with any goals of policies of the City of San Diego Progress Guide and General Plan (City of San Diego 1989). One recommendation within the Energy Conservation Element is to "Maintain and promote water conservation and water recycling programs as a means of conserving energy." Phase I of the proposed Project would

promote the use of reclaimed water by delivering reclaimed water to the Fairbanks Ranch CC for irrigation purposes. The use of reclaimed water for irrigation in place of potable water aids in water conservation and reuse. The Project site for Phase I is not designated for mineral resource protection and would not interfere with mineral resources or excavation of mineral resources. No significant energy or mineral impacts would result.

Phase II

Implementation of Phase II would not conflict with any goals or policies of the San Diego County General Plan Energy Element (County 1977) or the San Dieguito Community Plan (County 1996). The proposed Project is consistent with Policy UT 12 of the General Plan to "[p]romote strict County water conservation and recycling measures as a means of conserving energy." Action Program UT 12.2 (also listed as Policy 11 of the General Plan Conservation Element) states that, "The County will encourage projects which will promote the reclamation and reuse of wastewater. Such projects will be given funding priority in all water management programs." Phase II of the proposed Project would store excess reclaimed water for future use and is thus consistent with Action Program UT 12.2 and would promote the efficient use of water by utilizing reclaimed water for groundwater recharge. By storing water in the aquifer during the wet season and withdrawing it during the dry season, Phase II would promote the efficient use of the limited available supply of water. The Project site for Phase II is not designated for mineral resource protection and would not interfere with mineral resources or excavation of mineral resources. No significant energy or mineral impacts would result.

5.4.11 Public Services

Phase I

The proposed Project would not create an increased fire hazard or need for police services that would tax existing fire or police protection services or require the construction of new facilities. The proposed Project would not impact response times or other performance objectives of fire or police protection services. The Project would not create additional housing that would tax existing school facilities or otherwise create a demand for new schools. There would be no need for increased maintenance of public facilities, including roads. Site assess is generally provided by San Dieguito Road. No significant public service impacts would result with implementation of Phase I.

Phase II

The analysis provided for Phase I above concerning public services is applicable to Phase II of the Project as well. The proposed well locations would be on private property, and site access is from well-established private roads and paths. No significant public service impacts would result with implementation of Phase II.

5.5 MANDATORY FINDINGS OF SIGNIFICANCE

The CEQA Guidelines require a discussion of Mandatory Findings of Significance (§15065). There are four subsections to this requirement taken directly from the CEQA Guidelines. The CEQA language is provided in italics for greater distinction.

a) Does the proposed action have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wild life species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Section 3.2 of this EIR describes the impact potential to biological resources and downstream habitat associated with the San Dieguito River and concludes that no significant impacts would result. As outlined in Section 3.3, the proposed Project (including both Phases I and II) would not eliminate important examples of the major periods of California history or prehistory, as analyzed in Section 3.3.

b) Does the proposed action have the potential to achieve short-term, to the disadvantage of long-term, environmental goals?

The proposed Project (including both Phases I and II) would not achieve short-term goals to the disadvantage of long-term environmental goals. As described in Chapters 3.0 and 5.0 of this EIR, some short-term impacts may result during construction of the proposed Project. These impacts would be mitigated to below a level of significance. The proposed Project does not intend to achieve short-term goals but intends to provide a long-term solution to reclaimed water storage capacity. Long-term environmental goals would be achieved through the conservation of potable water because of increased availability of reclaimed water that would otherwise be

wasted. In addition, Phase II of the proposed Project would improve the water quality of the receiving aquifer.

c) Does the proposed action have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a proposed action are considerable when viewed in connection with the effects of probable future proposed actions).

The proposed Project (including both Phases I and II) would not result in cumulatively considerable impacts that would be significant, as disclosed in Chapter 4.0 of this EIR.

d) Does the proposed action have environmental effects which will cause substantial adverse effects on human beings either directly or indirectly?

As discussed in Chapter 3.0 of this EIR, hydrologic impacts would result from implementation of this Project, specifically in Phase II. These impacts could affect human beings through an influence on existing well users during the dry season. There would be beneficial impacts to human beings resulting from the Project that would include less wasted potable water through increased availability of reclaimed water and improved water quality in the receiving aquifer.

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CHAPTER 6.0 ALTERNATIVES

The CEQA Guidelines §15126.6 require that an EIR provide evidence that the Project proponent has considered a reasonable range of alternatives to the proposed Project. An alternative is considered to be feasible if it meets most of the basic objectives of the Project purpose and need, as set forth in Chapter 1.0 of this EIR. Therefore, as an integral part of the Project planning process, OMWD identified and considered several alternatives during the course of deciding upon a proposed Project. These alternatives considered varied locations as well as other ways of configuring the basic Project to achieve essentially the same Project objectives.

In general, there are two types of projects that would satisfy the purpose and need for the proposed Project. The first project type is a groundwater storage and recovery system, whereby the reclaimed water is transported from the source and injected into a groundwater basin during the wet season for subsequent recovery and use during the dry season, when the demand for irrigation water is highest. The second type of project is a surface water storage and recovery option, which involves the transport of the source water to a surface impoundment for storage during the wet season and withdrawal for irrigation purposes on demand during the dry season.

The general methodology used to conduct the alternatives analysis was fundamentally the same for each of the two project types (groundwater and surface water).

Identification, evaluation, and comparison of alternatives were undertaken in a structured manner, as described in the following discussion. Overall, the goal of the alternatives analysis was to focus on options that potentially minimized environmental impacts. Specifically, a methodology was employed that established a process for (1) defining the siting area; (2) identifying potential alternative sites; (3) conducting an independent evaluation of each site; and (4) comparing the attributes of all sites to determine which alternatives are truly feasible and which alternative should be selected as the proposed Project.

6.1 **DEFINITION OF THE SITING AREA**

Five factors were of primary importance in defining the siting area and identifying potential storage and recovery sites. In particular, to be feasible, a site must:

- be situated within the OMWD service area,
- be located in reasonable proximity to source water,
- be situated within the lower San Dieguito River Basin,
- possess sufficient land area to optimize well and pipeline locations, and
- have a willing landowner.

6.1.1 Situated within the OMWD Service Area

So that the Project is carried out as efficiently and as cost-effectively as practicable, OMWD has restricted the Project-site search area to its own service area, or in reasonable proximity thereto. A service-area focus is intended to avoid potential conflicts with water resource development, water storage, or water supply/distribution plans of neighboring water districts. The OMWD service area is depicted in Figure 1-2.

6.1.2 <u>Reasonable Proximity to Source Water</u>

Tertiary-treated water would come from the 4S Ranch WWTP, which is situated east of Dove Canyon Road in the 4S Ranch Community, as illustrated in Figure 1-2, together with the location of the OMWD Main Extension 153 pipeline, which would provide the primary conveyance of water from the source to each potential project site.

6.1.3 <u>Situated within the Lower San Dieguito River Basin</u>

OMWD has considered potential development of a groundwater storage and recovery project for many years and has funded or participated in the funding of several hydrologic studies for this purpose, including:

- Luke-Dudek Civil Engineers, Inc.
 - 1988 A Phased Program for Reclamation Development, Groundwater Recharge and Groundwater Quality Control in the San Dieguito Hydrographic Subunit of the San Diego Region in California. August.
- MWD
 - 1988 Reservoir Studies, Biological Resources Investigation.

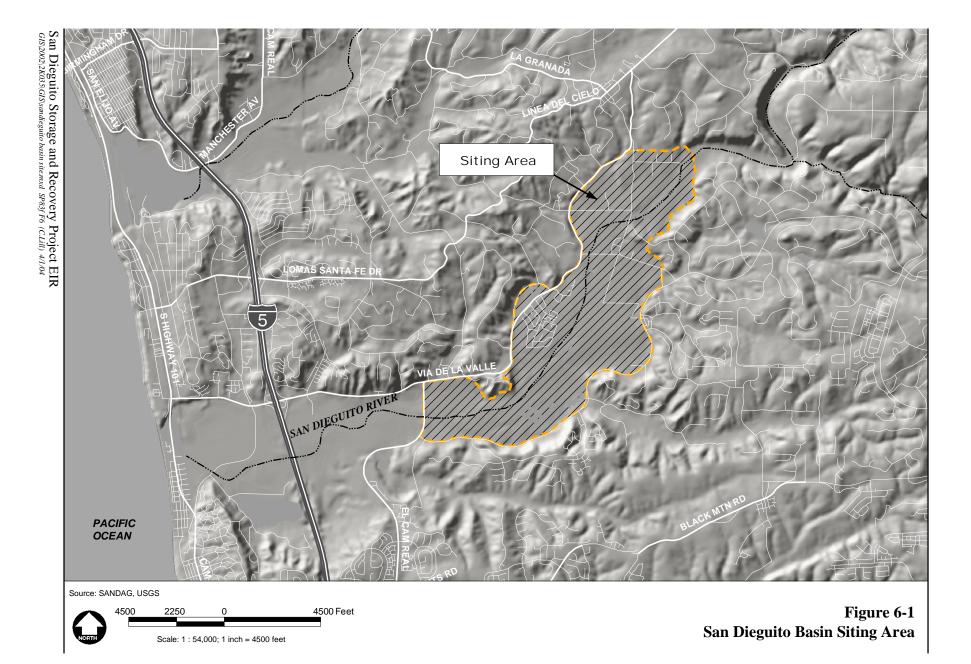
- OMWD
 - 2002a Project Report, Aquifer Storage and Recovery Program, San Dieguito Basin, San Diego, California.
 - 2002b Volume II, Project Report Appendices, Aquifer Storage and Recovery Program, San Dieguito Basin, San Diego, California.
- San Dieguito Basin Groundwater Management Task Force
 - 1997 San Dieguito Basin Groundwater Management Planning Study Phase II Feasibility Analysis.

As a long-time focus for a groundwater storage/recovery project, OMWD has amassed considerable information concerning the viability of a storage/recovery project in the basin. Locating the Project within the basin acknowledges and utilizes this extensive base of information on hydrogeologic conditions within the basin. This information has led OMWD to focus on that portion of the basin situated between El Camino Real and the confluence of the San Dieguito River with Lusardi Creek. El Camino Real was selected as the westernmost boundary because it represents the point beyond which groundwater quality degrades to levels in excess of 5,000 mg/l TDS. Groundwater quality generally improves at distances farther from the ocean, with TDS decreasing from about 4,500 to 2,500 mg/l at wells located within the basin upstream of Morgan Run.

The confluence of Lusardi Creek and the San Dieguito River was selected as the upstream boundary because of the narrowness of the river valley upstream from that point. A delineation of the basin siting area is depicted in Figure 6-1.

6.1.4 Sufficient Land Area

Sufficient land area is required to accommodate the Project, together with enough flexibility to maximize site layout and planning. It is anticipated that several wells and associated pipeline facilities would be required. Much of the land in the basin has been developed or is proposed for development with uses that would be incompatible with storage/recovery wells. Due to floodplain building restrictions, most of the available open space areas are located along the San Dieguito River.



6.1.5 Landowner Willingness

Willingness of the landowner to provide access for construction and maintenance of the wells is a key consideration. The purchase of land in fee title was determined to be an unfavorable option due to the desire to control the outlay of funds for this Project. Thus, it was important to identify landowners willing to incorporate this storage/recovery Project into their existing and future land use plans.

6.2 IDENTIFYING ALTERNATIVE SITES

An aerial photograph of the basin was overlain with landowner parcel data from County Assessor records to determine landownership throughout the valley. Inasmuch as the Project would require a certain amount of flexibility during site planning, larger parcels were preferred, especially larger previously disturbed parcels with potentially compatible land uses. Seven potential alternative sites were identified:

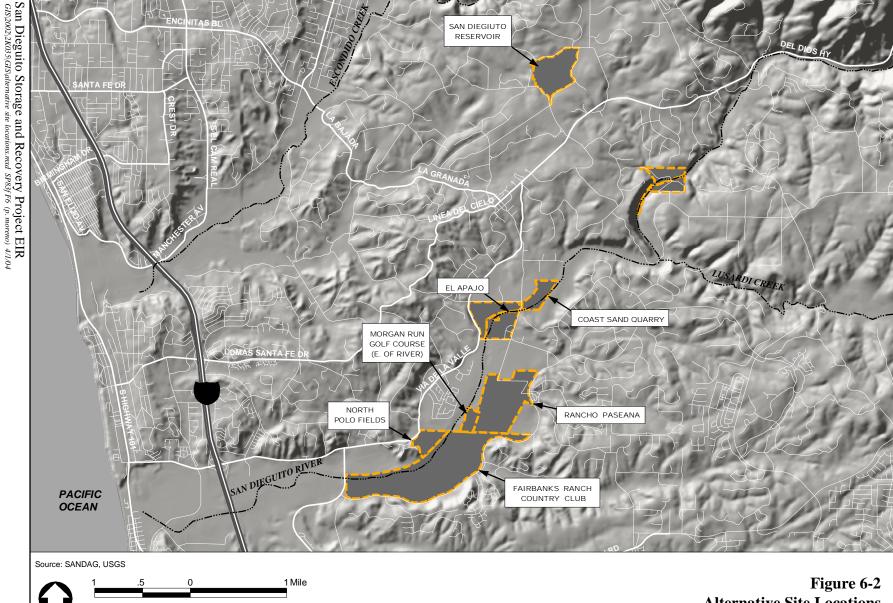
| | | Groundwater | <u>Surface Water</u> |
|----|------------------------|--------------------|----------------------|
| 1. | Coast Sand Quarry | Х | Х |
| 2. | El Apajo | Х | |
| 3. | Fairbanks Ranch CC | Х | Х |
| 4. | Morgan Run | Х | |
| 5. | North Polo Fields | Х | Х |
| 6. | Rancho Paseana | Х | |
| 7. | San Dieguito Reservoir | | Х |

The location of each site is depicted in Figure 6-2.

6.3 EVALUATING ALTERNATIVE SITES

A system was developed to rate the suitability of each identified site. A number of issues were considered:

- cost
- engineering/constructability
- land use/landownership
- population/housing



Scale: 1 : 63,360; 1 inch = 1 mile

Alternative Site Locations

- water impacts
- biological resources
- noise
- cultural resources
- recreation

For each issue, a standardized set of specific factors potentially affecting site feasibility was identified and recorded on a worksheet used to evaluate and compare sites. Data for the site evaluation were collected through interviews with landowners, public information research, site reconnaissance, and hydrogeologic modeling of the San Dieguito groundwater basin.

The characteristics, opportunities, and constraints of each site are discussed below. One potentially significant constraint common to all sites is the potential presence of subsurface cultural resources. This is due to the location of the sites within a major drainage system with known archaeological alternatives. However, it is anticipated that, for all sites, significant impacts to cultural resources can be avoided or fully mitigated by project design or implementation of mitigation measures.

6.3.1 Coast Sand Quarry

The Coast Sand Quarry site (depicted in Figure 6-2) is an approximately 37-acre site that was formerly operated as a sand quarry. The quarry is longer operational, and the land is highly disturbed from past mining activities. A 15-acre pond (former sand pit) filled with water from the San Dieguito River covers the southeastern portion of the site. The groundwater injection/recovery wells would be located in the upland portions of the site.

The quarry formerly operated under an expired mining permit, resulting in a cease-and-desist order from the State Mining and Geology Board (SMGB). SMGB has also ordered reclamation activities to be undertaken, an action being disputed by the quarry operator. Until the dispute over reclamation is resolved, it will remain a constraint on use of this site.

The owner of the quarry has refused to grant access onto the site for biological reconnaissance. Therefore, biological studies have not been conducted. Until such a study can be conducted, the project's biological impacts at the Coast Sand Quarry site will remain in question.

6.3.2 <u>El Apajo</u>

El Apajo (Figure 6-2) is an approximately 48-acre site. The eastern portion of the site is zoned and permitted for residential development, and the project is currently under construction. The western portion, adjoining the San Dieguito River, is undeveloped and would be the targeted location for groundwater injection/recovery wells.

However, an open space easement encumbers the undeveloped portions of the site and serves as a major constraint to development of the project on the El Apajo site. The San Dieguito River Park JPA administers the habitat management plan (HMP) associated with the easement. In coordination with the JPA, it was revealed that the JPA has a concern about locating the groundwater project in the easement area due to restrictions imposed by the existing open space easement and the HMP.

6.3.3 Fairbanks Ranch Country Club

The Fairbanks Ranch CC site (Figure 6-2) covers an area of approximately 373 acres. The San Dieguito River flows along the northern part of the site. The eastern portion of the site is maintained as an 18-hole golf course, and an additional 9 holes have recently been completed on the western portion of the site.

The major constraint to development of the Project at the Fairbanks Ranch CC site was the 9hole golf course expansion for which an EIR has been approved. Based on coordination with the facility manager, a board member of the country club, and the golf course construction contractor, it was decided that the golf course expansion project could not be modified to accommodate the groundwater injection and recovery project. The golf course expansion project is already complete and it was not desirable to alter the 9-hole expansion project as analyzed in the EIR.

However, the Fairbanks Ranch CC site does offer a potential for using existing surface water impoundments as storage sites for OMWD water. The existing OMWD Main Extension 153 pipeline has a stub located in San Dieguito Road, approximately 100 feet from one of the four existing impoundments, and could be connected via a disturbed and landscaped area to a small flow control facility to moderate flow on an as-needed basis.

6.3.4 Morgan Run (West of San Dieguito River)

The Morgan Run site (Figure 6-2) covers an area of approximately 275 acres, located on the Morgan Run Resort and Club. The site is developed with residential resort uses surrounded by a golf course. The San Dieguito River flows along the eastern portion of the site in a soft-bottomed channel.

The reach of the San Dieguito River that flows through the Project site is classified as a nonwetland "waters of the U.S." and poses a constraint to project design. It is anticipated that project-related pipelines could be installed without impacts to these "waters of the U.S." by utilizing directional drilling or suspending the pipeline from an existing bridge.

No federal or state-listed threatened or endangered species were detected in focus surveys conducted at this project site. As a follow-up to agency coordination meetings and comments on the IS/MND prepared for this site, focused surveys were conducted during spring 2003 for least Bell's vireo (*Vireo bellii pusillus*) and arroyo toad (*Bufo californicus*). Least Bell's vireos were not detected during the protocol survey and, due to limited habitat, there is low potential for this species to nest on-site or migrate through.

A constraint to development of the Project on the Morgan Run site is the concern voiced by some of the residents at Whispering Palms at the public hearing for the IS/MND held in November 2002. Specifically, there were concerns that potential leakance in the aquitard could cause flooding and property damage. This input was considered in addressing the identification and comparison of alternative site locations and in the sizing of the Project. These concerns have been addressed by 1) reducing the size of the project, 2) moving the location of the injection wells to the extreme southeast corner of Morgan Run, and 3) development of the AMP to mitigate potential impacts.

6.3.5 <u>North Polo Fields</u>

The North Polo Fields site (Figure 6-2) includes approximately 35 acres and is part of a larger equestrian facility on land leased from the City of San Diego. In the northern portion of the site, there is a man-made surface water impoundment approximately 1 acre in size that is used for irrigation purposes. A drainage ditch runs south across the site and empties into the San Dieguito River. With permission from the Polo Club's facility manager, a biological reconnaissance was conducted on the site. The drainage contains CDFG and potentially Army Corps of Engineers (ACOE) jurisdictional wetlands.

According to the modeling of the groundwater basin performed by Hargis (2002), the site is underlain with fine-grained sediments at depth, which limits the efficiency of the deep aquifer and hence the overall viability of groundwater storage at this site. In addition, the size of the site, coupled with current and future uses of the site by Polo Club management, severely restricts the area available for surface water storage.

6.3.6 <u>Rancho Paseana</u>

Rancho Paseana (Figure 6-2) is an approximately 174-acre racehorse breeding, training, and boarding facility, with the westernmost site boundary situated approximately 500 feet east of the San Dieguito River. Though there are few structural improvements on-site, most of the land has been previously disturbed and is currently maintained in open fields.

In discussions with the Rancho Paseana facility manager, it was revealed that the only portion of the Rancho Paseana site that could be considered for development by OMWD was the southwest corner, as all other areas were dedicated to breeding, training, and boarding racehorses. The designated area remains wet throughout most of the year due to poor drainage. Based on the hydrogeological studies performed by Hargis (2002), there is an apparent absence of permeable, coarse-grained sediments in the deep aquifer over a substantial area of the site. Therefore, the site would be incapable of supporting the proposed uses of the project.

6.3.7 <u>San Dieguito Reservoir</u>

The San Dieguito Reservoir (Figure 6-2) has a surface area of approximately 61 acres. Constructed in 1918, the San Dieguito Dam was designed to impound a maximum of 700 AF of water. The dam and reservoir are owned and operated by Santa Fe Irrigation District (SFID), and OMWD has had preliminary discussions with SFID concerning the potential use of the reservoir in conjunction with OMWD's storage needs for tertiary-treated water from their 4S Ranch WWTP during the wet season. SFID is currently considering other upgrades or uses at the San Dieguito Reservoir. Thus, a decision concerning a shared use of the reservoir by OMWD and SFID would not occur until some as yet undetermined point in the future. The uncertainty of the outcome of this decision process makes San Dieguito Reservoir an unreliable option for the purposes of OMWD's current need for reclaimed water storage and recovery. This site could be considered in the future in the event that site uses were revised or changed.

6.4 SITE ATTRIBUTE COMPARISON

A general comparison of all seven alternatives is presented in Table 6-1, based on an analysis of the information recorded on each of the Site Evaluation worksheets (Appendix A). In Table 6-1, a three-tier rating scheme (High, Medium, Low) is used to denote the suitability of each site with respect to each of the 9 issue areas. A similar rating scheme is used in Table 6-2, which compares surface water alternatives.

As anticipated, the sites vary in their comparative levels of suitability with respect to each issue area. When considering all of the site suitability ratings in concern, the overall suitability for development can be derived. The process of deriving overall suitability ratings involves the assignment of numerical representations for the qualitative suitability ratings, as follows:

- Low Suitability (L) = 1
- Medium Suitability (M) = 2
- High Suitability (H) = 3

| | | | Su | iitabili | ty Cr | iteria | | | |
|----------------------------|------|-------------|------------------------|------------------------|--------------|---------|-------|----------|------------|
| Groundwater Alternative | Cost | Engineering | Land Use/ Ownership | Population/ Housing | Hydrogeology | Biology | Noise | Cultural | Recreation |
| Coast Sand Quarry | L | М | L | М | Н | М | Н | М | Н |
| El Apajo | М | Н | L | М | М | М | Н | М | М |
| Rancho Paseana | Н | L | М | Н | L | М | Н | М | М |
| Morgan Run | Н | Н | Н | М | Н | М | Н | М | М |
| Fairbanks Ranch CC | Н | Н | Н | Н | М | М | Н | М | М |
| North Polo Fields | М | L | Н | М | L | М | Н | М | М |

Table 6-1Comparison of Groundwater Alternatives

Site Suitability Ratings

H = High Suitability

M = Medium Suitability

L = Low Suitability

| | | | Su | itabili | ty Cr | iteria | | | |
|------------------------------|------|-------------|------------------------|------------------------|--------------|---------|-------|----------|------------|
| Surface Water Alternative | Cost | Engineering | Land Use/ Ownership | Population/ Housing | Hydrogeology | Biology | Noise | Cultural | Recreation |
| Coast Sand Quarry | L | М | L | М | Н | М | Н | М | Н |
| Fairbanks Ranch CC | Н | Н | Н | Н | Н | Н | Н | М | М |
| North Polo Fields | М | L | М | М | М | М | Н | М | М |
| San Dieguito Reservoir | М | Н | Н | Н | Н | Н | Н | Н | Н |

Table 6-2Comparison of Surface Water Alternatives

Site Suitability Ratings

H = High Suitability

M = Medium Suitability

L = Low Suitability

Assuming that all suitability criteria carry an equal weight, the overall numerical suitability ratings for the alternative sites are as follows:

| | Groundwater | Surface Water |
|------------------------|--------------------|---------------|
| Coast Sand Quarry | 19 | 19 |
| El Apajo | 19 | |
| Fairbanks Ranch CC | 19 | 25 |
| Morgan Run | 23 | |
| North Polo Fields | 23 | 18 |
| Rancho Paseana | 18 | |
| San Dieguito Reservoir | | 25 |

The similarity in overall suitability ratings between the seven sites indicates that OMWD has identified sites that are reasonable candidates as host sites for the groundwater Project. However, there are certain, nonnumerical factors that also influence the site evaluation process. When considering these other factors, the only two sites that remain a viable alternative in the near term are Morgan Run and Fairbanks Ranch CC. The following commentary focuses on the

issues or circumstances that tend to eliminate all but Morgan Run and Fairbanks Ranch CC from further consideration.

6.4.1 <u>Coast Sand Quarry</u>

The Coast Sand Quarry site is currently considered infeasible for the purposes of this Project due to uncertainties associated with landowner decisions concerning future plans for the site, a ceaseand-desist order in effect for sand-mining operations, the extent and cost of site reclamation activities, and the potential for sensitive biological resources.

6.4.2 <u>El Apajo</u>

There is an open space/conservation easement associated with the El Apajo Estates development that precludes use of this targeted area for any purpose other than conservation. Thus, the El Apajo site is considered infeasible for the purposes of this Project.

6.4.3 Fairbanks Ranch Country Club

According to Fairbanks Ranch management, the proposed Project conflicts with the current golf course expansion; thus, the Fairbanks Ranch CC site is considered infeasible for groundwater storage. However, there is excellent potential for surface water storage via a connection of OMWD Main Extension 153 pipeline with a nearby existing surface water impoundment.

6.4.4 Morgan Run (West of San Dieguito River)

Additional aquifer testing, evaluation, and modeling at the Morgan Run site has demonstrated that the aquifer is competent. Site development for groundwater storage/recovery is considered feasible.

6.4.5 <u>North Polo Fields</u>

The facility manager has identified a small strip of land at the extreme north end of the site as being available for the Project; however, the size of this area is too confined to support the needs of the Project. This, coupled with the presence of inefficient, fine-grained sediments at depth, makes North Polo Fields infeasible for the purposes of this Project.

6.4.6 Rancho Paseana

This site lacks proper geohydrological conditions, primarily due to the presence of silt and finegrained materials at depth on the western/southern portion of the site. According to the facility manager, this area is the only location on the ranch that they are willing to consider for the Project. Thus, the Rancho Paseana site is considered infeasible for the purposes of this Project.

6.4.7 <u>San Dieguito Reservoir</u>

Surface storage currently exists in the reservoir and existing pipelines access the area. The cost of obtaining storage capacity must be negotiated with other agencies. While development at this site is considered feasible, the uncertainty of the outcome of OMWD discussions with SFID and SDWD makes San Dieguito Reservoir an unreliable option for the purposes of OMWD's current need for reclaimed water storage and recovery. However, this option may be further considered in the future when site development uncertainties have been resolved.

6.5 **PROPOSED PROJECT**

The results of the alternatives analysis suggests that the most favorable groundwater project would be a Morgan Run storage/recovery project sized at approximately 150 AF/yr. Given the current dedicated uses of land on the Morgan Run site, the location of the existing OMWD Main Extension 153 pipeline, and in consideration of the location of the Whispering Palms Community, the most reasonable location for this small project is in the extreme southeastern corner of the Morgan Run property. This is the proposed Project, and it is the subject of this EIR.

A surface water project at Fairbanks Ranch CC is also feasible, and the facility could be supplied with reclaimed water from 4S Ranch WWTP via the same OMWD Main Extension 153 pipeline that would supply Morgan Run.

6.6 NO-PROJECT ALTERNATIVE

The No-Project alternative would mean that the need for this Project would not be fulfilled. The 84-day storage requirement for 4S Ranch WWTP would not be met, the opportunity to replace a given amount of raw water used for irrigation purposes with tertiary treated water would be lost, and the benefits of improving the quality of water in the basin through the injection of higherquality reclaimed water would not be realized.

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CHAPTER 9.0 COMMENTS AND RESPONSES TO COMMENTS

9.1 INTRODUCTION

Olivenhain Municipal Water District (District) has prepared an Environmental Impact Report (EIR) for the proposed San Dieguito Water Storage and Recovery Project in compliance with the California Environmental Quality Act (CEQA). CEQA contains an important provision (Section 15200, *CEQA Guidelines*) that requires the lead agency (in this case, the District) to include public participation as a part of the CEQA process. The intent of public participation is to provide a structured procedure that allows an opportunity for public agencies and the general public to review the scope and potential impacts of a proposed project and to then provide comments back to the lead agency for consideration during their decision-making process.

The District has complied fully with the requirements outlined in Section 15200 of *CEQA Guidelines*. Specifically, the District has taken the following actions to assure that the public was provided ample opportunity to comment on the proposed project:

- A Notice of Preparation (NOP) was sent to the State Clearinghouse, indicating the District's intent to prepare an EIR. The State Clearinghouse subsequently provided this notice to state agencies.
- A Notice of Availability (NOA) and Notice of Completion (NOC) were sent to the State Clearinghouse, together with electronic copies of the Draft EIR, which were distributed to state agencies reviewing the project.
- The NOA was also filed with the San Diego County Clerk's office and was printed in two local newspapers, the *North County Times* and the *Union-Tribune*.
- Letters were sent to over 600 residents and landowners of properties located within 1,000 feet of the project, informing them about the availability of the Draft EIR and the date of the public hearing.

- A printed copy of the Draft EIR was placed in the Encinitas Public Library for public review and was also made available at the District's offices. An electronic copy of the Draft EIR was up-loaded to the District's website for use by the general public.
- A 45-day public review period was designated, during which the public was invited to read and provide comments on the Draft EIR.
- The District held a public hearing during the public review period to provide a forum for public comments. A copy of the transcript is available through the District.
- The District held numerous meetings with public agencies, homeowner groups, and land use planning organizations to inform them about the project, to answer questions, and address concerns.
- The District Board of Directors met on December 8, 2004 to certify and approve the project. The transcript of that public meeting is available through the District.

As lead CEQA agency, the District prepared responses to all written comments received during the public review period. Facsimiles of each comment letter are included herein, and each comment has been provided with a unique alphanumeric tracking number, with the alpha character representing the source of the comment and the numeral representing the sequence in which a comment appears in a letter. The tracking number has been placed in the right-hand margin of the letter. Responses to these comments are organized by tracking number, and appear in the section following the letter facsimiles.

In all, six letters were received, as follows (listed in the order received by the District):

- 1. San Dieguito River Park Joint Powers Authority (September 27, 2004)
- 2. Native American Heritage Commission (October 15, 2004)
- 3. Whispering Palms Community Council (October 16, 2004)
- 4. Governor's Office of Planning and Research, State Clearinghouse and Planning Unit (October 18, 2004)

- 5. U.S. Fish and Wildlife Service and California Department of Fish and Game (Joint Letter, November 17, 2004)
- 6. California Regional Water Quality Control Board, Region 9 (December 22, 2004)

The District also received a small number of questions via telephone. These questions were answered at the time they were posed. No follow-up letters were received from any of the individuals who had asked questions via telephone.

9.2 FACSIMILES OF COMMENT LETTERS

Facsimiles of the six comment letters are presented on the following pages, followed by the District's responses to comments in Section 9.3.

09.28.2004 09:43SAN DIEGUITO RIVER PARK → 16194406343 NO. 390 \mathcal{O} San Dieguito River Valley Regional Open Space Park 18372 Sycamore Creek Road Escondido, CA 92025 (858) 674-2270 Fax (858) 674-2280 www.sdrp.org JOINT POWERS AUTHORITY BOARD OF DIRECTORS September 27, 2004 Chair Pam Slater Supervisor, County of San Diego vice Chair Scott Prtets San Diego City Council Harry Ehrlich Deputy General Manager Jerry Finnell Del Mer City Council Olivenhain Municipal Water District Ed Gallo Escondido City Council 1966 Olivenhain Road Encinitas, CA 92024 Beny Rexlard Peway City Council Tem Golich Solana Beach City Council Comments on Draft EIR Subject: San Dieguito Water Storage and Recovery Project Bran Malenschein San Diego City Council Diarine Jacob Supervisor, County of San Direct Dear Mr. Ehrlich: Dr. Philip Pryde Citizens Advisory Committee Thank you for providing the San Dieguito River Park JPA with the opportunity to comment on the Draft EIR for OMWD's proposed project. Our Dorlyn Devenport, Ex Officio 22nd District Agricultural Assoc comments are based on review of the Draft ElR and a presentation of the Dick Boberts Executive Director project to the River Park's Project Review Committee (PRC) by Jack White, consultant for OMWD on this project. We appreciate the level of effort OMWD has put forth in communicating this project over the past two years to the San Dieguito River Park Joint Powers Authority, and to avoiding impacts to the San Dieguito river basin. Based on JPA-1 the information provided, we do not believe that the project would cause any significant environmental impacts to the River Park or water quality/quantity in the area. The active management program proposed as part of the project will also provide data about the water quality in this area, which is currently lacking. We understand that you will also be conducing additional analysis to further evaluate your project in relation to the San Dieguito Lagoon Wetland **JPA-2** Restoration Project, to ensure that no project features would impact the JPA's restoration project. We would appreciate copies of any reports you produce regarding that analysis. If you have any questions regarding the wetland restoration project, please do not hesitate to call me. Thank you. Sincerely. 12 what Anderson, AIC Shawna Environmental Planner Jack White, White Environmental Cc: Recycled Paper SEP 28,2004 10:48 858 674 2280 Page 1

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| STATE OF CALLEDRNIA | | Arnold Seturaceman Governor |
| NATIVE AMERICAN HERITAGE CO 915 CAPITCA, MALL, ROOM 364 (SACRAMENTO, CA 95014 (916) 653 4052 (916) 657-5390 - Fax | OMMISSION | |
| | October 15, 2004 | |
| Mr. Harry Erlich Oliveham Municipal Water District 1966 Oliveham Road Encinitas: CA 92024 | | |
| Re: Draft EIH; San Dieguito Water Storage SCH# 2002101060 | Recovery Project | |
| archaeological survey conducted for this rep specific related project impacts on cultural re O Contact the Native American Hornage C tribal contacts in the project vicitity who • Please provide U.S.G.S. location is O Early consultation with tribes in your arc Enclosed is a fist of Native Americans II area. By contacting all those listed, you appropriate the or group. • Lack of surface evidence of archeologic | Commission for a Sacred Lands File search of o may have additional cultural resource informa- information for the project site, including Quadry calls the best way to avoid unanticipated disco- ndividuals/organizations that may have knowle unorganization will be better able to respond to cal resources does not preclude their subsurfact | g actions be taken to fully assess the title project area and information on ation. angle, Township, Bango, and Section. veries once a project is underway. dge of cultural resources in the project is claims of failure to consult with the be existence. |
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| Barona Group of the Capitan Grande Sue Thomas, Tribal Administrator 095 Barona Road Diegueno akeside , CA 92040 619) 443-6612 | Coastal Gabrieleno Diegueno Jim Velasques 5776 42nd Street Gabrielino Riverside , CA 92509 Kumeyaay (909) 784-6660 |
| Barona Group of the Capitan Grande Steve Banegas, Cultural Resources Coordinator 095 Barona Road Diegueno akeside , CA 92040 619) 443-6612 | Ewilaapaayp EPA Office James Robertson, Cultural Resources Coordinator 4208 Willows Road Kumeyaay Alpine CA 91903-2250 jbrhut@sctdv.net (619) 445-6315 - voice (619) 72206134 - fax |
| Barona Group of the Capitan Grande Jucille Richard, EPA Specialist 095 Barona Road Diegueno akeside , CA 92040 619) 443-6612 | Ewiiaapaayp Tribal Office Harlan Pinto, Chairperson PO Box 2250 Alpine Wmicklin@leaningrock.net (619) 445-6315 - voice (619) 445-9126 - tax |
| Barona Group of the Capitan Grande Difford LaChappa, Chairperson 095 Barona Road Diegueno akeside , CA 92040 619) 443-6612 | Ewiiaapaayp Tribal Office Will Micklin, Tribal Administrator PO Box 2250 Kurneyaay Alpine CA 91903-2250 wrricklin@leaningrock.net (619) 445-6315 - voice (619) 445-9126 - fax |
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| San Die | ican Contacts jo County 15, 2004 |
| Ewilaapaayp Tribal Office Michael Garcia, Environmental Coordinator PO Box 2250 Kumeyaay Alpine CA 91903-2250 michaelg@leaningrock.net (619) 445-6315 - voice (619) 445-9126 - fax | Santa Ysabel Band of Diegueno Indians Johnny Hernandez, Spokesman PO Box 130 Diegueno Santa Ysabet -, CA 92070 (760) 765-0845 (760) 765-0320 Fax |
| Inaja Band of Mission Indians Rebecca Osuna 309 S. Maple Street Diegueno Escondido CA 92025 (760) 737-7628 (760) 747-8568 Fax | Sycuan Band of Mission Indians Danny Tucker, Chairperson 5459 Dehesa Road Diegueno/Kumeyaay El Cajon - CA 92021 619 445-2613 619 445-1927 Fax |
| Kumeyaay Cultural Historic Committee Ron Christman 56 Viejas Grade Road Diegueno/Kumeyaay Alpine , CA 92001 (619) 445-0385 | Viejas Band of Mission Indians Anthony Pico, Chairperson PO Box 908 Diegueno/Kumayaay Alpine , CA 91903 (619) 445-3810 (619) 445-5337 Fax |
| Kumeyaay Cultural Repatriation Committee Steve Banegas, Spokesperson 1095 Barona Road Diegueno/Kumeyaay Lakeside - CA 92040 (619) 443-6612 (619) 443-0681 FAX | |
| San Pasqual Band of Mission Indians Allen E. Lawson, Chairperson PO Box 365 Diegueno Valley Center , CA 92082 (760) 749-3200 (760) 749-3876 Fax | |
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OLIVENHAIN WHIER DIST Fax: 260-753-1638 Oct. 25 '04 15:40 P.02 WHISPERING PALMS COMMUNITY COUNCIL P.O. BOX 3114 RANCHO SANTA FE, CA 92067 October 16, 2004 OLIVENHAIN MUNICIPAL WATER DISTRICT 1966 Olivenhain Rd Encinitas, CA 92024 Attn. Harry Ehrlich, Deputy General Manager Sonja Holtman, Administrative Assistant Dear Harry and Sonja. Enclosed please find an original signed copy of the letter report by Robert K Scott of URS, per my telecon with Sonja. As soon as the Council receives the URS billing, we will pay it and forward a copy to your office. It is my understanding that we still have some credit with OMWD on the \$5,000.00 designated for professional review of the proposed project. Thank you both for your courtesy and cooperation, Whispering Palms Community Council by,

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dames Biggins, Vice President

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October 11, 2004

James Biggins, Esq. Whispering Palms Community Council 3858 Via Pastiempo Rancho Santa Fe, CA 92091 4276

Third Party Review Subject: San Dieguito Water Storage and Recovery Program San Diego, California Reference No. 27702038.00020

Dear Mr. Biggins:

In accordance with your request, URS Corporation (URS) is pleased to provide the Whispering Palms Community Council (Whispering Palms) the results of our third-party review of the San Dieguito Water Storage and Recovery Project proposed by the Olivenhain Municipal Water District (OMWD). Our services were performed in accordance with our proposal to Whispering Palms dated September 28, 2004.

DOCUMENTS REVIEWED

URS reviewed the following documents that have been prepared since November 2002, when we were last assisting Whispering Palms with evaluating this project

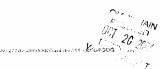
- "Draft Environmental Impact Report for the San Dieguito Water Storage and Recovery Project San Diego, California" dated August 2004 prepared by Kleinfelder, Inc. (Kleinfelder) and EDAW, Inc. (EDAW).
- "Hydrogeologic Report, Aquifer Storage and Recovery Project, San Dieguito Basin, San Diego, California" prepared by Hargis + Associates, Inc. (H+A) and dated August 17, 2004

The results of our third-party review are provided below

BACKGROUND

The proposed project will involve the storage and recovery of reclaimed water in a deeper, confined aquifer (80 to 150 feet below the ground surface) underlying the Morgan Run Golf Course and Resort in the San Dieguito River Valley near Rancho Santa Fe, California. The Whispering Palms Community Council represents approximately 500 homeowners adjacent to and west of Morgan Run on the west side of the San Dieguito River. URS has been requested to provide third-party review to identify what potential affects the project may have on residences and properties in its community from a groundwater perspective.

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James Biggins, Esq Whispering Palms Community Council October 11, 2004 Page 2

In 2002, the groundwater storage and recovery project proposed injecting approximately 1,000 acre-fect (ac ft) of tertiary treated and imported raw Metropolitan Water District of Southern California (MWD) water into the deep aquifer annually. The water was to be injected into the aquifer using 11 wells on the Morgan Run Golf Course and Resort. A similar volume of water would be extracted from the aquifer annually. The project would satisfy regulatory requirements of the San Diego Regional Water Quality Control Board (RWQCB) for the 4S Ranch and Santa Fe Valley Reclamation Facilities. Injection of raw and tertiary treated water intrusion such that groundwater is not suitable for many beneficial uses. An "Initial study and Draft Mitigated Negarive Declaration" was prepared for the project by Kleinfelder in October 2002.

Following public uput to the proposed project in 2002, an alternative program was considered by OMWD. As indicated in the Draft EIR dated August 2004, the current project consists of two phases. Phase I includes storage of reclaimed tertiary treated water in the existing ponds at the Faitbanks Ranch Country Club for irrigation purposes. The source of the water will be the 4S Ranch Waste Water Treatment Plant (WWTP). Based on the draft EIR, the water meets or exceeds California Title 22 Regulations for unrestricted use for irrigation. Excess water will be discharged during wet weather to the San Diegoito River meeting the requirements of the RWQCB which includes a National Pollution Discharge Elimination System (NPDES) permit.

Phase II will involve injection of tertiary treated, Title 22 water into and recovery from the deep aquifer at Morgan Run east of the San Dieguito River similar to that proposed previously. However, the volume of water to be injected during the wet season under the current plan has been reduced from 1.000 to 150 ac ft/yr. Up to three wells will be used to inject the raw and tertiary treated water rather than 11 previously proposed. The wells will be located on the southeastern portion of Morgan Run, as far from residential areas as possible. The geology of the deeper aquifer in this area was also found by H+A to be suitable for water injection and recovery.

FINDINGS

In early 2003, URS indicated that the previously proposed project of mjecting and recovering 1,000 ac-ft/vr from the deep aquifer was feasible and the settlement of structures and groundwater upwelling beneath structures was unlikely. However, we noted that additional subsurface geologic data and refinement of the groundwater flow model was needed to further evaluate the potential for groundwater upwelling near the river bed. Review of the H+A report dated August 17, 2004 indicates that additional cone penetrometer test (CPT) borings were drilled to identify the types of sediments in the subsurface and the degree of their lateral continuity. The findings of the additional investigation supported earlier assumptions to its computer model. The model layers were: the shallow zone (Layer 1), the aquitard, composed of silt and clay (Layer 2) and the deep zone/aquifer (Layer 3). Based on this additional data, the model was refined.

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James Biggins: Esq. Whispering Palms Community Council October 11, 2004 Page 3

Phase II of the current project has been reduced in size compared to that proposed in 2002, OMWD will inject and recover a volume of water in the deep aquifer that is only 15 percent of that originally proposed. The current plan will have less potential to affect water levels in the shallow zone (Layer 1) as compared to the previous project. The injection/recovery wells will be installed at the southeastern corner of the Morgan Run Golf Course, as far as possible from residential areas. The modeling results indicate that the pressure in the deep aquifer will increase during periods of groundwater injection in the vicinity of the injection wells. This pressure increase resulting from injection would be equal to a rise in the water levels in a well penetrating the deep aquifer that is above the level of the ground surface. This is referred to as artesian conditions. However, because the deep aquifer is one that is confined (capped with a low permeability layer or aquitard), actual water levels in the shallow aquifer is not likely to rise or fall significantly with injection and extraction, respectively. This is supported by the results of aquifer testing conducted by H+A and the output from the groundwater model. URS agrees that injection of water into the confined aquifer will not result in a rise in water levels in the shallow aquifer. As such, groundwater injection will not have a significant affect on water levels in the shallow zone beneath the Whispering Palms community. As H+A indicates, there is some potential for a rise in water levels in the shallow aquifer where the aquitard separating it from the deeper aquifer may be thinner and of greater permeability. Results of H+A's modeling indicate that the rise in water levels in these areas will be relatively small. URS concurs with H+A's conclusions.

It is our understanding that there has been community concern related to potential for structural settlement. Settlement is typically induced when groundwater pressure is significantly reduced in a confined aquifer resulting in compaction of the overlying, fine-grained aquitard as a result of excessive groundwater withdrawl. Compaction of the aquitard can result in subsidence. Historically, excessive withdrawl of groundwater from the basin resulted in seawater intrusion. It is likely that if subsidence has occurred in the basin, it predated residential development. Additionally the program will manage groundwater withdrawls from the basin. Phase II proposes to inject and extract roughly the same volume of water, therefore the potential for additional subsidence will be minimal.

It is possible that water supply wells that penetrate the deep aquifer in the vicinity of the injection wells will experience a rise in water levels. Some existing well heads may require new seals to abate flowing conditions or leakance of water to the shallow aquifer. In addition, it is possible that during periods of groundwater extraction, existing wells could experience a decreased yield. H i A has prepared an Active Management Plan (AMP) that will monitor surface and groundwater levels and quality. The AMR should adequately address these issues. Monitoring will be conducted in the vicinity of the injection/extraction wells, existing wells and the San Dieguito River. Based on observations, the injection/extraction program will be adjusted to address potential impacts

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James Bigguis, Esq. Whispering Palms Community Council October 11, 2004 Page 4

CONCLUSIONS

H+A has conducted the additional hydrogeologic studies in the vicinity of the proposed project that it planned to complete in 2002 related to Pnase II. Based on the results, its model simulating groundwater levels and quality has been refined. The results support that groundwater injection into the deep aquifer will have hitle affect on water levels in the shallow aquifer and the San Dieguito River. Our review of the available data supports this conclusion. Additionally, an AMR has been prepared that will monitor changes resulting from the injection and extraction of reclaimed water into the deep aquifer. The program will respond by adjusting injection and extraction rates based on held observations and analyses to mitigate potential impacts.

Phase I involves the discharge of tertiary t eated water to existing ponds on the Fairbanks Ranch Golf Course. The water will be used for inigation purposes and replace potable water that is currently used. The ponds are concrete lined and bermed. No additional leakance compared to what may currently occur to the shallow aquifer is anticipated. Excess water may pass through the ponds and be discharged to the San Dieguito River during wet weather approximately 0.5 miles southwest and downstream of Whispering Palms. During wet weather, the reclaimed water discharged will make up a small percentage of the total river flow. Phase I should have little or no affect on shallow groundwater levels in the vicinity of Whispering Palms.

URS appreciated the opportunity to have assisted with an evaluation of this project as it could pertain to Whispering Palms. If you have any questions, please contact us at (619) 294-9400.

Sincerely,

URS CORPORATE Χ. Robert K. Scott, R 3 con Principal Geologist C.A

RKS sm

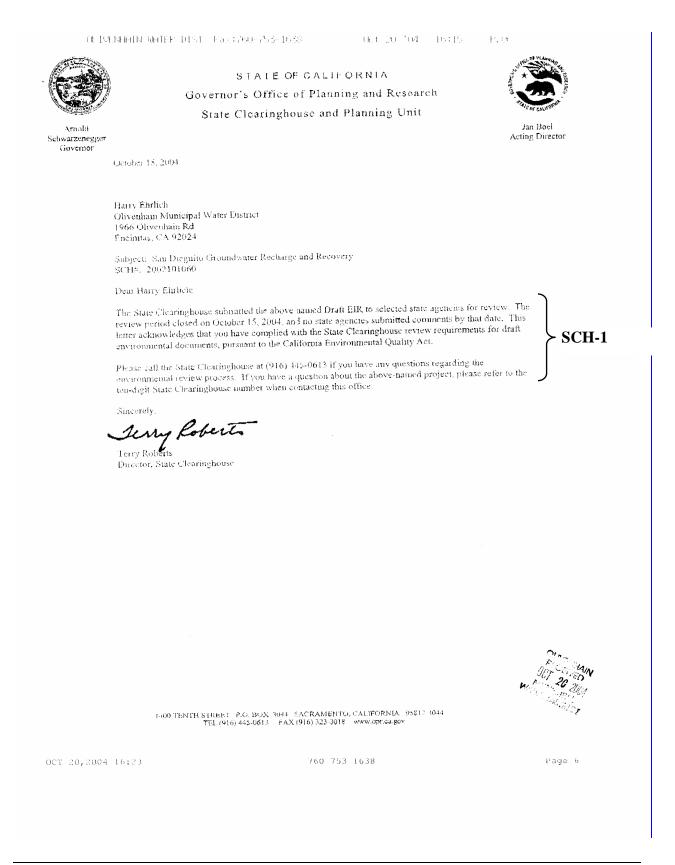
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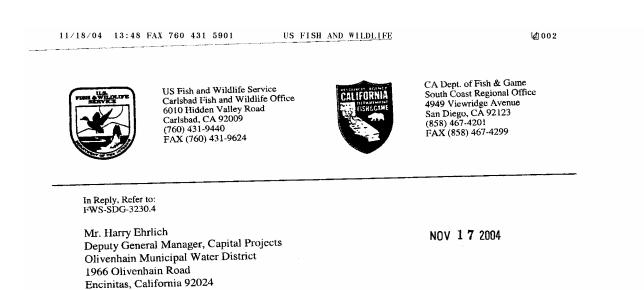
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| | Document Details Report State Clearinghouse Data Base |
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| SCH# Project Title Lead Agency | 2002101060 San Dieguito Groundwater Recharge and Recovery Olivenhain Municipal Water District |
| Type | EIR Draft EIR |
| Description | The proposed project is being considered by the Olivenhain Municipal Water District in order to maximize utilization of surface and groundwater storage capacity, improve water quality, and increase the dry-year groundwater supply within the basin. In an effort to reduce the level of dependency on imported water, to control costs, to ensure safety and reliability, and to promote responsible use and reuse of this county's water resource. OMWD has determined that the use of potable water for imgation purposes represents an inefficient use of the available water resource. Thus, OMWD operates and maintains the 4S Ranch Wastewater Treatment Plant (4S Ranch WW IP) for the purpose of providing reclaimed water as a replacement for potable water currently being used for imgation by OMWD customers. However, one of the requirements stipulated by the Regional Water Quality Control Board in the Master Reclamation Permit calls for OMWD to dispose of up to 1.2 MGD (soon to be increased to 2.0 MGD) during the wet season. Thus, in compliance with this permit requirement, OMWD has undertaken a search for appropriate locations to either store or dispose of excess reclaimed water during the vet season. Two destinations have been identified. The first delivery destination is Fairbanks Ranch County Club and the second delivery location is Morgan Run Resort and Golf Club. |
| Lead Agenc | cy Contact |
| Name | Harry Ehrlich |
| Agency | Olivenham Municipal Water District |
| Phone | 760-753-64 6 6 Fax |
| email | 1966 Olivenhain Ro |
| Address City | Encinitas Stule CA Zip 92024 |
| County City Region Cross Streets Parcel No. Township | San Diego El Camino Real and San Dieguito Road: Via de la Valle and El Apajo 13/145 Range 3W Section Base Del Mar |
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| Highways | Så, S6 San Dieguito River |
| Highways Airports Railways Waterways Schools | S8, S6 San Dieguite River Several - Fairbanks Country Day HS, Diegueno Country Elem., etc. |
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| Highways Airports Railways Waterways Schools | S8, S6 San Disguito River Several - Fairbanks Country Day HS, Dieguerio Country Elem., etc. Special Use Permit P68-103/Estate Development Area, Impact Sensitive |
| Highways Airports Railways Waterways Schools Land Use | S8: S6 San Disguito River Several - Fairbanks Country Day HS, Diegueno Country Elem., etc. Special Use Permit P68-103/Estate Elevelopment Area, Impact Sensitive Aesthetic/Visual; Agricultural Land; Archaeologic Historic; Air Quality; Drainage/Absorption; Flood Plain/Flooding: Geologic/Seismic; Minerala; Noise, Population/Housing Balance; Public Services; Recreation/Parks; Toxic/Hazardous; iraffic/Circulation, Vegetation, Water Supply, Water Quality; Wildlife; Wetland/Riparian; Growth Inducing; Landuse, Cumulative Effects Resources Agency; Department of Fish and Game, Region 5, Office of Historic Preservation; |
| Highways Airports Railways Waterways Schools Land Use Project Issues Reviewing | S8: S6 San Disguito River Several - Fairbanks Country Day HS, Diegueno Country Elem., etc. Special Use Permit P68-103/Estate Elevelopment Area, Impact Sensitive Aesthetic/Visual; Agnoutural Land; Archaeologic Historic; Air Quality; Drainage/Absorption; Flood Plain/Flooding: Geologic/Seismic; Minerals; Noise, Population/Housing Balance; Public Services; Recreation/Parks; Toxic/Hazardous; Traffic/Circutation, Vegetation, Water Supply, Water Quality; Wildlife; Wetland/Riparian; Growth Inducing; Landuse, Cumulative Effects Resources Agency: Department of Fish and Game, Region 5, Office of Historic Preservation; Department of Parks and Recreation: Department of Water Resources; Caltrans, District 11; Department of Health Services; State Water Resources Control Board, Division of Water Quality, State Water Resources Control Board Division of Water Right; Stato Water Resources Control Board, |

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Re: Draft Environmental Impact Report for the San Dieguito Water Recharge and Recovery Project (SCH# 2002101060)

Dear Mr. Ehrlich:

The California Department of Fish and Game (Department) and U.S. Fish and Wildlife Service (Service) (collectively, "Wildlife Agencies") have reviewed the above-referenced Draft Environmental Impact Report (DEIR) for the San Dieguito Water Storage and Recovery Project. We previously commented on a Mitigated Negative Declaration (MND) prepared for the project in a letter dated November 20, 2002, and on the Notice of Preparation (NOP) of the DEIR, in a letter dated December 11, 2003. We also met with the Olivenhain Municipal Water District (OMWD) to discuss the project on March 25, 2003, October 28, 2004 (site visit), and November 3, 2004. A representative of the U.S. Geological Survey (USGS) attended the March 25, 2003, meeting to assist the Wildlife Agencies in our assessment of the project's impacts. The Wildlife Agencies also met separately with representatives of the USGS on October 13, 2004, to discuss the potential impacts of the project which had been redesigned since the circulation of the MND. While the public review period for the DEIR as established by the State Clearinghouse ended on October 15, 2004, OMWD agreed to extend the comment period to allow for a site visit and discussions to clarify the revised project description and the project's potential impacts, primarily impacts on the light-footed clapper rail (Rallus longirostris levipes, clapper rail), a State and federally endangered species which is also State Fully Protected. Accordingly, during the November 3 meeting, Jack White (White Environmental Consulting) granted us an extension until November 17 to prepare this comment letter. We appreciate OMWD's past and recent cooperation as this project has proceeded through several iterations, particularly during this period since the circulation of the DEIR. The information provided by Richard Zembal to OMWD and the Department regarding the clapper rail, as well as the conference call with him during the November 3 meeting were also very helpful.

The primary concern and mandate of the Service is the protection of public fish and wildlife resources and their habitats. The Service has legal responsibility for the welfare of migratory birds, anadromous fish, and endangered animals and plants occurring in the United States. The Service is also responsible for administering the Endangered Species Act of 1973, as amended

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(Act) (16 U.S.C. 1531 *et seq.*). The Department is a Trustee Agency and a Responsible Agency pursuant to the California Environmental Quality Act (CEQA) and is responsible for ensuring appropriate conservation of fish and wildlife resources including rare, threatened, and endangered plant and animal species, pursuant to the California Endangered Species Act and other sections of the Fish and Game Code. The Department also administers the Natural Community Conservation Planning program.

The location of the proposed project is east of Via de la Valle and south of El Apajo Road in the community of Rancho Santa Fe, San Diego County, California. In accordance with the Regional Water Quality Control Board (RWQCB)'s Master Reclamation Permit (Order No. R9-2003-0007),¹ the OMWD proposes to deliver tertiary-treated recycled water from the 4S Ranch Wastewater Treatment Plant (WWTP) to four locations in the lower San Dieguito Valley. These are Fairbanks Ranch Country Club (Fairbanks Ranch CC), Morgan Run Resort and Club (Morgan Run), Del Mar Country Club, and Rancho Santa Fe Farms Golf Course. One of the requirements stipulated by the RWQCB in the Master Reclamation Permit calls for OMWD to dispose of up to 1.2 million gallons per day (mgd, soon to be increased to 2.0 mgd) of excess recycled water is low. Two delivery destinations for the disposal of recycled water have been identified - - Fairbanks Ranch CC and Morgan Run. Phase I of the project would involve Fairbanks Ranch CC, and the Phase II would involve Morgan Run. The project description below reflects modifications made as a result of OMWD's discussions with the RWQCB, and is not consistent with the description in the DEIR.

OMWD currently provides water to Morgan Run via a 10-inch diameter pipeline that extends from the main raw water delivery line (Pipeline Extension 153, located in San Dieguito Road). Throughout most of the year, OMWD is able to routinely store water at its 410 acre-foot (AF) holding pond located near the WWTP. However, during the wet season, prolonged periods of rain may cause the holding pond to exceed its capacity. For Phase I, the project proposes to divert excess water from the WWTP holding pond to four surface water impoundments² (i.e., ponds) on the 18-hole portion (i.e., northern portion) of Fairbanks Ranch CC. No construction activities would be necessary for Phase I (i.e., no installation or modification of water-delivery infrastructure would be necessary) because OMWD would deliver the excess water, not to exceed 6.13 AF/day (2 million gallons per day), via the existing Main Extension 153. In the event that the four Fairbanks Ranch CC ponds reach capacity, delivery of recycled water to the ponds would cease. This would occur by diversion of the water by an electronically activated valve³ proposed

1 This is the Master Reclamation Permit with Waste Discharge Requirements for the Production and Purveyance of Recycled Water for OMWD's 4S Ranch Wastewater Treatment Plant. The permit requires that OMWD provide 84 days of emergency storage capacity of recycled water produced at the 4S Ranch WWTP.

- 2 Fairbanks Ranch CC stores golf course and landscape irrigation water in a series of interconnected water impoundments. Irrigation water that is currently stored in these ponds is piped to the golf course from nearby ground water supplies. The impoundments are concrete-lined and are bermed along the outer rim. Therefore, they are closed systems and do not discharge or overflow under normal conditions.
- 3 The valve would be activated electronically at OMWD's water flow control center to control the timing of all releases.

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for installation in the 10-inch diameter delivery pipeline upstream of its delivery to the ponds. The water would be diverted to a proposed approximately 200-foot long 10-inch diameter connector between the valve and the Morgan Run Bridge, which is at the southern end of Morgan Run. The excess water would then be discharged into the San Dieguito River at the Morgan Run Bridge.⁴ Phase I (i.e., the diversion to the Fairbanks Ranch CC ponds, and the discharge to the San Dieguito River) would occur only during "high flow periods" of the wet season, when the flow rate of the San Dieguito River equals or exceeds 30 cubic feet per second (cfs). The maximum flow rate from the discharge pipe would not exceed 3 cfs. The recycled water would not be chlorinated because the WWTP will be phasing out chlorination and replacing it with an infrared purification system.

Phase II (Morgan Run) would involve delivery of 150 acre-feet per year of excess tertiary-treated water from the 4S Ranch WWTP to Morgan Run for groundwater storage. Delivery would be made via the existing OMWD pipeline to two to three groundwater injection/extraction wells to be constructed in the extreme southeastern corner of Morgan Run. Each well would contain a submersible pump and a flow control valve; thus, each well would be capable of pumping and injecting groundwater. OMWD would inject the water over a period of 84 days during the wet season, and subsequently extract the same volume of water over a period of six months during the dry season for irrigation water.⁵ The project would also include the use of on-site (i.e., on Morgan Run) pipelines to convey the water to and from the well locations.

The Wildlife Agencies appreciate the opportunity to comment on the DEIR. We offer the following comments to assist OMWD in minimizing and mitigating project impacts to biological resources.

- The project now proposed varies substantially from those proposed in the MND, the NOP, and the DEIR. The project described in the MND involved no storage of water in surface impoundments, and the groundwater extraction and injection component was of considerably greater magnitude than Phase II of the currently proposed project.⁶ We understand that the primary reason for the reduction in scale of the project is that there is not sufficient
- 4 The southern boundary of Morgan Run coincides with the jurisdictional boundary between the County of San Diego to the north and the City of San Diego to the south. Morgan Run is wholly situated within the County of San Diego and the OMWD service area.
- 5 The injection/extraction wells in Phase II would be used to store the water in an alluvial aquifer located approximately 80 to 150 feet below ground. Withdrawal from the aquifer would vary from year to year, but it would not exceed the net amount of water injected. Existing water resource demands on the basin consist primarily of groundwater pumping for irrigation. Surveys of local groundwater users indicate that approximately 1,700 AFY is currently pumped out of the basin from 32 wells (Hargis report indicates 1,800 AFY page 14). The target aquifer is comprised of coarse-grained channel deposits within a depositional zone exhibiting desirable porceity and permeability characteristics. Situated above this target aquifer is the aquitard, which is comprised of fine-grain sediments that have considerably lower permeability. The aquitard confines groundwater in the underlying aquifer, such that groundwater in the aquifer is actually under pressure. Above the aquitard is the surface layer, which includes sands and fine-grained sitty sediments.
- 6 It was previously anticipated that up to eleven wells would be required for the groundwater injection and extraction operation. The previously proposed project involved OMWD's injection of 250 AFY of recycled water into the groundwater basin, and the Metropolitan Water District's injection of an additional potential 750 AFY of raw water into the aquifer.

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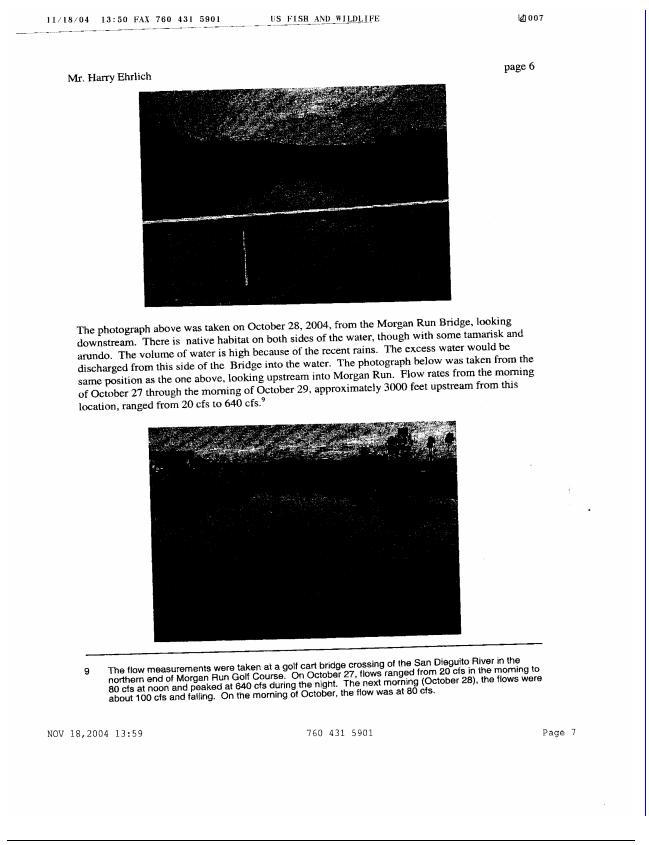
| Mr. I | Iarry Ehrlich | page | 4 |
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| | San Dieguito River corridor. If there are fores storage and recovery activities, their impacts s | h whold impacts (period of the construction of the pared by Hargis and Associates (Project Report ieguito Basin San Diego, California, October 3 r storage capacity of the alluvial basin have 00 AF. Please clarify whether this information band the currently proposed project in the re concerned about potential cumulative on of the ground and surface water in the lower seeable actions to expand the proposed water should be considered at this time. ⁷ | WA-1 |
| 2. | The final DEIR should be updated to reflect the and the RWQCB. If it differs from the descrip Wildlife Agencies of any modifications in write | iting. | WA-2 |
| 3. | As described in the MND, portions of the pro- that have the potential to support the federally <i>californicus</i>), which is also a California Speci State listed endangered least Bell's vireo (Vir revised project design avoids potential impac | ies of Special Concern, and the federally and the bellii pusillus). We appreciate that the | WA-3 |
| 4. | The biological resources report (EDAW, Inc. indicates that non-native grasslands are locate 29). Please clarify whether the project would identify the mitigation that would occur for a | I result in the loss of non-native grassland, and | WA-4 |
| Pł | ase I | | |
| 5. | several pairs of clapper rail within the reach Camino Real bridge and Morgan Run. ⁸ To c occurred within the marsh a little over one-h | DP, the Wildlife Agencies learned that there are of the San Dieguito River between the El late, the sightings of the clapper rail have alf mile upstream of the El Camino Real bridg pstream. The annual survey conducted for the reach of the San Dieguito River and will exten | 2, |
| 7 | direct physical change in the environment (CEQA Guidelines, Section 15378(a in order to maximize protection of the environment Open Space District (1988) 202 Cai. App.3d 1136, 11 agency will fully analyze each "project" in a single en do not become submerged by chopping a large proje environment, which cumulatively may have disastrou Authority v. Hensler (1991) 233 Cal.App.3d 577, 592 | McQueen v. Board of Directors of the Midpeninsula Heg (43 [249 Cal.Rptr. 439].) This approach ensures that a livironmental document so "that environmental considera act into many little ones, each with potential impact on th is consequences." (Burbank-Glendale-Pasadena Airport [284 CalRptr.498].) (CUE 2002). | anon ijonal aad tions e |
| 8 | Based on surveys conducted by Richard Zemba there are six breeding pairs within this area (fax 26, 2004, from Richard Zembal to Lyann Comra believes that there are probably more clapper ra | al in spring of 2004, the conservative estimate is that of distribution map and associated notes dated Oc ack of the Department and to OMWD). Mr. Zembal ail in this area than observed in 2004. | n tober |
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| upstream of the area previously surveyed. At this point, the expanse of mars between the El Camino Real bridge and the upstream-most sighting is conside occupied habitat. Based on the site visit, it appears that the habitat approach Run Bridge (i.e., discharge point) from the west becomes less suitable for clu- due to infestation of invasive species, namely tamarisk. Until the surveys co- we will not know how far upstream the clapper rails' territories extend. | ing the Morgan apper rail, partly |
| Upon review of the project description in the DEIR, we were concerned that project would potentially directly and/or indirectly negatively affect the clap and, thereby, the clapper rail. The site visit revealed that the habitat between discharge (i.e., the Morgan Run Bridge) and the upstream-most known locar rail would serve as a buffer between the discharge and the occupied habitat. conditions in the San Dieguito River at the point of discharge (see photos on given that the discharge of water would occur at a maximum rate of 3 cfs ar flow rate in the San Dieguito River meets or exceeds 30 cfs, we believe that of the project, as described in this letter, would likely avoid potential impac- rail observed to date downstream if the following two measures were employ | n the point of tion of clapper Considering the n next page), and nd only when the t implementation ets on the clapper byed. |
| a. A backup to the electronically activated valve should be built into the sy essential to prevent the ponds from overflowing and discharging into the River within the clapper rail habitat. In addition, the electronic valve an should be calibrated to be triggered sufficiently prior to the ponds reaching allow for lag time in the operation of the diversion system and ensure the from the ponds occurs. This should take into account the volume of rain engagement of the diversion system. | d backup system ing capacity to at no overflow |
| b. The discharge from the Morgan Run Bridge should be restricted to Octo February, rather than through March, as the clapper rail breeding season March. | J |
| Our assessment would probably still apply should the 2005 surveys reveal clapper rail closer to the discharge point (i.e., within the "buffer" area), the to reconsider the situation depending on their proximity to the point of dis surveys indicate that the "buffer" area is not occupied, we are hopeful that of the wetland habitat in the area will provide additional suitable habitat for If the clapper rail establishes territories in the restored area, the existing co of establishment would be presumed to not preclude suitability of the habitat | charge. If the future restoration or the clapper rail. onditions at the time |
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San Dieguito Water Storage and Recovery Project Draft EIR 2K035 San Dieguito FEIR.doc 12/3/2004

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| o tu a c t s I | ornamentals on Morgan Run. o the landscaping on Morgan already required to control exo condition the delivery of recyc hese plants and implement an | ed tamarisk, arundo, and pampas grass as We understand that the proposed project is Run. However, we also understand that M tic plant species, and we strongly recomme led water to Morgan Run on their commitr ongoing exotics removal program. These ands downstream and to sensitive wildlife come increasingly important as wetland re | species can cause that reside there. | A-8 |
| | I. Instead, the California Natu used to determine the biologic exhaustive database. The abs | t indicates that no biological surveys were ral Diversity Database (CNDDB) and acri- al resources within the project area. The C ence of a species record for a particular are resence of the clapper rail is a case in point d EIR should be modified to reflect the pre | CNDDB is not an a does not mean that t. The final | \-9 |
| | associated with the discharge that OMWD would develop a potentially significant impact impacts. We recommend tha monitor for and avoid or min of influence of the discharge | f the San Dieguito River could potentially of water from the Morgan Run Bridge. The active management program (AMP) to re- s resulting from Phase II, with the intent to t OMWD also prepare and implement an A imize impacts on the marsh and riparian has from the Bridge. The AMP should require sociated impacts, and the implementation a remediation, placement of energy dissipar- ved. | monitor and control minimize the MP for Phase I, to abitat within the zone monitoring the site and follow-up | - 10 |
| Pha | ase II | | | |
| 9. | filtration/chlorination system | indicates that Phase II may include the ins a. Please explain why chlorination would b | | \-11 |
| 10. | months, and each well would identifies the equipment typ pipeline network. Because construction equipment cou | ation of construction of the pipeline would d take four to seven days to drill and constr- ically needed for the installation of a well a the nearby riparian habitat supports avian s ld generate noise levels that would disturb hat the construction occur outside of avian t 31). The DEIR indicates only that this "s at it "would" be done. | and the associated pecies, and the avian breeding breeding season (i.e., | A-12 |
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1009 11/18/04 13:51 FAX 760 431 5901 US FISH AND WILDLIFE page 8 Mr. Harry Ehrlich 11. Figure 2-5 depicts the alignment of the proposed pipeline that would connect the source water delivery point and the wellheads. It appears that the pipeline extends outside of the WA-13 development footprint accounted for by the DEIR. Please clarify the entire alignment of the pipeline, any associated loss of sensitive habitats, and appropriate mitigation for those losses. 12. Page 2-13 of the DEIR refers to a 6-inch diameter pipeline and a 10-inch diameter pipeline. WA-14 Please reconcile this apparent discrepancy. 13. The DEIR indicates that the AMP would allow for alternations in injection rates which would minimize the potential for affecting surface water adjacent to the injection/extraction area. Water levels in the river and water quality would be monitored during operation of Phase II, WA-15 and potential effects from the injection/extraction program would be monitored. The final EIR should reflect that OMWD would take action as needed based on the monitoring, not merely that the AMP "would allow" actions to be taken. The Department finds that the proposed Project would not be de minimis in its effects on fish and wildlife per section 711.4 of the California Fish and Game Code. Please contact Libby Lucas of the Department at (858) 467-4230, or Ben Frater of the Service at (760) 431-9440, if you have any questions or comments concerning this letter. Sincerely, 4 Martin Donald Chadwick Therese O'Rourke Habitat Conservation Planning Supervisor Assistant Field Supervisor South Coast Region Carlsbad Fish and Wildlife Office California Department of Fish and Game U.S. Fish and Wildlife Service Orange County Water District (Richard Zembal) cc by fax only: San Diego Regional Water Quality Control Board (Michael Porter) U.S. Geological Survey (Eric Reichard) White Environmental Consulting (Jack White) 760 431 5901 Page 9 NOV 18,2004 13:59

----- Original Message -----From: "Michael Porter" <<u>MPorter@waterboards.ca.gov</u>> To: <<u>white.env1@cox.net</u>> Sent: Monday, November 22, 2004 3:44 PM Subject: Reply: OMWD Response to RWQCB Concerns

November 22, 2004

Mr. White,

I have reviewed the 3 Issue Responses in the attached documents [dated 10-24-2004]. Based on OMWD's analyses of the three issues and the proposed OMWD's active management of any excess, discharged recycled water to the ponds and the San Dieguito River, my concerns have been ameliorated with respect to affecting potable well [7-BA], affecting the habitat mitigation on Fairbanks Ranch Country Club, and affecting the planned restoration activities by Southern California Edison in the lagoon and river.

Thank you for looking into these concerns.

Mike Porter Engineering Geologist Regional Water Quality Control Board - San Diego 858-467-2726 mporter@waterboards.ca.gov ≻ RB-1

OMWD RESPONSE TO RWQCB CONCERNS

During the September 16, 2004 meeting between OMWD and the San Diego Regional Water Quality Control Board (RWQCB), RWQCB staff raised three concerns about their review of the District's DEIR for the San Dieguito Water Storage/Recovery Project. In a subsequent meeting, held at the RWQCB on October 15, 2004, District representatives and RWQCB staff discussed the results of the District's analysis of each concern. Through an interactive discussion, the District and the RWQCB have assessed the additional information, additional analyses, or specific modifications to the design that are needed such that any impacts associated with the implementation of the proposed project are reduced to the point of insignificance.

The following is a summary of the measures taken and results achieved in addressing each of the three issues.

<u>Issue 1:</u> Is there a risk that project water injected at Morgan Run would migrate into the uptake zone of the one potable water well in the lower basin?

Based on available information, there are approximately 35 groundwater extraction wells in the vicinity of the lower San Dieguito Basin (see Table 1, Active Regional Well Summary, in Hargis + Associates Hydrogeologic Report, Appendix C to DEIR). Most of these wells are completed within the lower alluvial aquifer, and all but one of these wells is used for non-potable purposes, primarily irrigation. The other well, formerly owned by Rancho Del Mar and recently purchased by the La Jolla Music Conservancy (and labeled 7-BA in Table 1), is located outside the alluvial basin, and is completed in a marine sedimentary bedrock formation. The well owner uses a reverse-osmosis unit to treat the high-TDS well water to an acceptable level for potable water use on the property.

The RWQCB expressed a concern that the District's plans for the storage and recovery of tertiary-treated (Title 22) water from the 4S Ranch WRF in the lower alluvial aquifer at Morgan Run Golf Course and Resort could possibly have an effect on the Rancho Del Mar potable water well. Specifically, RWQCB staff were concerned that there may be a potential for project water injected for storage at the Morgan Run site to reach the uptake zone for the potable well. The RWQCB requested a long-term analysis of the potential impacts on this source-water well associated from the injection of reclaimed water upgradient.

To address this issue, the District asked Hargis + Associates to perform a model simulation that would evaluate the potential for such an effect. Therefore, a "worst-case" scenario simulation was conducted based on the following assumptions:

- The District would inject 150 acre-feet of recycled water per year at two injection well locations at Morgan Run without extraction;
- The existing regional wells would continue to extract water at their current estimated pumping rates, including the potable well; and

• The above conditions would continue for 20 years.

As can be seen on the attached graphic representation of the simulation, under these worst-case conditions, the recycled water would not come close to the uptake zone for the potable water well, which is identified as 7-BA in the lower left-hand corner of the map. The contours on the map represent the amount of predicted mixing of recycled water with native groundwater. The 0.01 contour indicates a water mixture of 1% recycled water and 99% native water. It should be noted on the map that, after 20 years of injection and no withdrawal, the 0.01 contour extends only about two-thirds of the way between the injection wells (indicated by triangles) and the potable well location.

Given the results of this worst-case modeling, the District concludes that there would be no potential effect of the project on the potable water well.

It should also be noted that there are two additional factors that support a conclusion that there would be no potential effect from the proposed project on the potable well user:

- (1) The potable well is completed in bedrock, not in the alluvial aquifer. The water level within the bedrock is generally higher than occurs in the unconsolidated basin alluvium, and the bedrock permeability is generally lower. Thus, it is unlikely that groundwater within the alluvial basin would migrate to the potable well.
- (2) The potable well uses a reverse-osmosis (RO) unit to treat the well water before use by the well owner. Given the ability of RO technology to treat water to meet drinking water standards, any project water that could possibly migrate to the uptake zone for the potable well would be treated by the RO unit to produce water meeting drinking water standards.

<u>Issue 2</u>: Will the wet-season delivery of excess recycled water from the 4S Ranch WRF to Fairbanks Ranch Country Club (FRCC) have a negative effect on the success of the HMMP at FRCC?

As outlined in the DEIR, the District plans to store excess recycled water from their 4S Ranch WRF during wet-weather periods at Fairbanks Ranch Country Club (FRCC) surface water ponds, where it would be managed by FRCC facility managers for use as irrigation water throughout the facility on an as-needed basis. As described in the DEIR, as much as 2 million gallons per day (mgd), approximately 3 cubic feet per second (cfs), could be discharged to San Dieguito River on certain occasions during extreme wetseason storm conditions. The combination of intense rainfall, saturated ground conditions, and the onsite/offsite runoff contribution to the ponds would induce a cascading overflow effect that would eventually discharge to the San Dieguito River following a natural historical gradient, The point of discharge was identified as the natural channel connecting an otherwise completely bermed FRCC facility with the San Dieguito River floodplain immediately east of the El Camino Real bridge. The natural

channel is situated within the western portion of FRCC in an area recently converted to add nine additional holes to the existing 18-hole golf course.

During the earlier RWQCB meeting on September 16, 2004, it was pointed out to the District that FRCC was in the process of implementing a Habitat Mitigation and Monitoring Plan (HMMP) in conjunction with the 9-hole addition. At that meeting, RWQCB staff expressed a concern that the transfer of excess recycled water to the 9-hole area could compromise the success of the HMMP. The hydrologic balance of this area, which is centered on an old tributary channel of the San Dieguito River, is considered fragile by the RWQCB. Thus, staff reasoned that any additional surface water contribution not planned for in the HMMP could compromise the success of the mitigation plan.

The District reviewed water distribution infrastructure in the FRCC area, conducted field reconnaissance, and analyzed alternatives to the reclaimed water emergency discharge. The results of this evaluation were discussed with the RWQCB at the October 15, 2004 meeting, which unveiled a project design modification that could avoid all impacts to the mitigation site and the HMMP.

With the new design concept, the storage of recycled water onsite would be limited to the four ponds within the upper 18-hole course, and no storage would be allowed within the new westerly 9-hole area. Water would not be delivered during wet-season periods when the four ponds are at capacity and the FRCC grounds are saturated. Instead, the excess water would be directed to a newly designed release point near the Morgan Run Golf Course. The release point would be installed on or near an existing Morgan Run golf cart bridge, where it would discharge directly into the San Dieguito River. This concept would involve installing a valve and approximately 200 feet of 10-inch pipe. The pipe extension would follow the alignment of a service road-cart path corridor to a point where it would be attached at or near the bridge at an appropriate location. The bridge already has other pipes attached across its span, and is armored by riprap on both banks of the river crossing.

A weather and flow monitoring system would be installed to gauge onsite conditions and flow within the river, such that discharge of reclaimed water to the San Dieguito River only occurred during high-flow periods and the impact of such a discharge was negligible. Appropriate permits would be obtained from all regulatory agencies to permit installation of the facilities and the discharge(s).

With implementation of this new design concept, the District believes that its project will have no effect on the FRCC mitigation site or the associated HMMP.

<u>Issue 3</u>: Will the release of excess recycled water from FRCC have a negative effect on water quality and hydrologic balances at the 444-acre Southern California Edison (SCE) mitigation site? Of particular interest is the flow rate of the released water.

The District studied the EIR prepared by the San Dieguito River Park JPA (SDRP) concerning the SCE Restoration Project, as well as the Surface Water Pollution Prevention Plan (SWPPP) prepared for that project to address this issue. This earlier work and the safeguards that have been established demonstrate the great deal of attention SCE, SDRP, and their consultants have paid in developing a restoration design that serves to protect the restoration property from the effects of on-site and off-site hydrologic forces. For example, the SWPPP requires that:

- Runoff from off-site areas be prevented from flowing through project areas disturbed by construction activities unless appropriate conveyance structures are in place;
- The amount of anticipated storm water run-on must be considered in determining the appropriate best management practices (BMPs) to be employed on-site, including the diversion of off-site drainage;
- SCE has a monitoring system in place to allow them to report the presence of pollutants originating off-site to the RWQCB;
- BMPs be established throughout the project perimeter;
- Site inspections be undertaken before, during, and after storm events, and that corrective maintenance be performed;
- All requirements from the City of San Diego's Land Development Manual Storm Water Standards, be incorporated into the design and construction of the Restoration Project; and
- SCE develops a Wet-weather Action Plan.

Given the timing of the SCE Restoration Project with respect to the Districts water storage and recovery project, the above-listed site protection measures will already be in place before the District's project is implemented. Thus, the site will be reasonably secure from the dynamics of off-site runoff.

Once SCE submits the results of two key hydrology studies to RWQCB, upstream hydraulics and water quality will be more clearly defined, as both of these studies purportedly address contributions to the San Dieguito River via sources up-stream of the SCE wetland restoration site. The information in these studies can then be considered in terms of the perceived effectiveness of water quality control measures identified in the SCE/SDRP EIR for the Restoration Project and the BMPs included in the SWPPP.

Notwithstanding, the District plans to implement additional measures designed to control the timing and volume of discharge from Phase I of the San Dieguito Water Storage/Recovery Project. Phase II will have no release.

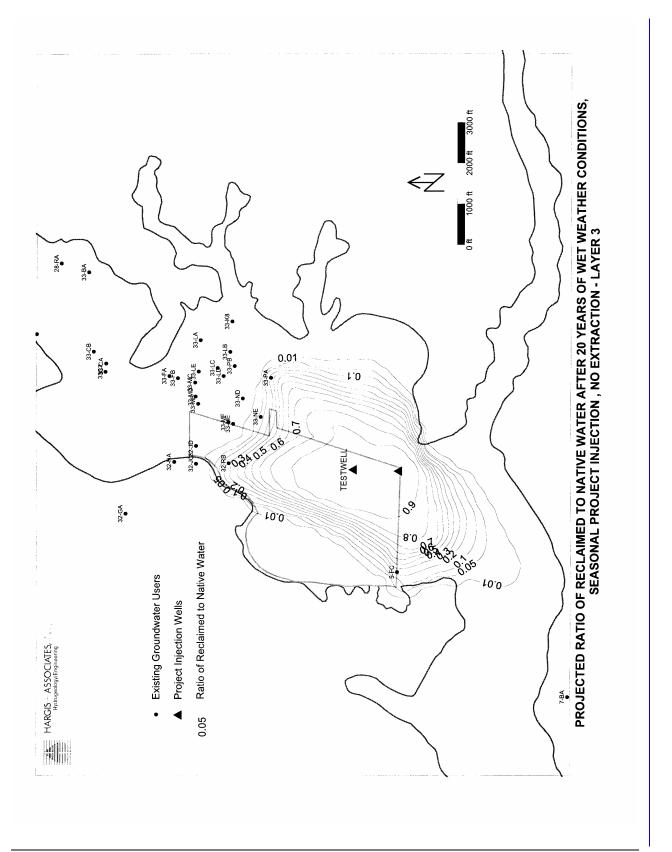
Specifically, the District views its recycled water as a valuable resource. Thus, water would be released directly to the San Dieguito River near Morgan Run only when it becomes impossible to store any recycled water that could be beneficially reused. This is anticipated to only occur during the following situations:

- The 410-acre-foot (84 days x 1.6 mgd) emergency storage pond at 4S Ranch WRF is at or near capacity;
- The four irrigation ponds on FRCC's eastern 18-hole portion of the golf course are at capacity or the FRCC is not taking any additional recycled water from the District's system;
- Precipitation events and resulting run-on to FRCC have saturated the alluvium to the point where the addition of excess recycled water would not percolate into the landscaped areas; and
- Additional precipitation is forecasted by the National Weather Service.

Under this circumstance, a release of excess water would be considered necessary to avoid a wastewater backup into the 4S Ranch WRF. The location of the Morgan Run bridge release point, (approximately 9,700 feet upstream from the proposed SCE mitigation site), is advantageous because it would allow a greater mixing potential within the river before it reaches the SCE mitigation site. This, coupled with fact that there would be a high flow rate in the San Dieguito River during the time of any such release, creates an ideal mixing scenario that protects the downstream environment.

Based on historical data, under the anticipated release conditions, it is expected that flow rates in the San Dieguito River during release events would be at least 30 cfs. Thus, a maximum (worst-case) emergency release of 3 cfs by the District would mix at a rate of 10:1 immediately (initial dilution), and would continue to mix throughout the distance between the Morgan Run bridge discharge point and the eastern border of the SCE mitigation site (subsequent dilution) – a calculated river course distance of approximately 9,700 feet (1.84 miles). At a point approximately 6,100 feet (1.15 miles) downstream from the Morgan Run bridge release point, the natural channel at FRCC's 9-hole mitigation site would also be contributing runoff water collected by the City's storm drain system, combined with accumulated on-site storm water from the 9-hole golf course facility. At this confluence, the recycled water released upstream would experience even greater mixing and dilution.

As mentioned earlier, the District proposes to install an electronic flow-monitoring system within the San Dieguito River, and an electronic rain gauge will also be installed to provide real-time river flow and precipitation information to the District's Operations Center. This system would serve to monitor flow in the San Dieguito River such that discharge of recycled water to the river did not occur when river flows were too low. It is anticipated that the conditions regulating this discharge would be stipulated in permits issued by the RWQCB (NPDES).



9.3 **RESPONSES TO COMMENTS**

This section presents the District's responses to all written comments received on the Draft EIR. The following unique coding was used:

| JPA | San Dieguito River Park JPA | |
|------|---|--|
| NAHC | Native American Heritage Commission | |
| WP | Whispering Palms Community Council | |
| SCH | State Clearinghouse | |
| WA | Wildlife Agencies (California Department of Fish and Game and U.S. Fish and Wildlife Service) | |
| RB | Regional Water Quality Control Board | |

Responses can take various forms, depending on the nature of any given comment. Some comments are posed as questions or seek clarification regarding certain elements of the project, while others provide information or guidance. The notation "Comment Noted" is used herein to acknowledge a comment that does not specifically pose a question or pertain to a specific environmental issue or project element. Some responses also require modifications to the text of the EIR. In each instance, all such changes have been made, as referenced in the response.

9.3.1 <u>Response to San Dieguito River Park JPA Letter</u>

- JPA-1 Comment noted.
- JPA-2 The District has had several meetings, telephone conversations, and has exchanged e-mail correspondence with the Regional Water Quality Control Board concerning the San Dieguito Lagoon Wetland Restoration Project. In addition, the District has conducted further evaluations to illustrate that the project would not have an adverse affect on the Wetland Restoration Project. (See responses to comments made by the Regional Board and the Wildlife Agencies.)

9.3.2 <u>Response to Native American Heritage Commission Letter</u>

- NAHC-1 The Native American Heritage Commission was contacted, and a records search was conducted at the South Coastal Information Center. The U.S. Geological Survey was contacted by the California Department of Fish and Game to obtain their input concerning the project.
- **NAHC-2** Early consultation with local tribes was undertaken by EDAW, the Environmental Consultant.
- **NAHC-3** The District considered the potential presence of subsurface resources or human remains, and, accordingly, has adopted a precautionary construction monitoring procedure to address this concern.

9.3.3 <u>Response to Whispering Palms Community Council Letter</u>

WP-1 The District is pleased to learn that the project analysis performed by the Community Council's third-party reviewer concurred with the results of the testing and geohydrological evaluations undertaken by the District's groundwater engineering contractor.

9.3.4 <u>Response to State Clearinghouse Letter</u>

SCH-1 Comment noted.

9.3.5 <u>Response to California Department of Fish and Game and U.S. Fish and Wildlife</u> <u>Service Letter</u>

WA-1 While the information presented in the report prepared by Hargis + Associates is correct, and the total estimated groundwater storage capacity of the San Dieguito alluvial basin is estimated to range from 24,000 to 50,000 acre-feet, not all of this capacity is well-suited to the project purpose. The District has funded a site-specific aquifer testing program that has identified a very suitable location for the groundwater (Phase II) portion of the proposed project. Site conditions throughout the alluvial basin would not be equally suitable to the Morgan Run setting, due to the high salinity (total dissolved solids, TDS) of native groundwater, the variability in the

thickness and consistency of the silt barrier (aquitard) separating the upper from the lower (target) aquifer, land ownership and jurisdictional issues, wildlife issues, and other concerns. The District has no plans to expand beyond the project as currently proposed.

- WA-2 The Final EIR has been updated to reflect the positive modifications to the project developed during the course of the District's coordination and consultation with the Regional Board and the Wildlife Agencies. The updated description included in the Final EIR reflects exactly the project described in the Wildlife Agencies' joint comment letter that is the subject of this response.
- WA-3 Comment noted.
- **WA-4** While property adjacent to Morgan Run contains non-native grassland, the District's project would have no effect on this grassland area.
- WA-5 Phase I of the project will include an electronically activated valve on the 10-inch supply line that would redirect water from FRCC to the discharge point on Morgan Run during those situations where the FRCC ponds are reaching capacity. The situation would be actively monitored by District operations staff, using information provided by FRCC facility management, a continuous rain gauge, an in-stream water flow meter, and the National Weather Service. A mechanical override to the electronically controlled valve would be provided as a backup in the event of an electrical failure. These measures would be integrated into the installation and operation of the project to avoid overfilling the FRCC ponds.
- WA-6 In deference to the Wildlife Agencies concern for the light-footed clapper rail population in the San Dieguito River, the District agrees to restrict discharges from the Morgan Run Bridge to October 1st through the end of February, even though the wet-season extends through the month of March. Given that the clapper rail population was only detected in the freshwater reach of San Dieguito River this past spring (during the 2004 census undertaken annually by the Recovery Team), there is still much to learn about this habitation site. Thus, the Wildlife Agencies have taken an understandably conservative stance concerning the potential effects of wet-

season releases during the month of March. Additional insights into the presence and habits of this species in a freshwater environment will be obtained during a subsequent census to be undertaken during 2005. The District will continue to coordinate with the Wildlife Agencies over the course of 2005 and the next few years to verify the continued need to avoid releases during the month of March. It is assumed that the Wildlife Agencies would provide clearance to the District for such releases (not to exceed 3 cfs) should the data collected on an annual basis lead the Agencies to the opinion that a March release would not prove to adversely effect the downstream clapper rail population.

- WA-7 The District will continue its coordination with the Wildlife Agencies to monitor the efforts made to determine occupation of the 3,000 lineal feet of "buffer area" during the 2005 survey and success of any attempts to restore and maintain habitat in the "buffer area" that would prove to be suitable habitat for the clapper rail.
- WA-8 The District supports the enforcement of Morgan Run's obligation to control exotic species throughout the reach of the San Dieguito River extending through the Morgan Run property. Moreover, it is our belief that Morgan Run facility management is actively managing the San Dieguito River drainage for such exotics between the northern and southern boundaries of their property.
- **WA-9** The Final EIR has been revised to address the recent detection of the light-footed clapper rail in San Dieguito River.
- WA-10 The District agrees to prepare an Active Management Plan (AMP) for Phase I to monitor and control potentially adverse impacts resulting from the uncontrolled overflow of water delivered to the FRCC ponds. The AMP would become part of the District's overall operations program for the delivery of reclaimed water to FRCC and the Morgan Run Bridge discharge point. At a minimum, the AMP will include a protocol for monitoring the Morgan Run Bridge discharge site for discharge-related effects, such as scouring. The AMP will also include procedures for the remediation of damage occurring to the river.

- WA-11 Chlorination is required as a part of the disinfection process used to remove viruses and bacteria from the recycled water stream following filtration. Under the terms of the District's Master Reclamation Permit to operate the 4S Ranch Wastewater Treatment Plant, disinfection of the recycled water can be accomplished by one of two means: (1) use of the existing Temporary Chlorine Contact Facility (TCCF) or (2) a UV disinfection system. The District intends to replace the existing TCCF with a UV disinfection system at some point in the future, but the exact date has not been set.
- WA-12 The Final EIR and the Mitigation Monitoring and Reporting Plan (MMRP) reflect the District's intent to avoid disturbance to avifauna by restricting the construction of the Phase II wells and pipelines to the non-breeding season (i.e., September 1st through February 14th). The word "should" has been changed to "would" in the Final EIR, and has been changed to "shall" in the MMRP.
- WA-13 In Figure 2-5, the dashed line extending to the east (and seemingly outside the designated project site boundary) is, in fact, the alignment of the existing 10-inch supply pipeline that connects Morgan Run to the District's 153 Extension Pipeline (in San Dieguito Road). This line was erroneously depicted as a "Proposed Pipeline Location." A correcting change to Figure 2-5 has been included in the Final EIR.
- WA-14 Reference to the 6-inch and 10-inch pipe is admittedly confusing. The project includes the installation of a 6-inch pipeline network to connect the injection/recovery wells; however, the construction method for the 6-inch pipeline described on page 2-13 was based on that normally used for a 10-inch pipe, as no information was available for 6-inch pipeline construction methodology. Hence the construction methods described on Page 2-13 should be considered as conservative.
- WA-15 Yes, the AMP, by definition, requires "active" management. That is the intent, and language has been added to the Final EIR to confirm that the prescribed actions would be taken as the need occurred throughout the monitoring period.

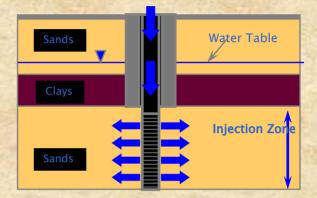
9.3.6 <u>Response to Regional Water Quality Control Board Letter</u>

RB-1 Comment noted.

APPENDIX A INITIAL STUDY AND DRAFT MITIGATED NEGATIVE DECLARATION FOR THE SAN DIEGUITO GROUNDWATER RECHARGE AND RECOVERY PROJECT (SCH #2002101060)

Initial Study and Draft Mitigated Negative Declaration

San Dieguito Groundwater Recharge and Recovery Project











INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION

SAN DIEGUITO GROUNDWATER RECHARGE AND RECOVERY PROJECT

OLIVENHAIN MUNICIPAL WATER DISTRICT

October 9, 2002

MITIGATED NEGATIVE DECLARATION

- 1. **Project title:** San Dieguito Groundwater Recharge and Recovery
- Project location: Morgan Run Resort and Club, east of Via de la Valle, south of El Apajo, Rancho Santa Fe Thomas Brothers Coordinates: Page 1168, Grid C7, D6, D7 Page 1188, Grid C1, D1
- 3. **Project sponsor's name and address:** Olivenhain Municipal Water District 1966 Olivenhain Road Encinitas, California 92024

4. Date: October 9, 2002

A. Project Setting: *Briefly describe the project's surroundings:*

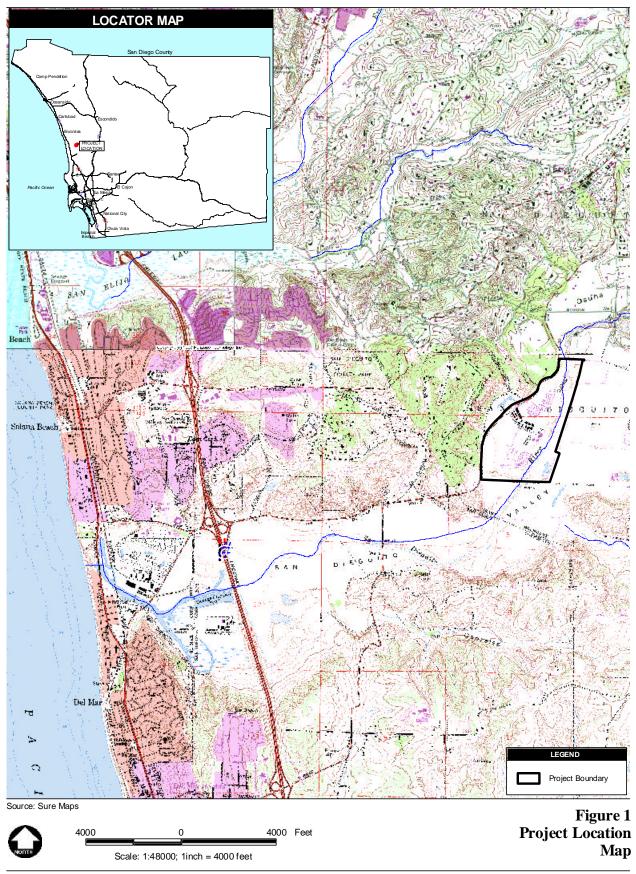
The Proposed Project is surrounded by various land uses and developments. North of the project site is land that is currently vacant with some areas of active agriculture use, with the exception of the development currently under construction northwest of the intersection of El Apajo Road and Via de Santa Fe. The San Dieguito River enters the project site from the north. A small area of residential development is located to the east of the project site. Large parcels of undeveloped land currently in agricultural use are also located to the east. South of the project site is the Fairbanks Ranch Country Club and Golf Course. The San Dieguito River exits the project site at the southern boundary. Sparse residential development is located in the hills to the west of the project site.

B. Project Description:

Purpose and Need

The Olivenhain Municipal Water District (OMWD) proposes to develop a water injection and recovery system in the San Dieguito Groundwater Basin (basin) at the Morgan Run Golf Course and Resort (Morgan Run) (see Figure 1, Project Location Map). The project would improve water quality, maximize utilization of groundwater storage capacity, and increase the dry-year groundwater supply within the basin.

The project would utilize Proposition 13 funds provided by the Metropolitan Water District (Metropolitan). In April 2002, Metropolitan Board authorized staff to finalize agreement terms with OMWD and San Diego County Water Authority (SDCWA) for the San Dieguito Recharge and Recovery Project and recommended the project to receive \$500,000 of Proposition 13 funding from the Southern California Water Supply Reliability Project Fund. This conjunctive use project will enable Metropolitan to store up to 2,250 acre-feet (AF) of imported water in the San Dieguito basin during wet years and produce 750 AF per year (AF/yr) for overlying demand during dry, drought, or emergency periods. Pending adoption of this MND and project approval, funding would be provided as outlined above. The goals of the project include (1) store excess reclaimed water in the basin for future extraction and use; (2) provide reclaimed water to Morgan Run and other potential end users; (3) satisfy the Regional Water Quality Control Board's (RWQCB) requirement for an 84-day emergency storage period of reclaimed water for the Rancho Cielo treatment facility; and (4) provide





storage of imported water under the conjunctive use program for Metropolitan's call during dry, drought, and/or emergency periods.

Project Overview

To implement this project, OMWD plans to utilize up to 250 acre-feet per year (AF/yr) of excess Title 22 (tertiary-treated) reclaimed water from one of three water reclamation plants during wet-weather periods, and convey the water, via an existing water delivery system, to appropriate injection well locations on Morgan Run (see Figure 2, Potential Injection/Recovery Well Locations). The injection wells would be used to store the water in an alluvial aquifer located approximately 80 to 150 feet below the land surface. In addition, the project includes the storage of 750 AF/yr of raw water taken from Pipeline 5 (on the San Diego County Water Authority [SDCWA] Second Aqueduct) to meet Metropolitan's Proposition 13 emergency water storage needs. During wet seasons, the estimated total injection would be 250 to 1,000 AF/yr (see Figure 3, Typical Water Injection/Withdrawal Scenario). Withdrawal from the aquifer would vary from year to year, but it would not exceed the net amount of water injected.

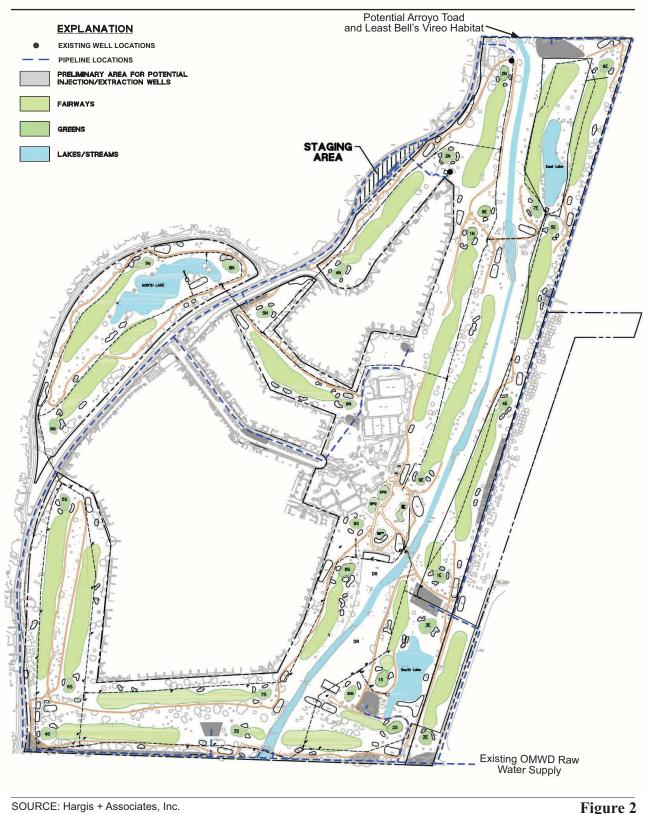
Existing water resource demands on the basin primarily consist of groundwater pumping for irrigation. Surveys of local groundwater users indicate that approximately 1,700 AF/yr is currently pumped out of the basin from 32 wells.

Potential customers for the proposed project's injected water include Morgan Run and other potential end users, such as other area golf courses or commercial or residential areas requiring irrigation. The OMWD Comprehensive Reclaimed Water Master Plan (Boyle 1996) identified Morgan Run as having an average potential recycled water demand of 600 AF/yr.

Project Description

The project site is centered on Morgan Run. The boundaries of the project site generally coincide with the Morgan Run property line, except for the portion of Morgan Run lying to the west of Via de la Valle (refer to Figure 1). The western edge of the project site is thus bounded by Via de la Valle. This western boundary spans approximately 13,500 feet adjacent to the Via de la Valle right-of-way. The northern edge of the project is generally bounded by El Apajo Road, though this road is not continuous across the San Dieguito River. The northern boundary is approximately 2,100 feet long. The eastern boundary of the project site is generally located along an existing dirt road that spans the eastern edge of the golf course. Near the southern portion of the golf course, the project boundary cuts approximately 10,500 feet in length. The southern project boundary is located along an existing Morgan Run property fence line demarking the southern edge of the golf course property. This boundary also coincides with the jurisdictional boundary between the County of San Diego to the north and the City of San Diego to the south. The southern boundary spans approximately 5,900 feet.

The project would involve multiple wells for the groundwater injection and extraction operations; however, the exact location and number of wells needed have not yet been fully determined. It is anticipated that up to 11 wells would be required for the project. The project could utilize the two existing production wells located at the north end of the Morgan Run property in addition to the new wells. This environmental analysis takes into account the two existing wells plus as many as 13 potential well locations on or near the Morgan Run golf course in order to analyze all potential project configurations. The potential project well sites are shown in Figure 2. Each well would



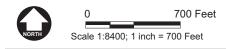


Figure 2 Potential Injection\Recovery Well and Pipeline Locations

OMWD Groundwater Recharge

Graphics2K035 OMWD Groundwater Recharge Potential Well Locations.Fh9 8/12/02

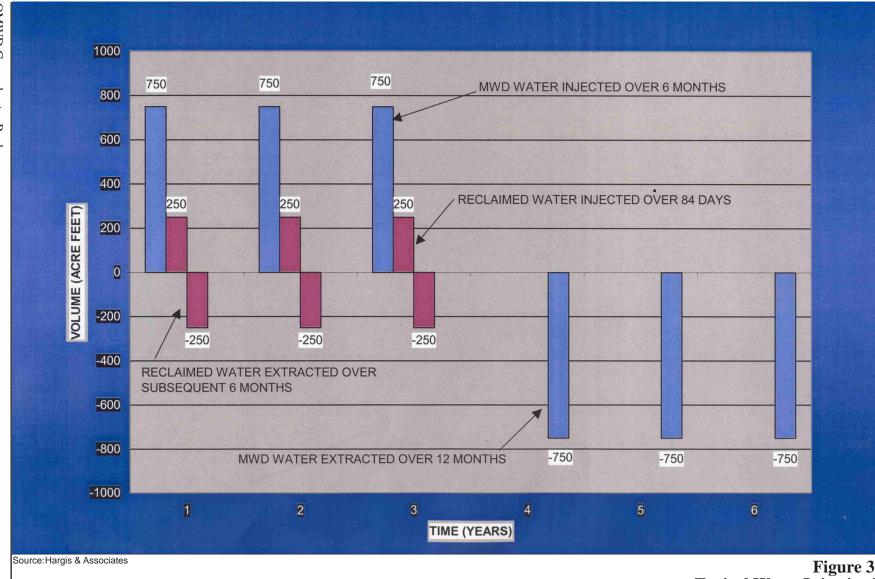


Figure 3 Typical Water Injection/ Withdrawal Scenario contain a submersible pump and a flow control valve; thus, each well would be capable of pumping and injecting groundwater.

The project would also include pipelines to convey the water to and from the well locations (refer to Figure 2). It is anticipated that the pipeline network would follow the boundaries of the project as described above and, where necessary, the pipeline would extend into the interior portions of the golf course property to connect to the individual wellheads as depicted in Figure 2. Pipelines would also be necessary to transport the extracted water to off-site customers. OMWD owns an existing raw water pipeline, Main Extension 153, which currently transports raw water from a connection with the SDCWA Second Aqueduct at Artesian Road to nonpotable uses in the San Dieguito Valley. It is anticipated that this pipeline would be operationally converted to a combination raw and reclaimed water pipeline and utilized by the proposed project.

Multiple water reclamation facilities are under consideration to provide reclaimed water for injection into the aquifer. The three potential sources for reclaimed water include the 4S Ranch Waste Water Treatment Plant (WWTP), Santa Fe Valley Water Reclamation Plant (WRP), and the City of San Diego North City Wastewater Reclamation Plant, via Black Mountain Ranch pipelines. Reclaimed water facilities treat wastewater to a level that meets or exceeds California Title 22 Regulations for unrestricted irrigation. Each facility is described below.

- The 4S Ranch WWTP is located east of Dove Canyon Road in the 4S Ranch Community. This plant currently operates as a secondary treatment facility with a capacity of approximately 0.4 million gallons per day (MGD). The plant does not have existing tertiary capacity; however, by year 2020, tertiary capacity is expected to be approximately 2.0 MGD. The County of San Diego owns, operates, and maintains this facility.
- The Santa Fe Valley WRP is a planned water reclamation facility in the Santa Fe Valley Specific Planning Area near Artesian Road. Currently under construction, the facility is expected to have tertiary treatment capacity of 0.5 MGD when completed.
- The City of San Diego North City Wastewater Reclamation Plant is an existing facility located adjacent to I-805 and Miramar Road. That facility's pipelines and pumping stations will supply Title 22 treated water to the Black Mountain development area and a future connection to Metropolitan's system at the Pipeline Extension 153 at Artesian Road.

Raw water to satisfy Metropolitan's storage requirements would be provided through connections with the SCDWA Second Aqueduct. The aqueduct is owned by the SDCWA and conveys water to several surface reservoirs throughout San Diego County. The source of the raw imported water transported by the aqueduct is from the State Water Project or the Colorado River via Lake Skinner, in southern Riverside County.

Project Construction

Injection/Recovery Wells

Wells would typically consist of a housing that contains the instrumentation and underground pipes associated with the injection and extraction of the water. In each well, a submersible pump and a control valve would be installed below grade, enabling the well to pump and inject water. Typically, construction of a well involves drilling to the necessary depth, installing the well casing, and completing the well to land surface. Drilling between approximately 100 to 150 feet below the land

surface is assumed to be necessary. Hazardous materials, such as fuel and bentonite for the drilling muds, would be necessary and standard safety measures and best management practices (BMPs) would be incorporated to handle and contain any hazardous substances used during construction. Easements and rights-of-way would be required from Morgan Run and the County of San Diego for construction, installation, operation, and future servicing of the well system. Each well would take 1 to 4 days to drill and construct and would require a workforce of approximately four persons throughout the construction process. Construction would take place between 7 a.m. and 7 p.m., 6 days a week excluding Sunday. Conversion of the two existing wells would not require drilling activities. The conversion would only require reconfiguration of the valve system on the existing wells. Three potential well sites and one existing well that could be converted are located within 150 feet of a residence. In order to reduce noise generated by the construction of the wells, noise blankets would be used during the drilling and installation activities. A noise monitor would be onsite during construction near residences to ensure noise levels are below County thresholds. The equipment typically needed for installation of wellheads includes a backhoe, drilling rig, support trucks, and pickup trucks. The wells would then be connected to the source water via the pipeline network.

One staging area would be necessary to store construction equipment, materials, and vehicles for well construction with three to four smaller laydown areas that would be coordinated with the golf course manager. Potential staging areas are illustrated in Figure 2; each area has been previously disturbed.

Pipeline Network

The pipeline network would be installed using the trenching method. This cut-and-cover construction technique involves a certain length of trench excavation (typically 300 to 500 feet at a time). Pipe is then laid and joined to the previous length and the trench is backfilled. This type of pipeline installation is surface disturbing and may require re-landscaping, noise control, relocation of existing utilities, and other measures to reduce disruption to both human and environmental resources. Typical construction equipment needed for pipeline trenching includes a backhoe, crane, wheel bulldozer, forklift, roller compactor, and dump trucks. A construction corridor of approximately 25 feet is assumed, based on the installation of a 10-inch pipe. Narrower widths may be achievable in sensitive areas, if necessary. It would be necessary to obtain easements and rights-of-way from Morgan Run for installation and future servicing of the pipelines. The trench would be excavated to a depth of approximately 3 to 6 feet. Pipeline construction is estimated to occur over a period of approximately 6 months and would require a workforce of approximately 6 to 10 persons throughout the duration of the construction. Construction activities would take place between 7 a.m. and 7 p.m., 6 days a week excluding Sunday.

Because pipeline construction would occur along a linear transect, it may be necessary to have multiple staging areas for accessibility between the staging area and the construction location. The staging areas described above for wellhead construction could potentially also be used as staging for the pipeline construction. Potential locations for staging areas are indicated in Figure 2.

Project Operation

Operation of project components would be almost entirely unnoticed by the surrounding human and natural environment. Once constructed, all pipelines would be located underground and only minor pump and wellhead components would be located aboveground. The aboveground components related to the pumps and wellheads would consist of vaults installed at land surface or small shed-like structures. Minimal audible noise would result from operation of the pumps, as they would be underground. Operation of the project would require occasional servicing of the pipeline and

wellhead components to maintain proper function. Once the project is in operation, the results would be monitored. The process of monitoring the aquifer would involve measuring flow rates and water levels in the extraction and injection wells and nearby monitoring wells, and monitoring water quality in wells in the study area.

C. Compliance with Zoning and Plans

The proposed project is located within the regional land use category of Estate Development Area (EDA) of the San Diego County General Plan Regional Land Use Element (County 1995). This category permits agricultural and low density residential uses with parcel sizes of 2 to 20 acres. The proposed project does not conflict with any of the policies or standards for development within the EDA category.

The proposed project is also located within the San Dieguito Community Plan Area (County 1996). The project does not conflict with any of the land use Goals and Objectives of the San Dieguito Community Plan.

D. Public Comments

On October 9, 2002, a Notice of Intention to adopt was circulated to responsible agencies, trustee agencies, the county clerk, and to property owners within a 500-foot radius of the proposed project site. The public comment period ended November 9, 2002.

E. Identification of Environmental Effects

An Initial Study conducted by OMWD, the lead agency under the California Environmental Quality Act (CEQA), determined that the proposed project could have a significant environmental effect in two issue areas: Biological Resources and Cultural Resources. However, certain measures have been identified that, when implemented, would reduce the impact to below a level of significance. Thus, preparation of an Environmental Impact Report will not be required. This Mitigated Negative Declaration has been prepared in accordance with Section 15070 of the State CEQA Guidelines.

1. Water Quality

Potential Impacts to Surface Water

The injection of tertiary treated effluent or off-site surface water into the subsurface should have no adverse impact upon existing surface water quality. The water would be injected into the aquifer, which is comprised of coarse-grain channel deposits with greater porosity and permeability. Above the aquifer is the aquitard, which is comprised of fine-grain sediments, which have considerably lower porosity and permeability. The aquitard serves to create a condition of confinement upon the aquifer, such that the water in the aquifer is actually under pressure. Above the aquitard is the surface layer, which includes sands and gravel.

It is possible, that under certain conditions (heavy period of precipitation coupled with a period of higher volume injection into the aquifer), injected water in the aquifer may either migrate to the surface or cause water in the shallow subsurface layer to be forced upwards. The aquitard may not be completely impermeable, and as such may allow some leakage to

occur. The "leakance" is a term used to define the amount of water that potentially could migrate through the aquitard. The potential for leakance to occur is minimal to moderate.

The OMWD intends to conduct further assessment and monitoring before beginning injection/extraction operations. This additional data collection will include further subsurface geologic characterizations (e.g., CPT borings, shallow subsurface monitoring wells, etc.), assessments of injection/extraction well performance, additional groundwater elevation and quality monitoring, and revisions to the groundwater model for the basin.

This additional data will add to the understanding of the basin performance during injection/extraction operations. Additionally, this data and subsequent data collected during planned routine monitoring within the basin will form the basis of an active management program. An active management program (AMP) will allow OMWD to monitor groundwater movement and quality, surface water movement and quality, and the environmental conditions within the basin during injection/extraction operations. Furthermore, the OMWD will use the AMP to adjust operational conditions of the injection/extraction system to mitigate impacts within the operational area of the system.

It is anticipated that OMWD can reduce injection rates or durations to mitigate affects caused by this process, and could likewise alter the rate and or duration of extraction to reduce adverse drawdown conditions under their control. The AMP cannot control off-site pumping beyond the control of OMWD; however, the monitoring component of the AMP will provide a means to adjust the operation of the injection/extraction field such that impact directly attributable to the project can be reduced.

Potential Impacts to Direction or Rate of Flow of Groundwater

Overall, general groundwater flow direction is down the basin (south and then west), towards the ocean. However, local groundwater pumping has created pumping depressions into which groundwater flows. The primary area of groundwater extraction (pumping depression) is located just east of the San Dieguito River, and is centered near the intersection of El Apajo and Via De Santa Fe Roads (Hargis + Associates, Inc., Technical Memorandum, July 29, 2002) (see Figure 1). A second smaller pumping depression is located at the north end of the Rancho Santa Fe Polo Club on the western side of the basin near Via de la Valle and El Camino Real.

Under operational conditions, groundwater flow will be away from the injection area during injection periods, and into the area during extraction periods. This will alter the direction of groundwater movement in the immediate vicinity of the project area. Furthermore, injection operations may reduce the existing pumping depression; however, extraction operations may exacerbate the pumping depressions as it becomes additive to the existing depression.

The preliminary evaluation conducted suggests drawdowns of up to 60 feet within the well field may be possible during periods of protracted drought and demand for stored water within the basin. As such, this could induce additional drawdown upon surrounding wells. This additional drawdown could cause nearby property owners' wells to experience reduced yield or to go dry depending on the location, depth of the well, and depth of the pump. The magnitude of the drawdown will most likely be less during strictly OMWD operations. OMWD operations will inject 250 AF of reclaimed water over a period of 84 days and subsequently extract the same volume over a period of 6 months. Metropolitan operations

inject 750 AF of raw water from the Second Aqueduct over a period of 6 months and subsequently extract the same volume of water over a period of 12 months (refer to Figure 3). When both OMWD and MWD water is injected, and subsequently extracted, the potential for large cones of depression during pumping is higher.

Another factor affecting the drawdown would be the timing of extractions. OMWD would manage injection/extraction scenarios such that a minimal impact occurs, even during drought conditions. However, of greater concern would be the injection of MWD water that would not be called for until several years had passed. If the MWD call is coincidental with severe drought conditions within the basin, this could exacerbate drawdown conditions within the basin.

Recognizing this as a potential impact that can be mitigated, OMWD will again rely upon the AMP described above. Routine monitoring of groundwater elevations in and around the injection/extraction site (including private/public off-site wells) will allow OMWD to alter the rate and or timing of extraction to reduce the potential impact to groundwater elevations in the immediate vicinity of the project site.

2. <u>Biological Resources</u>

Potential Impacts to Protected Species

No endangered or sensitive species, species of concern, or species that are candidates for listing were detected on the project site during two biological reconnaissance assessment surveys conducted by EDAW biologists in June and July 2002. However, portions of the project site consist of habitats that have the potential to support the federally listed endangered arroyo toad (*Bufo californicus*) on-site, and the federally and state-listed endangered least Bell's vireo (*Vireo bellii pusillus*) immediately off-site to the north. Habitat within the project site that is suitable for breeding by the arroyo toad in wet years consists of the open, sandy channel along the San Dieguito River (see Figure 2). Pre-construction surveys will be undertaken for arroyo toads. If arroyo toads are present, mitigation would be required. Least Bell's vireo nesting habitat adjacent to the site includes the willow riparian scrub habitat upstream of Morgan Run along the river (see Figure 2). Construction would not occur during the least Bell's vireo breeding season, and will thus avoid any potential impacts.

3. <u>Cultural Resources</u>

Potential Impacts to Cultural Resources

A cultural resources records search was conducted for this project (attached as Appendix B). The records and literature review included examination of the archives at the South Coastal Information Center (SCIC) at San Diego State University and the San Diego Museum of Man. The data reviewed included historic maps, and National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR) information for the project location.

The literature review for this project shows that no previous cultural resource investigations has been documented and no previous cultural resources have been identified. However, previous investigations show the possibility of prehistoric buried deposits within floodplains.

Therefore, mitigation measures outlined in the Mitigated Negative Declaration for this project will be implemented. With implementation of the mitigation measures, potentially significant impacts to prehistoric or historic archaeological sites would be mitigated.

F. Mitigation Necessary to Avoid Significant Impacts

WATER QUALITY

- 1. The active management plan (AMP) involves two basin operations, as described below:
 - a. Monitoring. The AMP would rely upon on-going monitoring within the basin. As such, this monitoring shall include groundwater quality and elevation measurements in on-site injection/extraction wells, shallow and deeper groundwater monitoring wells (locations to be determined later) and select off-site wells; shall include monitoring off-site groundwater usage; shall include surface water elevation and quality monitoring; and shall include ground surface monitoring.
 - b. Management. The AMP shall include interpretation of the data obtained during monitoring to assess trends in groundwater and surface water elevation and movement changes, and groundwater and surface water quality changes. The plan shall use these assessments to determine whether operational alterations in the rates or duration of either injection or extraction are required to reduce the impacts from the project upon groundwater and surface water conditions within the basin.

BIOLOGICAL RESOURCES

- 1. Arroyo toad exclusion fences shall be erected along the boundary of the proposed pipeline construction right-of-way, if the pipeline designated for potential installation in the San Dieguito River channel in the vicinity of El Apajo Road is to be constructed.
- 2. If arroyo toads are encountered during construction, they shall be relocated by a qualified biologist to an appropriate area outside the exclusion fence.
- 3. To avoid potential impacts to least Bell's vireo, in the area of San Dieguito River and El Apajo Road, construction shall occur outside the breeding season for this species. Thus construction shall not take place between April 10 and July 31 in this designated area. This measure shall not restrict project construction activities at other locations, as the only least Bell's vireo habitat potentially affected by the project is located along the San Dieguito River channel north of the El Apajo Road area.

CULTURAL RESOURCES

- 1. To mitigate against potential impacts to cultural resources, an archaeological monitor shall be on-site to observe all ground-disturbing activities throughout the construction period.
- 2. If, during the course of construction, any archaeological or historical resource is uncovered, then construction activity in that area shall terminate until a determination of potential significance of the uncovered materials is made.

G. Consultation

1. <u>Agencies and Other Sources</u>

Olivenhain Municipal Water District

Harry Ehrlich, Deputy General Manager George Briest, Engineering Manager

San Diego County Water Authority

Maria Mariscal, Senior Water Resources Specialist Kelley Gage, Water Resources Specialist

Metropolitan Water District

Kathleen Kunysz, Program Manager John Vrsalovich, Engineer Edgar Fandialan, Engineer

San Diego County Land Use and Planning

Sandra Gillen, Land Use Technician

Kleinfelder

Chris Johnson, Chief Hydrogeologist Donna McClay, Project Manager Greg Witman, Senior Hydrogeologist

Hargis + *Associates*

Mike Palmer, Principal Hydrogeologist Roger Niemeyer, Principal Hydrogeologist

EDAW, Inc.

Jack White, Vice President/Principal Paula Jacks, Senior Biologist/Senior Associate John Messina, Senior Biologist/Associate Lyndon Quon, Senior Wildlife Biologist/Associate John Chavez, Air/Noise Specialist John Shih, Environmental Analyst Kara King, Environmental Analyst Elizabeth Candela, Environmental Analyst Robin Rice, Word Processor Alys Wall, GIS Group Manager Dan Brady, Graphic Artist

- 2. Documents and References
 - **Boyle Engineering**

1996 OMWD Comprehensive Reclaimed Water Master Plan. October.

California Department of Conservation

1998 San Diego County Important Farmland.

County of San Diego (County)

1995 Part II, Regional Land Use Element, San Diego County General Plan.

Deméré, T.A. and S.L. Walsh

- 1993 Paleontological Resources, County of San Diego. Department of Paleontology, San Diego Natural History Museum.
- HYA Consulting Engineers
 - 1997 San Dieguito Basin Groundwater Management Planning Study Phase II-Feasibility Analysis. November.

Kennedy, M.P. and G.L. Peterson

- 1975 Geology of the San Diego Metropolitan Area, California. California Division of Mines and Geology Bulletin 200.
- 1996 Part VI, San Dieguito Community Plan, San Diego County General Plan.
- 1977 Part XI, Energy Element of the San Diego County General Plan.

Luke-Dudek Civil Engineers, Inc.

1988 A Phased Program for: Reclamation Development, Groundwater Recharge and Groundwater Quality Control in the San Dieguito Hydrographic Subunit of the San Diego Region in California. August.

United States Department of Agriculture (USDA)

- 1973 Soil Survey, San Diego Area, California.
- 3. Initial Study

This environmental determination is based on the attached Initial Study, any comments received on the Initial Study, and any comments received during the public review period for this Mitigated Negative Declaration. The document reflects the independent judgment of the Olivenhain Municipal Water District. Further information regarding the environmental review of this project is available from the Olivenhain Municipal Water District, 1966 Olivenhain Road, Encinitas, CA 92024.

Collon David C. McCollom

General Manager

10/09/02

NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION FOR THE SAN DIEGUITO GROUNDWATER RECHARGE AND RECOVERY PROJECT

Upon due consideration under the California Environmental Quality Act (CEQA) and other applicable environmental laws and regulations, Olivenhain Municipal Water District (OMWD), as the lead agency under CEQA, intends to adopt a Mitigated Negative Declaration for the San Dieguito Groundwater Recharge and Recovery Project (Project). Accordingly, and in full compliance with Section 15072 of CEQA Guidelines, OMWD is providing this notification to the public, responsible agencies, trustee agencies, and the San Diego County Clerk.

Project Location

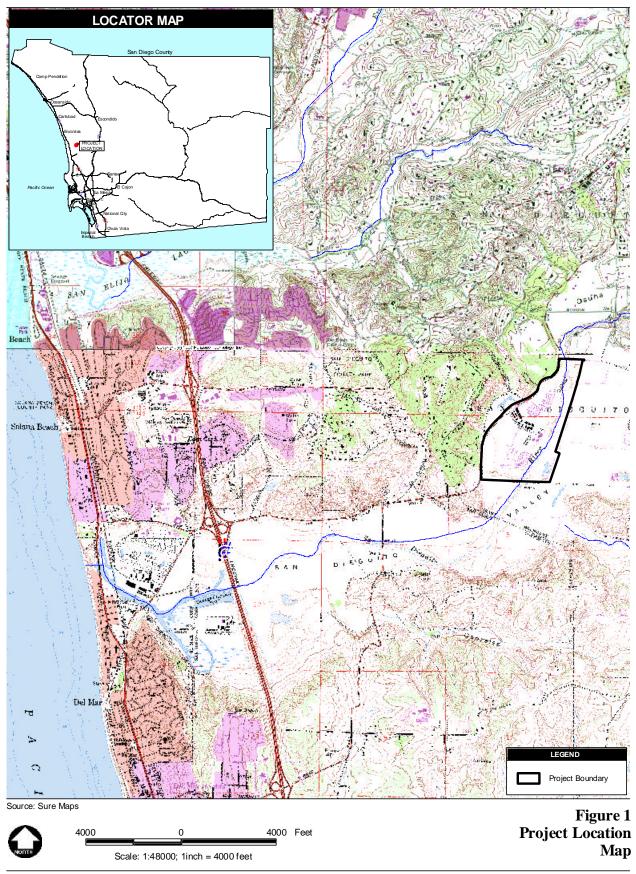
The Project is located in west-central San Diego County on property owned by the Morgan Run Golf Course and Resort (Morgan Run) (see Figure 1, Project Location Map). Morgan Run is situated south of Via de la Valle about 2 miles east of Interstate 5 (I-5).

Background

As part of OMWD's overall responsibility to develop an adequate water supply for landowners and residents of the District, OMWD is planning to develop a reclaimed water injection and recovery project in the San Dieguito groundwater basin. The general purpose of the Project is to provide regional and local benefits through an increase to the dry-year groundwater supply. The specific goals of the Project are:

- Store excess reclaimed in the San Dieguito groundwater basin for future extraction;
- Provide reclaimed water to Morgan Run and other potential end-users;
- Satisfy the Regional Water Quality Control Board's (RWQCB) requirement for an 84-day emergency storage period of reclaimed water for the 4S Ranch treatment facility; and
- Provide for longer-term storage in case of system emergency under the State Proposition 13 grant program being administered by Metropolitan Water District.

To implement these goals, OMWD plans to acquire 250 acre-feet per year (AF/yr) of excess Title 22 (tertiary-treated) reclaimed water from one of three water reclamation plants during wet-weather periods, and convey the water, via an existing water delivery system, to appropriate injection wellhead locations on Morgan Run. The injection wells would transfer the reclaimed water in an alluvial aquifer located approximately 80 to 150 feet below the land surface. In addition, the Project includes the storage of 750 AF/yr of raw water taken from Pipeline 5 (on the San Diego County Water Authority's Second Aqueduct) to meet Metropolitan's Proposition 13 emergency water storage needs. During wet seasons, the estimated total injection would be 250 to 1,000 AF/yr. Withdrawal from the aquifer would vary from year to year, but would not exceed the net amount of water injected. Project-related injection and withdrawal from the aquifer would not change the amount of groundwater normally available for extraction from other wells located in the basin during wet or dry years. Surveys of local groundwater users indicate that approximately 1,700 AF/yr is currently pumped out of the basin from 32 wells.





Public Review

Pursuant to Section 15105 of CEQA Guidelines, there will be a 30-day public review period for this proposed Mitigated Negative Declaration. The review period will begin on October 9, 2002 and extend through November 9, 2002. During this period, the Mitigated Negative Declaration and accompanying Initial Study will be made available to all interested parties, and written comments concerning the scope of the proposed project and OMWD's intent to adopt the Mitigated Negative Declaration are encouraged.

Public Meetings

A public meeting will be convened to provide a forum to discuss the Project and to receive oral and written comments from those in attendance. The date, time, and place for each meeting is as follows:

• November 7, 2002 (6:30 p.m.) at San Dieguito Planning Group, Rancho Santa Fe Fire Department, 16936 El Fuego, Rancho Santa Fe, California 92067

A second public meeting may be scheduled, with date, time, and place to be advertised in local newspapers.

A public hearing will be convened on November 27, 2002 at OMWD at the address shown below.

Copies of the Mitigated Negative Declaration/Initial Study

Copies of the Mitigated Negative Declaration and accompanying Initial Study for the Project can be obtained from OMWD at the following address during normal working hours (8:00 a.m. to 5:00 p.m.):

Olivenhain Municipal Water District 1966 Olivenhain Road Encinitas, California 92024 (760) 753-6466

Submittal of Comments

Please direct all comments and questions to OMWD at the address and telephone number noted above (Attention: Mr. Harry Ehrlich, Deputy General Manager).

INITIAL STUDY FORM

| 1. | Project title: San Dieguito Groundw | ater Recharge and Recovery |
|----|--|--|
| 2. | Lead agency name and address: | Olivenhain Municipal Water District 1966 Olivenhain Road Encinitas, California 92024 |
| 3. | Contact person and phone number: | Harry Ehrlich, Deputy General Manager (760) 753-6466 |
| 4. | Rancho Santa I | esort and Club, east of Via de la Valle, south of El Apajo, Fe ers Coordinates: Page 1168, Grid C7, D6, D7 Page 1188, Grid C1, D1 |
| 5. | Project sponsor's name and address: | Olivenhain Municipal Water District 1966 Olivenhain Road Encinitas, California 92024 |
| 6. | General plan designation: Estate | Development Area, Impact Sensitive |
| | | |

7. Zoning: Special Use Permit P68-103

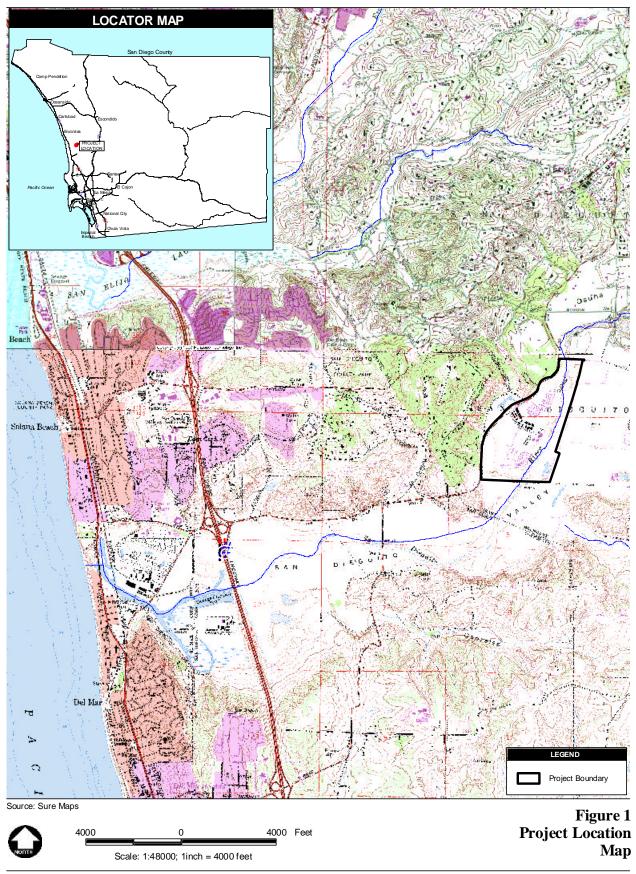
8. Description of project:

Purpose and Need

The Olivenhain Municipal Water District (OMWD) proposes to develop a water injection and recovery system in the San Dieguito Groundwater Basin (basin) at the Morgan Run Golf Course and Resort (Morgan Run) (see Figure 1, Project Location Map). The project would improve water quality, maximize utilization of groundwater storage capacity, and increase the dry-year groundwater supply within the basin.

The project would utilize Proposition 13 funds provided by the Metropolitan Water District (Metropolitan). In April 2002, Metropolitan Board authorized staff to finalize agreement terms with OMWD and San Diego County Water Authority (SDCWA) for the San Dieguito Recharge and Recovery Project and recommended the project to receive \$500,000 of Proposition 13 funding from the Southern California Water Supply Reliability Project Fund. This conjunctive use project will enable Metropolitan to store up to 2,250 acre-feet (AF) of imported water in the San Dieguito basin during wet years and produce 750 AF per year (AF/yr) for overlying demand during dry, drought, or emergency periods. Pending adoption of this MND and project approval, funding would be provided as outlined above.

The goals of the project include (1) store excess reclaimed water in the basin for future extraction and use; (2) provide reclaimed water to Morgan Run and other potential end users; (3) satisfy the Regional Water Quality Control Board's (RWQCB) requirement for an 84-day emergency storage period of reclaimed water for the Rancho Cielo treatment facility; and (4) provide storage of imported





water under the conjunctive use program for Metropolitan's call during dry, drought, and/or emergency periods.

Project Overview

To implement this project, OMWD plans to utilize up to 250 AF/yr of excess Title 22 (tertiary-treated) reclaimed water from one of three water reclamation plants during wet-weather periods, and convey the water, via an existing water delivery system, to appropriate injection well locations on Morgan Run (see Figure 2, Potential Injection/Recovery Well Locations). The injection wells would be used to store the water in an alluvial aquifer located approximately 80 to 150 feet below the land surface. In addition, the project would include the storage of 750 AF/yr of raw water taken from Pipeline 5 (on the SDCWA Second Aqueduct) to meet Metropolitan's Proposition 13 emergency water storage needs. During wet seasons, the estimated total injection would be 250 to 1,000 AF/yr (see Figure 3, Typical Water Injection/Withdrawal Scenario). Withdrawal from the aquifer would vary from year to year, but it would not exceed the net amount of water injected.

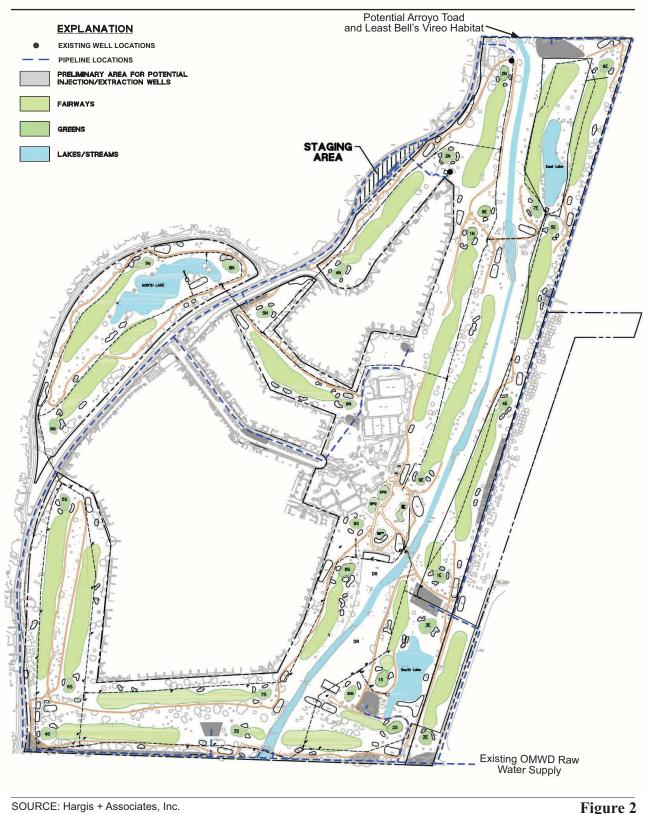
Existing water resource demands on the basin primarily consist of groundwater pumping for irrigation. Surveys of local groundwater users indicate that approximately 1,700 AF/yr is currently pumped out of the basin from 32 wells.

Potential customers for the proposed project's injected water include Morgan Run and other potential end users, such as other area golf courses or commercial or residential areas requiring irrigation. The OMWD Comprehensive Reclaimed Water Master Plan (Boyle 1996) identified Morgan Run as having an average potential recycled water demand of 600 AF/yr.

Project Description

The project site is centered on Morgan Run. The boundaries of the project site generally coincide with the Morgan Run property line, except for the portion of Morgan Run lying to the west of Via de la Valle (refer to Figure 1). The western edge of the project site is thus bounded by Via de la Valle. This western boundary spans approximately 13,500 feet adjacent to the Via de la Valle right-of-way. The northern edge of the project is generally bounded by El Apajo Road, though this road is not continuous across the San Dieguito River. The northern boundary is approximately 2,100 feet long. The eastern boundary of the project site is generally located along an existing dirt road that spans the eastern edge of the golf course. Near the southern portion of the golf course, the project boundary cuts approximately 10,500 feet in length. The southern project boundary is located along an existing Morgan Run property fence line demarking the southern edge of the golf course property. This boundary also coincides with the jurisdictional boundary between the County of San Diego to the south. The southern boundary spans approximately 5,900 feet.

The project involves multiple wells for the groundwater injection and extraction operations; however, the exact location and number of wells needed have not yet been fully determined. It is anticipated that up to eleven wells would be required for the project. The project may utilize the two existing production wells located at the north end of the Morgan Run property in addition to new wells. This environmental analysis takes into account the two existing wells plus as many as 13 potential new well locations on or near the Morgan Run golf course in order to analyze all potential project



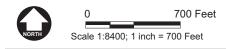


Figure 2 Potential Injection\Recovery Well and Pipeline Locations

OMWD Groundwater Recharge

Graphics2K035 OMWD Groundwater Recharge Potential Well Locations.Fh9 8/12/02

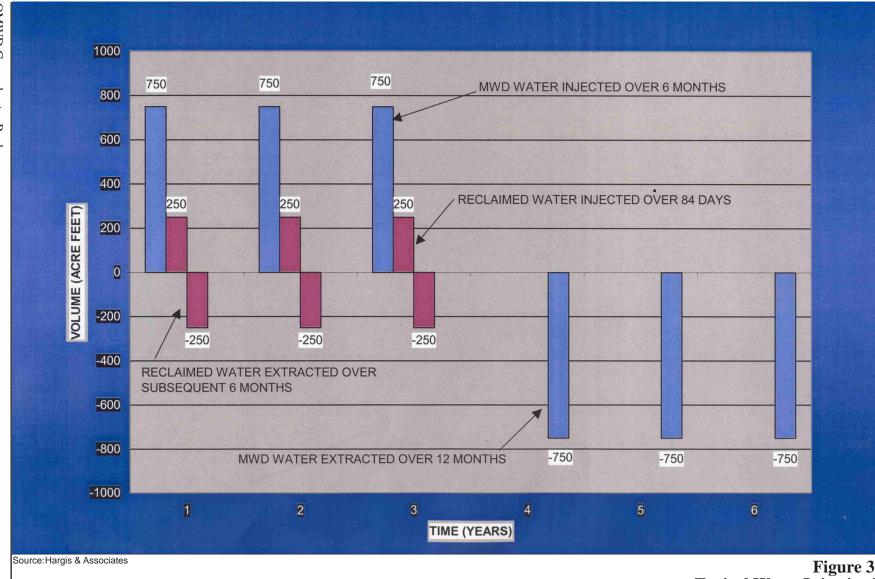


Figure 3 Typical Water Injection/ Withdrawal Scenario configurations. The potential project well sites are shown on Figure 2. Each well would contain a submersible pump and a flow control valve; thus, each well would be capable of pumping and injecting groundwater.

The project would also include pipelines to convey the water to and from the well locations (refer to Figure 2). It is anticipated that the pipeline network would follow the boundaries of the project as described above and, where necessary, the pipeline would extend into the interior portions of the golf course property to connect to the individual wellheads as depicted in Figure 2. Pipelines would also be necessary to transport the extracted water to off-site customers. OMWD owns an existing raw water pipeline, Main Extension 153, which currently transports raw water from a connection with the SDCWA Second Aqueduct at Artesian Road to nonpotable uses in the San Dieguito Valley. It is anticipated that this pipeline would be operationally converted to a combination raw and reclaimed water pipeline and utilized by the proposed project.

Multiple water reclamation facilities are under consideration to provide reclaimed water for injection into the aquifer. The three potential sources for reclaimed water include the 4S Ranch Waste Water Treatment Plant (WWTP), Santa Fe Valley Water Reclamation Plant (WRP), and the City of San Diego North City Wastewater Reclamation Plant, via Black Mountain Ranch pipelines. Reclaimed water facilities treat wastewater to a level that meets or exceeds California Title 22 Regulations for unrestricted irrigation. Each facility is described below.

- The 4S Ranch WWTP is located east of Dove Canyon Road in the 4S Ranch Community. This plant currently operates as a secondary treatment facility with a capacity of approximately 0.4 million gallons per day (MGD). The plant does not have existing tertiary capacity; however, by year 2020, tertiary capacity is expected to be approximately 2.0 MGD. The County of San Diego owns, operates, and maintains this facility.
- The Santa Fe Valley WRP is a planned water reclamation facility in the Santa Fe Valley Specific Planning Area near Artesian Road. Currently under construction, the facility is expected to have tertiary treatment capacity of 0.5 MGD when completed.
- The City of San Diego North City Wastewater Reclamation Plant is an existing facility located adjacent to I-805 and Miramar Road. That facility's pipelines and pumping stations will supply Title 22 treated water to the Black Mountain development area and a future connection to Metropolitan's system at the Pipeline Extension 153 at Artesian Road.

Raw water to satisfy Metropolitan's storage requirements would be provided through connections with the SCDWA Second Aqueduct. The aqueduct is owned by the SDCWA and conveys water to several surface reservoirs throughout San Diego County. The source of the raw imported water transported by the aqueduct is from the State Water Project or the Colorado River via Lake Skinner, in southern Riverside County.

Project Construction

Injection/Recovery Wells

Wells would typically consist of a housing that contains the instrumentation and underground pipes associated with the injection and extraction of the water. In each well, a submersible pump and a control valve would be installed below grade, enabling the well to pump and inject water. Typically, construction of a well involves drilling to the necessary depth, installing the well casing, and completing the well to land surface. Drilling between approximately 100 to 150 feet below the land surface is assumed to be necessary. Hazardous materials, such as fuel and bentonite for the drilling muds, would be necessary and standard safety measures and best management practices (BMPs) would be incorporated to handle and contain any hazardous substances used during construction. Easements and rights-of-way would be required from Morgan Run and the County of San Diego for construction, installation, operation, and future servicing of the well system. Each well would take 1 to 4 days to drill and construct and would require a workforce of approximately four persons throughout the construction process. Construction would take place between 7 a.m. and 7 p.m., 6 days a week excluding Sunday. Conversion of the two existing wells would not require drilling activities. The conversion would only require reconfiguration of the valve system on the existing wells. Three potential well sites and one existing well that could be converted are located within 150 feet of a residence. In order to reduce noise generated by the construction of the wells, noise blankets would be used during the drilling and installation activities. A noise monitor would be onsite during construction near residences to ensure noise levels are below County thresholds. The equipment typically needed for installation of wellheads includes a backhoe, drilling rig, support trucks, and pickup trucks. The wells would then be connected to the source water via the pipeline network.

One staging area would be necessary to store construction equipment, materials, and vehicles for well construction with three to four smaller laydown areas that would be coordinated with the golf course manager. Potential staging areas are illustrated in Figure 2; each area has been previously disturbed.

Pipeline Network

The pipeline network would be installed using the trenching method. This cut-and-cover construction technique involves a certain length of trench excavation (typically 300 to 500 feet at a time). Pipe is then laid and joined to the previous length and the trench is backfilled. This type of pipeline installation is surface disturbing and may require re-landscaping, noise control, relocation of existing utilities, and other measures to reduce disruption to both human and environmental resources. Typical construction equipment needed for pipeline trenching includes a backhoe, crane, wheel bulldozer, forklift, roller compactor, and dump trucks. A construction corridor of approximately 25 feet is assumed, based on the installation of a 10-inch pipe. Narrower widths may be achievable in sensitive areas, if necessary. It would be necessary to obtain easements and rights-of-way from Morgan Run for installation and future servicing of the pipelines. The trench would be excavated to a depth of approximately 3 to 6 feet. Pipeline construction is estimated to occur over a period of approximately 6 months and would require a workforce of approximately 6 to 10 persons throughout the duration of the construction. Construction activities would take place between 7 a.m. and 7 p.m., 6 days a week excluding Sunday.

Because pipeline construction would occur along a linear transect, it may be necessary to have multiple staging areas for accessibility between the staging area and the construction location. The staging areas described above for wellhead construction could potentially also be used as staging for the pipeline construction. Potential locations for staging areas are indicated in Figure 2.

Project Operation

Operation of project components would be almost entirely unnoticed by the surrounding human and natural environment. Once constructed, all pipelines would be located underground and only minor pump and wellhead components would be located aboveground. The aboveground components related to the pumps and wellheads would consist of vaults installed at land surface or small shed-like structures. Minimal audible noise would result from operation of the pumps, as they would be

underground. Operation of the project would require occasional servicing of the pipeline and wellhead components to maintain proper function. Once the project is in operation, the results would be monitored. The process of monitoring the aquifer would involve measuring flow rates and water levels in the extraction and injection wells and nearby monitoring wells, and monitoring water quality in wells in the study area.

9. Surrounding land uses and setting: Briefly describe the project's surroundings:

The proposed project is surrounded by various land uses and developments. North of the project site is land that is currently vacant with some areas of active agriculture use, with the exception of the development currently under construction northwest of the intersection of El Apajo Road and Via de Santa Fe. The San Dieguito River enters the project site from the north. A small area of residential development is located to the east of the project site. Large parcels of undeveloped land that are currently in agricultural use are also located to the east. South of the project site is the Fairbanks Ranch Country Club and Golf Course. The San Dieguito River exits the project site at the southern boundary. Sparse residential development is located in the hills to the west of the project site.

10. Other public agencies whose approval is required (*e.g.*, *permits*, *financing approval*, *or participation agreement*.)

| <u>Pe</u> • | ermit Type / Action 1601 Streambed Alteration Permit / Pipeline Construction across San Dieguito River channel | <u>Agency</u> California Department of Fish and Game |
|----------------|---|---|
| • | General Construction Activity Storm Water Permit/Construction activity in area greater than 5 acres | Regional Water Quality Control Board |
| • | Well Installation Permit | County of San Diego |
| • | Waste Discharge Requirement Permit | Regional Water Quality Control Board |
| • | Review and Approval of Engineering Report | Department of Health Services |
| • | Funding Approval | Metropolitan |
| • | Funding Approval | SDCWA |

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

| Aesthetics | Agricultural | Air Quality |
|----------------------|--------------------|---------------|
| Biological Resources | Cultural Resources | Geology/Soils |

| Hazards & Hazardous Materials | Hydrology / Water Quality | | Land Use / Planning |
|----------------------------------|------------------------------|--------|--------------------------|
| Mineral Resources | Noise | | Population / Housing |
| Public Services | Recreation | | Transportation / Traffic |
| Utilities / Service Systems | Mandatory Findings of Sigr | ifican | ce |

DETERMINATION: (*To be completed by the Lead Agency*)

On the basis of this initial evaluation:

- □ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- □ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- □ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

David C. McCollom

David C. McCollon General Manager

109/02

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EVALUATION OF ENVIRONMENTAL IMPACTS

| | | Potentially Significant Impact | Potentially Significant Unless Mitigated | Less than Significant Impact | No Impact |
|----|--|--------------------------------------|--|------------------------------------|--------------|
| I. | LAND USE AND PLANNING. Would the proposal: | | | | |
| | a) Conflict with general plan designation or zoning? | | | | |

The proposed project is located within the regional land use category of Estate Development Area (EDA) of the San Diego County General Plan Regional Land Use Element (County 1995). This category permits agricultural and low density residential uses with parcel sizes of 2 to 20 acres. The proposed project does not conflict with any of the policies or standards for development within the EDA category.

The proposed project is also located within the San Dieguito Community Plan Area (County 1996). The project does not conflict with any of the land use Goals and Objectives of the San Dieguito Community Plan.

b) Conflict with applicable environmental plans or policies adopted by agencies with jurisdiction over the project?

The state agency with primary responsibility for maintaining the quality of groundwater and surface water in the San Dieguito Basin is RWQCB, San Diego Region. The local responsible agency is the OMWD. In addition, the California Department of Health Services regulates activities involving the use of reclaimed water. The project would not conflict with any applicable environmental plans or policies adopted by those agencies.

The project area falls outside of the coastal zone, as under the California Coastal Act of 1976 (California Public Resources Code Section 30000 *et seq.*). The project is subject to the jurisdiction of other state and federal resource agencies, such as the California Department of Fish and Game and U.S. Fish and Wildlife Service. To the extent the project falls under the jurisdiction of other resource agencies, compliance with those environmental plans or policies is addressed in the appropriate sections of this document.

c) Affect agricultural resources or operations (e.g., impacts to soils or farmlands, or impacts from incompatible land uses)?

The land within the project site is designated as Prime Farmland (California Department of Conservation 1998). However, the existing uses in the project site are residential and golf course, not agricultural. There are agricultural operations to the east and south of the study area. The project would not disrupt those agricultural operations or convert those lands to non-agricultural uses. The groundwater resource utilized by the agricultural operations would not be diminished or degraded. Project injection and withdrawal from the aquifer would not change the amount of groundwater available for extraction by other wells located in the basin. In addition, the natural water quality is worse than Basin Plan objectives. Existing total dissolved solids (TDS) in wells ranges from 1,600 to 5,100 milligrams per liter (mg/l). The TDS objective for the Basin Plan is 1,500 mg/l.

d) Disrupt or divide the physical arrangement of an □ □ □ □ ■ established community (including a low-income or minority community)?

| Potentially | Potentially | Less than | |
|-------------|------------------|-------------|--------|
| Significant | Significant | Significant | No |
| Impact | Unless Mitigated | Impact | Impact |

The project proposes the construction of up to 11 wells at 13 potential sites plus the potential conversion of two existing wells, all of which are located on a private golf course or County roadway. The potential to disrupt or divide the physical arrangement of an established community has been analyzed individually for each potential site as well as cumulatively. There would be no impact to the established community. The nearby residences are located in a community already surrounded by the golf course and is thus already physically isolated from the surrounding communities. Within the golf course community, the project would not divide the physical arrangement of the community because most of the project components, such as wellheads and pipelines, would be located belowground. The aboveground components related to the pumps and wellheads would consist of vaults installed at land surface or small shed-like structures, which would not physically divide the established community.

II. POPULATION AND HOUSING. *Would the proposal:*

a) Cumulatively exceed official regional or local population projections?

The project would not create additional housing or otherwise cause additional housing to be built. Therefore, the project would not have any direct or indirect impacts on official regional or local population projections.

b) Induce substantial growth in an area either □ □ □ ■ directly or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure)?

The project would not induce substantial growth either directly or indirectly. No new homes or businesses are proposed as part of the project. No new roadways that could facilitate development of previously undeveloped areas are proposed as part of the project. The existing or proposed pipelines that are part of the project would convey nonpotable water for irrigation uses. Potential customers of the extracted water include golf courses, such as Morgan Run, and other landscaping uses. The extracted water would not be suitable for potable residential uses and thus would not support or facilitate population growth.

c) Displace existing housing, especially affordable \Box \Box \Box

The project would not require the displacement of any existing housing. All potential well sites identified by the project plan are located on a private golf course and would not contribute to the displacement of any existing housing.

III. GEOPHYSICAL. *Would the proposal result in or expose people to potential impacts involving:*

a) Unstable earth conditions (such as earthquakes, landslides, mud slides, ground failure, or similar hazards) or changes in geologic substructures?

The San Dieguito River valley is situated in the Pacific Coastal Plain physiographic zone and is comprised of thick, Quaternary age alluvial sediments, typically ranging from 125 to 150 feet in thickness along the axis of the basin, with thickness decreasing to less than 50 feet near the margins of the basin. The basin is underlain and flanked by Tertiary age marine sedimentary rock units (the

Del Mar Formation and the Torrey Sandstone Formation) and by Jurassic/Cretaceous age metavolcanic rock units (HYA 1997).

| Potentially | Potentially | Less than | |
|-------------|------------------|-------------|--------|
| Significant | Significant | Significant | No |
| Impact | Unless Mitigated | Impact | Impact |

The project, as described, should not present a significant risk for subsidence within the basin. Extraction will not exceed the net injection of water, and as such should reduce the likelihood that subsidence will occur within the basin. Under periods of severe drought and extraction, it is possible that subsidence could occur. However, the basin was significantly stressed within the last 50 years, and most likely has subsided already, creating a "pre-stressed" condition. As such, this has most likely reduced the risk of subsidence and along with the planned operation of the project should reduce the risk of reinitiating further subsidence within the basin.

b) Disruptions, displacements, compaction, or \Box \Box \blacksquare \Box

Soil in the study area consists of Tujunga sand, 0 to 5 percent slope; Riverwash; Corralitos loamy sand, 0 to 5 percent slope; and Grangeville fine sand loam, 0 to 2 percent slope (USDA 1973).

Impacts to soils would occur in localized areas around the proposed wellheads and distribution pipelines. Soil disturbance associated with pipeline installation would be limited to a depth of approximately 3 to 6 feet and a width of 3 feet along the proposed alignment. The excavated trench would be backfilled to match the existing grade. Construction of wells would involve local disturbance of surface soil for the drilling and installation of a well casing, submersible pump, and control valve in each well. Each well would be drilled to a depth of approximately 100 to 150 feet below land surface. The majority of the site has previously been disturbed by grading and landscaping for the golf course. Due to the localized nature of the soil disturbance and the location on an existing graded and landscaped golf course, the project would not significantly disrupt, displace, compact, or over-cover soil in the study area.

c) Change in topography or ground surface relief \Box \Box \Box

The project would not impact topography or ground surface relief features. All proposed wellheads and pipelines would be located subsurface, with the possibility of small sheds or limited wellhead piping aboveground. The study area has already been extensively graded for the construction of the golf course, on which the wellheads would be located. Construction impacts from the installation pipelines would be temporary. The excavated trench would be backfilled and revegetated to match the existing grade and would not cause any permanent changes in topography.

d) The destruction, covering or modification of any \Box \Box \Box

There are no unique geologic or physical features within the vicinity of the proposed wellheads or pipelines.

e) Any increase in wind or water erosion of soils,

The project would not cause a significant increase in wind or water erosion of soil. Water injected or extracted form the well would be conveyed underground via pipelines and would not cause erosion of soil. Surface disturbing activities on previously vegetated surfaces during project construction would be revegetated to control soil erosion. The construction contractor would be required to prepare a Surface Water Pollution Prevention Plan, which would be approved by RWQCB. This plan would stipulate the use of BMPs to control surface water runoff and erosion and generally protect water quality throughout the construction period.

| | Potentially Significant Impact | Potentially Significant Unless Mitigated | Less than Significant Impact | No Impact |
|---|--------------------------------------|--|------------------------------------|--------------|
| , | | | | |

f) Changes in deposition or erosion of beach sands, or changes in siltation, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay inlet or lake?

The project would not cause any changes that would cause deposition or erosion to occur to the channel of the San Dieguito River or any other water body. However, it is proposed that a pipeline would be constructed across a normally dry reach of the ephemeral San Dieguito River channel. Construction would result in temporary modification to the channel as a result of the trenching activities, which would include stockpiling of river sand for replacement over the pipeline once the pipe was placed in the trench. These sandy materials would be replaced in such a manner as to comport with the original contour of the channel.

Care would be taken at this channel crossing to avoid construction during wet periods to further avert any potential for erosion. Good engineering practices would be followed to adequately protect the proposed pipeline from the effects of scouring during wet periods once the pipeline was installed. Approval for this streambed crossing is required from the California Department of Fish and Game, and OMWD would submit an application for a Streambed Alteration Agreement in compliance with Section 1601 of the Fish and Game Code.

- **IV. WATER.** *Would the proposal result in:*
 - a) Changes in absorption rates, drainage patterns, or \Box \Box \blacksquare \Box

The proposed project would have no effect on absorption rates, drainage patterns, or in the rate or amount of surface runoff. The construction contractor would be required to prepare a Surface Water Pollution Prevention Plan (SWPPP), which would be approved by RWQCB. This plan would stipulate the use of BMPs to control surface water runoff and erosion and generally protect water quality throughout the construction period.

b) Exposure of people or property to water related \Box \Box \Box

Nothing within the scope or design of the proposed groundwater injection/recovery project would expose people or property to water-related hazards, such as flooding or tidal waves.

c) Discharge into surface waters or other alteration of surface water quality (e.g., temperature, dissolved oxygen or turbidity)?

The injection of tertiary-treated effluent or off-site surface water into the subsurface should have no adverse impact upon existing surface water quality. The water would be injected into the aquifer, which is comprised of coarse-grain channel deposits with greater porosity and permeability. Above the aquifer is the aquitard, which is comprised of fine-grain sediments, which have considerably lower porosity and permeability. The aquitard serves to create a condition of confinement upon the aquifer, such that the water in the aquifer is actually under pressure. Above the aquitard is the surface layer, which includes sands and gravel (Hargis 2002).

It is possible, that under certain conditions (heavy period of precipitation coupled with a period of higher volume injection into the aquifer), injected water in the aquifer may either migrate to the surface or cause water in the shallow subsurface layer to be forced upwards. The aquitard may not be completely impermeable, and as such may allow some leakage to occur. The "leakance" is a term used

| Potentially | Potentially | Less than | |
|-------------|------------------|-------------|--------|
| Significant | Significant | Significant | No |
| Impact | Unless Mitigated | Impact | Impact |

to define the amount of water that potentially could migrate through the aquitard. The potential for leakance to occur is minimal to moderate.

The OMWD intends to conduct further assessment and monitoring before beginning injection/extraction operations. This additional data collection would include further subsurface geologic characterizations (e.g., CPT borings, shallow subsurface monitoring wells, etc.), assessments of injection/extraction well performance, additional groundwater elevation and quality monitoring, and revisions to the groundwater model for the basin.

This additional data would add to the understanding of the basin performance during injection/extraction operations. Additionally, these data and subsequent data collected during planned routine monitoring within the basin would form the basis of an active management program. An active management program (AMP) would allow OMWD to monitor groundwater movement and quality, surface water movement and quality, and the environmental conditions within the basin during injection/extraction operations. Furthermore, OMWD would use the AMP to adjust operational conditions of the injection/extraction system to mitigate impacts within the operational area of the system.

It is anticipated that OMWD could reduce injection rates or durations to mitigate affects caused by this process, and could likewise alter the rate and or duration of extraction to reduce adverse drawdown conditions under their control. The AMP would not control off-site pumping beyond the control of OMWD; however, the monitoring component of the AMP would provide a means to adjust the operation of the injection/extraction field such that impact directly attributable to the project could be reduced.

d) Changes in the amount of surface water in any under the amount of surface water in any under the surface water in any und

The amount of potential surface water change would most likely 1) be infrequent if at all, 2) be of a minimal quantity compared to the existing quantity of surface water, and 3) contribute to improved water quality conditions. As described above, active management and monitoring of the basin would allow for alternations in the injection rates which would minimize the potential for affecting the amount of water in surface waters adjacent to the injection/extraction area.

It is anticipated that the only surface water body potentially affected by the project would be the San Dieguito River itself.

e) Changes in currents, or the course of direction of under the course of direction of of di

In the unlikely event that injected water directly enters into the San Dieguito River, or causes existing groundwater to enter the river, the course of direction of the river should not be altered. The quantity of leaked water should be minimal compared to the quantity of existing surface water, and as such should not cause any diversion in the river course. Changes in the direction of water movement occurs naturally due to seasonal changes and factors such as other well users withdrawals. Water movement and direction would be monitored during operation of the project, and potential effects from the injection/extraction program will be monitored to the degree possible through the AMP discussed above.

f) Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?

| Potentially | Potentially | Less than | |
|-------------|------------------|-------------|--------|
| Significant | Significant | Significant | No |
| Impact | Unless Mitigated | Impact | Impact |

The intent of the project is to inject, store, and recover either tertiary-treated effluent or raw water, in a confined aquifer within the San Dieguito basin. The quantity of water to be injected would range from 250 AF/yr to 1,000 AF/yr, depending upon the availability of source water.

Existing well data suggest that the aquifer is capable of receiving the projected lower volume quantities, and may be able to accept the upper volume quantities as well. Furthermore, the aquifer appears capable of relinquishing the stored water during extraction operations.

Currently, the primary groundwater withdrawal from the basin is for irrigation purposes, and is estimated to be about 1,700 AF/yr pumped from 32 existing wells. Withdrawal of the injected water would not exceed the net amount injected, and is expected to vary from year to year, depending upon demand.

g) Altered direction or rate of flow of groundwater? \Box

Overall, general groundwater flow direction is down the basin (south and then west), towards the ocean. However, local groundwater pumping has created pumping depressions into which groundwater flows. The primary area of groundwater extraction (pumping depression) is located just east of the San Dieguito River, and is centered near the intersection of El Apajo and Via De Santa Fe Roads (Hargis + Associates, Inc., Technical Memorandum, July 29, 2002) (see Figure 1). A second smaller pumping depression is located at the north end of the Rancho Santa Fe Polo Club on the western side of the basin near Via de la Valle and El Camino Real.

Under operational conditions, groundwater flow would be away from the injection area during injection periods, and into the area during extraction periods. This would alter the direction of groundwater movement in the immediate vicinity of the project area. Furthermore, injection operations could reduce the existing pumping depression; however, extraction operations could exacerbate the pumping depressions as it becomes additive to the existing depression.

The preliminary evaluation conducted (Appendix B) suggests drawdowns of up to 60 feet within the well field could be possible during periods of protracted drought and demand for stored water within the basin. As such, this could induce additional drawdown upon surrounding wells. This additional drawdown could cause nearby property owners' wells to experience reduced yield or to go dry depending on the location, depth of the well, and depth of the pump. The magnitude of the drawdown would most likely be less during strictly OMWD operations. OMWD operations would inject 250 AF of reclaimed water over a period of 84 days and subsequently extract the same volume over a period of 6 months. Metropolitan operations inject 750 AF of raw water from the Second Aqueduct over a period of 6 months and subsequently extract the same volume of water over a period of 12 months (refer to Figure 3). When both OMWD and MWD water is injected, and subsequently extracted, the potential for large cones of depression during pumping would be higher.

Another factor affecting the drawdown would be the timing of extractions. OMWD would manage injection/extraction scenarios such that a minimal impact occurs, even during drought conditions. However, of greater concern would be the injection of MWD water that would not be called for until several years had passed. If the MWD call is coincidental with severe drought conditions within the basin, this could exacerbate drawdown conditions within the basin.

Recognizing this as a potential impact that could be mitigated, OMWD would again rely upon the AMP described above. Routine monitoring of groundwater elevations in and around the injection/extraction site (including private/public off-site wells) would allow OMWD to alter the rate and or timing of extraction to reduce the potential impact to groundwater elevations in the immediate vicinity of the project site.

| | | Potentially Significant Impact | Potentially Significant Unless Mitigated | Less than Significant Impact | No Impact |
|----|---------------------------------|--------------------------------------|--|------------------------------------|--------------|
| h) | Impacts to groundwater quality? | | | | |

Based on well-sampling data collected by the California Department of Water Resources during the 1950s and early 1960s, groundwater in the San Dieguito basin has exhibited a wide variation in quality, as indicated by a range in total dissolved solids (TDS) of 304 to 19,360 milligrams per liter (mg/l)(Luke-Dudek 1988). These data illustrated that the quality of the basin's groundwater generally improved at distances farther from the ocean and the effects of salt water intrusion, which plagues those sectors of the basin west of El Camino Road. Information obtained from existing well users in the upper portion of the basin indicates that TDS ranges from about 1,600 to 2,500 mg/l (HYA 1997). These values were supported by investigations conducted by Hargis, where TDS values ranged between 1,600 and 5,100 mg/l at wells in the vicinity of Morgan Run.

The purpose of the proposed project is to inject reclaimed water and raw water into the San Dieguito basin. Tertiary-treated reclaimed water would be acquired from one of three sources: 4S Ranch WWTP, North City WWTP, or Santa Fe Valley WRP. The quality of reclaimed water from each of these sources is high. All reclaimed water from these sources meets or exceeds treatment requirements set forth by the Regional Water Quality Control Board, which is responsible for regulating the quality of all reclaimed water produced under Title 22 of the California Administrative Code. Once reclaimed water has passed through the tertiary treatment cycle, it can be used for a number of purposes, including agriculture, landscaping, and some recreational uses.

Raw water would be obtained from the Authority's Second Aqueduct, where the TDS ranges from approximately 560 to 600 mg/l.

The project would be consistent with the state's non-degration policy (Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California) and the Porter-Cologne Water Quality Act, codified as Division 7 of the California Water Code, which encourages the use of reclaimed water as a substitute for the use of potable water for irrigation purposes.

The project would have a less than significant impact on groundwater quality inasmuch as the proposed project is being developed as a source of irrigation water for Morgan Run and other potential irrigation water users in the San Dieguito basin. It is proposed to use reclaimed water that fully meets appropriate Title 22 requirements, thus posing no threat to public health and complying fully with the policies and regulations set forth to moderate the use of reclaimed water. The addition of the project's low-TDS water to the basin's aquifer would potentially have a beneficial effect on the general quality of water in the basin.

Again, recognizing that under certain conditions there exists a potential for the extracted groundwater to be of poorer quality (e.g. groundwater extracted after a prolonged period since injection coupled with high interim extraction rates by others), OMWD would rely upon the AMP to reduce the risk of extracting poorer quality groundwater.

i) Alterations to the course or flow of flood waters? \Box \Box

The proposed project would have no effect on flood waters, as none of the project components would have above-ground features capable of altering the course or flow of flood waters.

j) Substantial reduction in the amount of water otherwise available for public water supplies?

The project would not reduce the amount of water available for public water supplies. OMWD would store excess reclaimed water and raw water in the San Dieguito groundwater basin during the wet weather season for future extraction and use. The extraction would not exceed the volume that had been injected. The project would result in the redirection of excess raw water from the Authority's

| Potentially | Potentially | Less than | |
|-------------|------------------|-------------|--------|
| Significant | Significant | Significant | No |
| Impact | Unless Mitigated | Impact | Impact |

Second Aqueduct to a groundwater storage site for future recovery during periods of drought. Though the water would no longer be in the aqueduct system, it would continue to be available for public water use when needed. The ability to withdrawal water during times of drought or emergency would be a project benefit.

V. AIR QUALITY. Would the proposal:

a) Violate any air quality standard or contribute to an existing or projected air quality violation?

The project is located within the San Diego Air Basin (SDAB). The SDAB is "in attainment" for all federal criteria air pollutant standards except ozone (O_3). The SDAB is "in attainment" for all state criteria pollutant standards except O_3 and fine particulate matter (PM_{10}).

The San Diego Air Pollution Control District (APCD) is the agency responsible for the administration of federal and state air quality laws. The APCD does not have quantitative emissions limits designating significant impacts for construction activities, nor for long-term emissions that may result from increased vehicle use. In this analysis, evaluation methods from the South Coast Air Quality Management District (SCAQMD) CEQA Air Quality Handbook were used. Use of this Handbook is accepted throughout California.

Projects with proposed emissions that would be less that the de minimis thresholds may be presumed to be in conformance with plans to attain or maintain air quality standards.

Construction air quality impacts are based on combustion engine sources, both mobile and stationary, and fugitive dust from construction activities and vehicle travel on roads. The construction air emissions analysis employed a conservative assumption of up to 11 injection/extraction wells being constructed sequentially with two existing wells potentially converted for project use, for a total of 13 potential wells. The results of this analysis are shown below in Table 1 below. All construction criteria pollutant emissions are estimated to be below the federal General Conformity Rule de minimis threshold limits. No equipment use requiring permitting under APCD requirements is anticipated during construction. Estimated construction emissions resulting from the project would be less than the de minimus threshold limits and therefore would not conflict with the applicable air quality plans nor significantly contribute to existing air quality violations.

| | СО | ROC | NO _x | SO _x | PM ₁₀ |
|--------------------|--------|--------|-----------------|-----------------|-------------------------|
| Source | (tons) | (tons) | (tons) | (tons) | (tons) |
| Exhaust | 3.96 | 0.63 | 5.46 | 0.50 | 0.34 |
| Fugitive Dust | | | | | 5.24 |
| Total | 3.96 | 0.63 | 5.46 | 0.50 | 5.58 |
| Federal Thresholds | 100 | 50 | 50 | | 100 |
| Exceed Threshold? | No | No | No | No | No |

Table 1 Proposed Project Construction Related Air Emissions

| | | Potentially Significant Impact | Potentially Significant Unless Mitigated | Less than Significant Impact | No Impact |
|----|---|--------------------------------------|--|------------------------------------|--------------|
| b) | Expose sensitive receptors to pollutants? | | | | |

Sensitive air quality receptors could include nearby residents or sensitive land uses such as a school, day care center, elderly care home, hospital, etc. The nearest sensitive receptors would be the residents living in the Morgan Run Golf Course and Country Club Community. No exposure of sensitive receptors to air pollutant emissions or hazardous or toxic air pollutants is anticipated during construction because pollutant emissions would be less than the threshold limits. Operation of the project would result in minimal emissions from the pumps and would not expose sensitive receptors to pollutants.

c) Alter air movement, moisture, or temperature, or cause any change in climate, either locally or regionally?

The project would inject and recover reclaimed water from an existing aquifer and no features or activities associated with the project would cause a significant regional or local change in air movement, moisture, temperature or climate.

d) Create objectionable odors?

There are no anticipated sources of significant objectionable odors associated with the project. No unusual or objectionable odors are anticipated as a result of construction activities or operation of the well and pipeline network.

e) Create a substantial increase in stationary or nonstationary sources of air emissions or the deterioration of ambient air quality?

There are no anticipated project-related operational air emissions from combustion sources such as boilers, heaters, combustion engines, etc. The project utilizes submersible pumps powered by electric motors; therefore, operational air pollutant emissions would be negligible and not significant. Operation of the project would require minimal vehicle trips to perform periodic maintenance and upkeep of the pumps resulting in negligible, if any, traffic increases. There are no anticipated significant stationary or mobile air emissions sources associated with project operations. There is no anticipated operational equipment or other sources of air emissions that would require permitting by APCD. As discussed above, construction impacts to air quality would be minimal and not significant. No significant regional or local ambient air quality impacts are anticipated from the operational activities associated with the project.

VI. TRANSPORTATION/CIRCULATION. Would the proposal result in:

a) Increased vehicle trips or traffic congestion? \Box

The project would not have significant impacts on the number of vehicle trips or traffic congestion. No new roads would be constructed and the project would not generate a significant amount of additional vehicle trips. Because the proposed well and pipeline locations are on a private golf course, construction and maintenance activities would not require the obstruction of public roads. During the construction of the project, approximately 4 to 10 vehicle roundtrips per day would be expected, most of which would be construction-related commuter vehicles. After construction, maintenance vehicles would periodically visit the site. The relatively small number of construction and maintenance vehicle trips that would be generated by the project would have a less than significant impact on traffic flow.

| | | Potentially Significant Impact | Potentially Significant Unless Mitigated | Less than Significant Impact | No Impact |
|----|---|--------------------------------------|--|------------------------------------|--------------|
| b) | Hazards to safety from design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | | | | |

The project would not create hazards to safety from design features or incompatible uses. No new roads or modifications to existing roads are proposed as part of the project. The wellheads would be located on a golf course and would not pose hazards to any roads or create incompatible uses on any roads.

c) Inadequate emergency access or access to nearby \Box \Box \Box

The project would not impact emergency access or access to nearby uses. Most of the pipeline and well components would be located below grade and would not impede vehicular or pedestrian access to other uses.

d) Insufficient parking capacity on-site or off-site?

The proposed project would not generate a significant amount of vehicle trips and would not impact parking capacity on-site or off-site. During construction, a staging area would be set up that would be adequate to accommodate construction-related vehicles. The staging area is part of the project proposal.

e) Hazards or barriers for pedestrians or bicyclists? \Box \Box \Box

The proposed well locations would not on any established pedestrian or bicycle paths. Construction of the wells would not require the obstruction of any public roads or pedestrian paths and thus would not pose hazards or barriers for pedestrians or bicyclists.

| f) | Conflicts with adopted policies supporting | | |
|----|---|--|--|
| | alternative transportation (e.g., bus turnouts, | | |
| | bicycle racks)? | | |

The study area of the project is within a private golf course without public transportation service. The project does not conflict with any adopted policies of the San Diego County Bicycle Network Plan (County 1995).

g) Rail, waterborne or air traffic impacts?

 \square

The project would not impact rail, water, or air traffic. There are no railways in the vicinity of the study area. The San Dieguito River, within the vicinity of the project site, does not support any recreational or commercial uses. The project would not affect air traffic because none of the proposed structures or construction equipment would be of a height that would impact air traffic.

| h) | A "large project" under the Congestion | | |
|----|---|--|--|
| - | Management Program? (An equivalent of 2400 or | | |
| | more average daily vehicle trips or 200 or more | | |
| | peak-hour vehicle trips.) | | |

The project would not exceed the "large project" definition of the Congestion Management Program (CMP) of 2,400 or more average daily vehicle trips or 200 or more peak-hour vehicle trips. The CMP requires an Enhanced CEQA Review for all "large projects." Traffic generated by the project would be below this threshold and thus would not require an Enhanced CEQA Review.

| Potentially | Potentially | Less than | |
|-------------|------------------|-------------|--------|
| Significant | Significant | Significant | No |
| Impact | Unless Mitigated | Impact | Impact |

VII. BIOLOGICAL RESOURCES. *Would the proposal result in impacts to:*

a) Endangered, sensitive species, species of concern or species that are candidates for listing?

No endangered or sensitive species, species of concern, or species that are candidates for listing were detected on the project site during two biological reconnaissance assessment surveys conducted by EDAW biologists in June and July 2002. However, portions of the project site consist of habitats that have the potential to support the federally listed endangered arroyo toad (*Bufo californicus*) on-site, and the federally and state-listed endangered least Bell's vireo (*Vireo bellii pusillus*) immediately offsite to the north. Habitat within the project site that is suitable for breeding by the arroyo toad in wet years consists of the open, sandy channel along the San Dieguito River (see Figure 2). Preconstruction surveys will be undertaken for arroyo toads. If arroyo toads are present, mitigation would be required. Least Bell's vireo nesting habitat adjacent to the site includes the willow riparian scrub habitat upstream of Morgan Run along the river (see Figure 2). Construction would not occur during the least Bell's vireo breeding season, and will thus avoid any potential impacts.

b) Locally designated species (e.g., heritage trees)? \Box \Box

No locally designated wildlife species are known from the project site. Although raptors may nest in the eucalyptus trees that occur off-site to the northeast, none of these trees would be impacted by the proposed project. There are also no locally designated species, such as heritage trees, known from the site.

c) Locally designated natural communities (e.g., oak \Box \Box \Box

There are no locally designated natural communities on the site. A majority of the site is landscaped, supporting non-native species.

d) Wetland habitat (e.g., marsh, riparian and vernal pool)?

The San Dieguito River flows through the site. This portion of the river lacks wetland or riparian vegetation but since it is a soft-bottomed channel, it would qualify as non-wetland "waters of the U.S." Potentially significant impacts would be avoided as project alternatives currently being analyzed include directional drilling beneath the river or suspending the pipeline from an existing bridge crossing.

e) Wildlife dispersal or migration corridors? \Box \Box

No wildlife dispersal or migration corridors exist on the project site. The San Dieguito River upstream from the site acts as a wildlife movement corridor before dead-ending at Morgan Run. Additionally, the proposed pipeline would be placed underground or beneath an existing bridge structure, thus avoiding the creation of barriers to movement through the site by any wildlife species.

f) Affect regional habitat preservation planning efforts?

The proposed project would not affect regional habitat preservation planning efforts, as both the Multiple Habitat Conservation Program (MHCP) and the Multiple Species Conservation Program

| Potentially | Potentially | Less than | |
|-------------|------------------|-------------|--------|
| Significant | Significant | Significant | No |
| Impact | Unless Mitigated | Impact | Impact |

(MSCP) have mapped the area encompassing the project site as urban or developed land.

VIII. ENERGY AND MINERAL RESOURCES. Would the proposal:

a) Conflict with adopted energy conservation plans? \Box \Box \Box

Implementation of the project would not conflict with any goals or policies of the San Diego County General Plan Energy Element (County 1977) or the San Dieguito Community Plan (County 1996). The project is consistent with Policy UT-12 of the General Plan to "[p]romote strict County water conservation and recycling measures as a means of conserving energy." Action Program UT-12.2 (also listed as Policy 11 of the General Plan Conservation Element) states that, "The County will encourage projects which will promote the reclamation and reuse of wastewater. Such projects will be given funding priority in all water management programs." The project would store excess reclaimed water for future use and is thus consistent with Action Program UT-12.2.

b) Use non-renewable resources in a wasteful and \Box \Box \Box

The project would promote the efficient use of water by utilizing reclaimed water for groundwater recharge. By storing water in the aquifer during the wet season and withdrawing it during the dry season, the project would promote the efficient use of the limited available supply of water.

| c) | If the site is designated for mineral resource | | |
|----|---|--|--|
| | protection, will this project impact this protection? | | |

The project site is not designated for mineral resource protection.

IX. HAZARDS. Would the proposal involve:

a) A risk of accidental explosion or release of hazardous substances (including, but not limited to: petroleum products, pesticides, chemicals or radiation)?

Construction of the project could result in potentially significant release of hazardous substances unless mitigated. Hazardous substances, such as fuel and oil for the operation of construction equipment and bentonite for use in the drilling muds, would be used during construction. All hazardous materials would be handled according to applicable safety regulations that are incorporated into standard construction procedures, such as containment of all drilling muds, no discharge of excess drilling slurry or site runoff into drainages or wetlands, and other measures necessary to control drilling site runoff. Standard BMPs for equipment storage and operation would be implemented. The construction contractor would be required to address the containment of hazardous substances in the Surface Water Pollution Prevention Program (SWPPP), which is approved and monitored by the RWQCB. The potential of hazardous substance release would be less than significant.

The project would not use explosives for blasting and would not present a significant risk of accidental explosion.

| b) | Possible interference with an emergency response | | |
|----|--|--|--|
| | plan or emergency evacuation plan? | | |

The project would not interfere with any emergency response plan or emergency evacuation plan. None of the project components would obstruct access for emergency vehicles. Most of the well

| Potentially | Potentially | Less than | |
|-------------|------------------|-------------|--------|
| Significant | Significant | Significant | No |
| Impact | Unless Mitigated | Impact | Impact |

components and pipelines would be located below grade in open areas (golf course) and would not obstruct any evacuation routes.

c) The creation of any health hazard or potential \Box \Box \Box

Construction of the project would not create any potential health hazards. If any potentially hazardous materials are required for construction operations, they would be handled according to appropriate safety guidelines and procedures.

Operation of the project would result in the injection of reclaimed water into an aquifer currently used for water resources by well users in the vicinity. The reclaimed water injected into the aquifer would meet all water quality requirements for reclaimed water and would be equal to, or better than, the quality of the water currently in the aquifer. No health hazards would result from operation of the Proposed Project.

| d) | Exposure of people to existing sources of | | |
|----|---|--|--|
| | potential health hazards? | | |

There are no known existing sources of potential health hazards in the project site. No hazardous waste would be generated or stored during operation of the project. A hazardous sites records search was conducted for the area within an approximately 2-mile radius around the project site. No potentially significant hazardous sites were found within the vicinity of any of the proposed well locations or pipeline alignment.

e) Increased fire hazard in areas with flammable \Box \Box \Box

Implementation of the project would not cause an increased fire hazard. The areas surrounding the proposed well sites are irrigated, landscaped, and cleared of flammable plant matter on a regular basis. The pumps would be operated by electricity and would pose a low fire hazard potential.

X. NOISE. *Would the proposal result in:*

a) Increases in existing noise levels?



Existing ambient noise sources at the project site include traffic noise from Via de la Valle and other streets within Morgan Run, gardening and groundskeeping equipment at the golf course and residences, golf carts, golfers, pedestrians, occasional planes and helicopters overhead, and the music and public address system from the recreation and service facilities (restaurant, meeting rooms, patio dining area, swimming pool, etc.). The relevant noise regulation of the County is Title 3, Division 6, Section 36.404, "Sound Level Limits," which states that the noise limit (1-hour average sound level) for the zoning of the project site is 50 dBA between the hours of 7 a.m. to 10 p.m., and 45 dBA between the hours of 10 p.m. to 7 a.m. These are the most stringent of all noise level requirements under Sec. 36.404. Noise measurements were taken at various relevant locations throughout the project site. These measurements indicated that the existing ambient noise levels were typically above the 50 dBA noise limit set by the County. Measurements showed that existing noise levels near Whispering Palms residences ranged from 50 to 70 dBA.

Construction of the proposed project would result in temporary increased noise levels. The County of San Diego "Sound Level Limits" regulates construction noise in the project area separate from the above state noise limits. The regulations state that construction noise levels may not exceed 75 dBA

| Potentially | Potentially | Less than | |
|-------------|------------------|-------------|--------|
| Significant | Significant | Significant | No |
| Impact | Unless Mitigated | Impact | Impact |

for more than 8 hours in any 24-hour period. The noise regulations also state that construction activities are limited to the hours of 7 a.m. to 7 p.m., Monday through Saturday.

Construction of the pipelines would generate noise from diesel-powered engines of the construction equipment, such as a backhoe. Installation of the wells and pumps would require the use of a drill rig, which would generate the highest construction noise levels at 85 to 88 dBA at 50 feet from the source. Three potential well locations and one existing well location that could be converted are within 50 to 150 feet of residences. It is unknown at this time if any of these four wells, which are located in the interior of the project site near residential areas, would be built as part of the final well field/pipeline configuration. Construction equipment noise levels would also vary as a function of the activity level, or duty cycle. The noise generated by the drill rig would be greater than 75 dBA at times, but the drilling operations would not occur continuously for 8 hours because of construction cycles, worker breaks, etc. as stipulated in the County regulations above.

Residents located near the four interior potential well locations would experience short-term nuisance noise from construction activities, which would occasionally be above the 75 dBA noise limit, but not for a continuous eight-hour span as stipulated by the County Noise regulations. A noise monitor would be onsite during construction near residential areas to ensure that noise levels are within the required limits. The construction contractor would be required to install barriers or other noise abatement measures to ensure noise levels are below the County threhsolds. These impacts would be adverse; however, they would be temporary and last only throughout the duration of construction. The construction of each well is expected to last one to four days and pipeline construction would move along a linear alignment at 300 to 500 feet at a time. Therefore, construction impacts would not exceed the County noise regulations and would result in a permanent increase in existing noise levels. Though the noise generated by drilling and construction operations would not result in a significant noise impact according to County regulations, noise blankets would be used on the drill rig to further reduce the noise generated by drilling operations. This measure would help to minimize any adverse noise impacts to nearby residences throughout the drilling activities.

Operation of the pumps would not generate significant noise levels above the ambient noise in the area. The submersible pumps would be located below ground, which would absorb almost all noise generated by the pumps. No substantial noise impacts would result from the operation of the project.

b) Exposure of people to severe noise levels? \Box \Box \Box

Noise sensitive receptors are generally considered to be human activities or land uses that may be subject to the stress of significant interference from noise. Land uses often considered to be sensitive generally include residences, schools, libraries, hospitals, and passive recreational areas. Sensitive noise receptors may also include threatened or endangered noise sensitive biological species. Nearby residents would experience audible construction noise during installation of the pipelines and pumps. The construction noise would be within the limits set by the County.

Operation of the project would result in only minimal noise. The only components of the project that would create noise during operation would be the pumps installed below ground and that would generate minimal audible noise. Therefore, sensitive noise receptors would not be exposed to severe noise levels due to construction or operation of the project.

XI. PUBLIC SERVICES. Would the proposal have an effect upon, or result in a need for new or altered government services in any of the following areas:

a) Fire protection?



The proposed project would not create an increased fire hazard that would tax existing fire protection

| Potentially | Potentially | Less than | |
|-------------|------------------|-------------|--------|
| Significant | Significant | Significant | No |
| Impact | Unless Mitigated | Impact | Impact |

services or require the construction of new fire protection facilities. The proposed project would not impact response times or other performance objectives of fire protection services.

 \square

 \square

 \square

 \square

b) Police protection?

The proposed project would not create an increased need for police protection that would tax existing police protection services or require the construction of new police protection facilities. The study area is served by the San Diego County Sheriff's Department. The closest station is the Encinitas Sheriff's Station, located at 175 North El Camino Real, Encinitas, CA 92024, approximately 5 miles northwest of the project area. The proposed project would not impact response times or other performance objectives of police protection services.

c) Schools?

 \square \square

 \square

The proposed project would not create additional housing that would tax existing school facilities or otherwise create a demand for new schools.

d) Maintenance of public facilities, including roads? \Box \Box \Box

The proposed project would not create a need for increased maintenance of public facilities, including roads. The proposed well locations would be on private property, and access to the sites are from well-established private roads/paths.

e) Other governmental services?

No effects on other governmental services have been identified that could occur from the project; no impacts will result.

XII. UTILITIES AND SERVICE SYSTEMS. Would the proposal result in a need for new systems, or substantial alterations to the following utilities:

a) Power or natural gas?

The project would not permanently interfere with any existing utilities. Where the proposed pipeline alignment has a potential to interfere with existing utilities, the pipeline would be installed either above or below the existing utilities. There would not be substantial alterations to existing utility lines. The project would not increase demand on existing utilities capacity that would result in a need for new systems.

During construction around existing utilities, a temporary interruption in service could be required. However, the interruption in service would be brief and limited to construction hours. Therefore, impacts to existing utilities service would be less than significant.

b) Communications systems?

The project would not permanently interfere with any existing communications systems. Where the proposed pipeline alignment has a potential to interfered with existing communication lines, the pipeline would be installed either above or below the existing lines. There would not be substantial alterations to the existing communication system. The project would not increase demand on the existing communication system capacity that would result in a need for a new system.

During construction around existing communication lines, a temporary interruption in service could be

| Potentially | Potentially | Less than | |
|-------------|------------------|-------------|--------|
| Significant | Significant | Significant | No |
| Impact | Unless Mitigated | Impact | Impact |

required. However, the interruption in service would be brief and limited to construction hours. Therefore, impacts to the existing communications service would be less than significant.

c) Local or regional water treatment or distribution \Box \Box \blacksquare \Box

No new water treatment facilities would be required for the operation of the project. The existing reclaimed water system is designed to accept and blend the recovered water. New water distribution facilities would be an integral part of the proposed project. Construction of those facilities has been analyzed in various sections of this initial study and were found to have no significant unmitigable impacts. The project facilities that would be constructed as part of the project include:

- Additional pipeline facilities to convey raw and reclaimed water to injection wellhead locations
- Injection--extraction wells and pumps
- Recovery facilities, including injection-extraction wells, pump stations, and distribution pipelines.
- d) Sewer or septic tanks? \Box \Box \Box

The proposed wellhead locations would not interfere with or require substantial alterations to any existing sewer or septic tanks.

e) Storm water drainage? \Box \Box \Box

The proposed well locations would not permanently interfere with or require substantial alterations to any existing storm water drainage.

| f) | Solid waste disposal? | | | | |
|----|-----------------------|--|--|--|--|
|----|-----------------------|--|--|--|--|

The proposed well locations would not interfere with or require substantial alterations to any existing solid waste disposal. Operation of the project would not generate of solid waste.

XIII. AESTHETICS. Would the proposal:

a) Obstruct any scenic vista or view open to the public or will the proposal result in the creation of an aesthetically offensive site open to public view?

None of the project components would obstruct any scenic vista or view open to the public or result in the creation of an aesthetically offensive site open to public view. The wells and distribution pipelines would be located below grade and not normally visible to casual observers. There would potentially be limited aboveground piping or small sheds at wellheads. These aboveground components would be similar to the various existing aboveground pipes and would consist of small equipment housing, approximately 4 to 5 feet high at each well. The enclosures would be necessary for security, protection of the equipment, and noise reduction. The golf course manager would be consulted concerning final placement of the equipment housing structures.

b) Cause the destruction or modification of a scenic \Box \Box \Box \Box

| | Potentially Significant Impact | Potentially Significant Unless Mitigated | Less than Significant Impact | No Impact | |
|--|--------------------------------------|--|------------------------------------|--------------|--|
| Via de la Valle, adjacent to the project site, is designated as a Scenic Highway Corridor (County 1996). However, the project would not have a significant impact on the aesthetic character of the road because the proposed wellhead would be located below grade and would not be visible to a casual observer from the road. | | | | | |
| c) Have a demonstrable negative aesthetic effect? | | | | | |
| None of the project components would have a demonstrable negative aesthetic effect. The wells and distribution pipelines would be located below grade and not normally visible to casual observers. | | | | | |
| Create added light or glare sources that could increase the level of sky glow in an area or cause this project to fail to comply with Section 19.66.100 of the Chula Vista Municipal Code, Title 19? | | | | • | |
| The proposed project would not create added light or glare sources. Construction of the project would take place 7 a.m. to 7 p.m. and would not require additional light sources or utilize equipment that would cause glare. | | | | | |
| e) Produce an additional amount of spill light? | | | | | |
| The proposed project does not require night time illumin | nation. T | herefore, no | spill light | would be | |

The proposed project does not require night time illumination. Therefore, no spill light would be produced with the implementation of the project.

XIV. CULTURAL RESOURCES. Would the proposal:

| a) | Will the proposal result in the alteration of or the | | |
|----|--|--|--|
| | destruction or a prehistoric or historic | | |
| | archaeological site? | | |

A cultural resources records search was conducted for this project (Appendix A). The records and literature review included examination of the archives at the South Coastal Information Center (SCIC) at San Diego State University and the San Diego Museum of Man. The data reviewed included historic maps, and National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR) information for the project location.

The literature review for this project shows that no previous cultural resource investigations have been documented and no previous cultural resources have been identified. However, previous investigations show the possibility of prehistoric buried deposits within floodplains. Therefore, mitigation measures outlined in the mitigated negative declaration for this project will be implemented. With implementation of the mitigation measures, potentially significant impacts to prehistoric or historic archaeological sites would be mitigated.

b) Will the proposal result in adverse physical or aesthetic effects to a prehistoric or historic building, structure or object?

See response to (a), above.

| | | | Potentially Significant Impact | Potentially Significant Unless Mitigated | Less than Significant Impact | No Impact |
|---|---|--|--------------------------------------|--|------------------------------------|--------------|
| | c) | Does the proposal have the potential to cause a physical change that would affect unique ethnic cultural values? | | • | | |
| | See | response to (a), above. | | | | |
| | d) | Will the proposal restrict existing religious or sacred uses within the potential impact area? | | • | | |
| | See | response to (a), above. | | | | |
| XV. | XV. PALEONTOLOGICAL RESOURCES. Will the proposal result in the alteration of or the | | | | | |
| | aesti | ruction of paleontological resources? | | | | |
| | The mitigation site consists of the later Quaternary alluvium deposits, where fossils are generally unknown (Kennedy and Peterson 1975 and Deméré and Walsh 1993). The later Quaternary alluvial deposits in San Diego County are assigned a low paleontological resource sensitivity (Deméré and Walsh 1993). Therefore, the project's impact on paleontological resources would be less than significant. | | | | | |
| XVI. RECREATION. Would the proposal: | | | | | | |
| | a) | Increase the demand for neighborhood or regional parks or other recreational facilities? | | | | • |
| | The | proposed project would not cause a significant in | crease in | local or reg | ional popu | ulation or |

The proposed project would not cause a significant increase in local or regional population or otherwise attract visitors to the study area. Therefore, the proposed project would not increase the demand for neighborhood or regional parks or other recreational facilities.

b) Affect existing recreational opportunities? \Box \Box \Box

The proposed project is located on a private golf course. During construction of the project components, various parts of the course could be subject to closure. However, most of the course would be unaffected and would remain open. Most of the project components would be located below grade and there would be no permanent impacts to recreational opportunities.

c) Interfere with recreation parks & recreation plans \Box \Box \Box

The proposed project is located on a recreational facility and would not interfere with any plans or programs related to recreation and recreation parks. Implementation of the project would not interfere with any goals and policies of the San Diego County General Plan Recreation Element.

XVII. MANDATORY FINDINGS OF SIGNIFICANCE:

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal

| | Potentially Significant Impact | Potentially Significant Unless Mitigated | Less than Significant Impact | No Impact |
|--|--------------------------------------|--|------------------------------------|--------------|
| or eliminate important examples of the major periods of California history or prehistory? | | | | |
| Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? | | | • | |
| Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.) | | | • | |
| Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly? | | | • | |

b)

c)

d)

XVIII. REFERENCES:

Boyle Engineering

1996 OMWD Comprehensive Reclaimed Water Master Plan. October.

California Department of Conservation

1998 San Diego County Important Farmland.

County of San Diego (County)

- 1995 Part II, Regional Land Use Element, San Diego County General Plan.
- 1996 Part VI, San Dieguito Community Plan, San Diego County General Plan.
- 1977 Part XI, Energy Element of the San Diego County General Plan.

Deméré, T.A. and S.L. Walsh

1993 Paleontological Resources, County of San Diego. Department of Paleontology, San Diego Natural History Museum.

Hargis + Associates, Inc. (Hargis)

2002 Technical Memorandum. July 29.

HYA Consulting Engineers (HYA)

1997 San Dieguito Basin Groundwater Management Planning Study, Phase II - Feasibility Analysis. November.

Kennedy, M.P. and G.L. Peterson

1975 *Geology of the San Diego Metropolitan Area, California.* California Division of Mines and Geology Bulletin 200.

United States Department of Agriculture (USDA)

1973 Soil Survey, San Diego Area, California.

APPENDIX B NOTICE OF PREPARATION (NOP) AND NOTICE OF AVAILABILITY (NOA)

NOTICE OF PREPARATION

State Clearinghouse, Responsible and Trustee Agencies, and Interested Individuals

Subject: Notice of Preparation of an Environmental Impact Report for the San Dieguito Groundwater Recharge and Recovery Project

Lead CEQA Agency:

Olivenhain Municipal Water District 1966 Olivenhain Road Encinitas, CA 92024 Contact: Harry Ehrlich

Consultant:

To:

Kleinfelder, Inc. 5015 Shoreham Place San Diego, CA 92122 Contact: Maya Rohr

The Olivenhain Municipal Water District (OMWD) will prepare an Environmental Impact Report (EIR) for the project described below. The project description, location, and potential environmental effects of the proposed project (to the extent known) are contained in this Notice of Preparation (NOP). Interested persons, organizations, and agencies are encouraged to comment on the scope and content of the information to be included and analyzed in the EIR. Agencies should comment on the elements of the environmental information that are relevant to their statutory responsibilities in connection with the proposed project. Due to the time limits mandated by State law, any response to this NOP should be sent at the earliest possible date, but **not later than 30 days** after issuance of this notice, which is dated November 10, 2003.

Please send your written response to Harry Ehrlich, Deputy General Manager, at the address shown above. Responses should include the name of a contact person at your agency.

All files and documents pertaining to this project are available for review at OMWD's offices located at the address shown above.

Project Title: San Dieguito Groundwater Recharge and Recovery Project

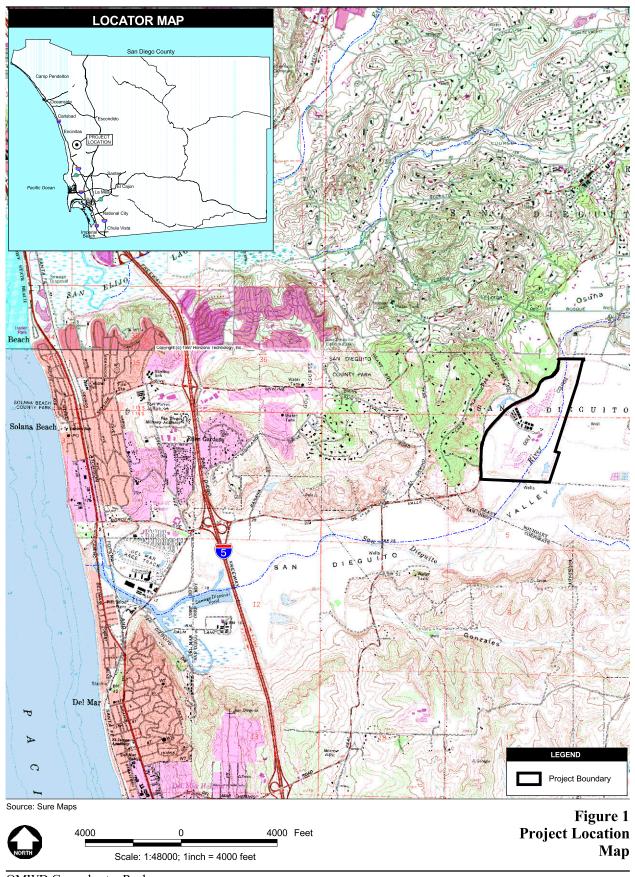
Project Location:

Morgan Run Resort and Golf Club. East of Via de la Valle, south of El Apajo Road, Rancho Santa Fe (see Figure 1)

Olivenhain Municipal Water District Notice of Preparation November 2003

NOV 1 0 2003

BY.



OMWD Groundwater Recharge 2k035\GIS\proposals\2k035\apr\USGS.apr SP83f F6 (P. Moreno) 9/03/02 **Project Schedule:** The NOP public review period will end December 11, 2003. The Draft EIR is expected to be complete and available for public review on January 5, 2004. The public review period will continue through February 20, 2004. The Certification/Approval of the Final EIR is expected to occur April 15, 2004.

Project Description: The project site is centered on Morgan Run Resort and Club. The boundaries of the project site generally coincide with the Morgan Run property line, except for the portion of Morgan Run lying to the west of Via de la Valle (see Figure 1). The western edge of the project site is thus bounded by Via de la Valle. El Apajo Road generally bounds the northern edge of the project, though this road is not continuous across the San Dieguito River. The eastern boundary of the project site is generally located along an existing dirt road that spans the eastern edge of the golf course. Near the southern portion of the golf course, the project boundary cuts approximately 300 feet farther east to include all golf course components. The southern project boundary is located along an existing Morgan Run property fence line demarking the southern edge of the golf course property. This boundary also coincides with the jurisdictional boundary between the County of San Diego to the north and the City of San Diego to the south.

The project would involve multiple wells for the groundwater injection and extraction operations; however, the exact location and number of wells needed have not yet been fully determined. It is anticipated that up to eleven wells may be required for the project. The project could utilize the two existing production wells located at the north end of the Morgan Run property in addition to the new wells. This environmental analysis takes into account the two existing wells plus as many as 11 potential well locations on or near the Morgan Run golf course in order to analyze all potential project configurations. Each well would contain a submersible pump and a flow control valve; thus, each well would be capable of pumping and injecting groundwater.

The project would also include pipelines to convey the water to and from the well locations. It is anticipated that the pipeline network would follow the boundaries of the project as described above and, where necessary, the pipeline would extend into the interior portions of the golf course property to connect to the individual wellheads. Pipelines would also be necessary to transport the extracted water to off-site customers. OMWD owns an existing raw water pipeline, Main Extension 153, which currently transports raw water from a connection with the San Diego County Water Authority (SDCWA) Second Aqueduct at Artesian Road to nonpotable uses in the San Dieguito Valley. It is anticipated that this pipeline would be operationally converted to a combination raw and reclaimed water pipeline and utilized by the proposed project.

The 4S Ranch Waste Water Treatment Plant would provide the reclaimed water for injection into the aquifer. Reclaimed water facilities treat wastewater to a level that meets or exceeds California Title 22 Regulations for unrestricted irrigation.

Raw water to satisfy Metropolitan's storage requirements would be provided through connections with the SCDWA Second Aqueduct. The aqueduct is owned by the SDCWA and conveys water to several surface reservoirs throughout San Diego County. The source of the raw imported water transported by the aqueduct is from the State Water Project or the Colorado River via Lake Skinner, in southern Riverside County.

Potential Environmental Effects: Although complete project details have not yet been determined, generally expected types of environmental impacts that may occur as a result of the San Dieguito Groundwater Recharge and Recovery Project are described below. As outlined in the Initial Study and based on the resource characteristics of the Morgan Run area, potential environmental effects that will likely be addressed in the EIR, include, but are not limited to:

- Potential for leakance, alteration of rate or direction of groundwater flow, or drawdown resulting from groundwater injection or recovery operations
- Potential biological impacts to habitat which may support the arroyo toad and least Bell's vireo
- Potential cultural resource impacts to prehistoric buried deposits within floodplains in the area

Intended Use of the EIR: OMWD will use the EIR to consider the environmental effects, mitigation measures, and alternatives, when reviewing the proposed project for approval. The EIR will serve as the State's CEQA compliance document for adoption of the project. Responsible agencies may also use the EIR as needed for subsequent discretionary actions.

Date: 11/10/2003

Signature:

Title:

Harry Ehrlich Deputy General Manager

Attachments:

Figure 1, Project Location Map

| FILED IN THE OFFICE OF THE COUNTY CLERK | |
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NOTICE OF AVAILABILITY

AUGUST 30, 2004

To: State Clearinghouse, Responsible and Trustee Agencies, and Interested Individuals

Subject:

Notice of Availability of the Draft Environmental Impact Report for the San Dieguito Water Storage and Recovery Project

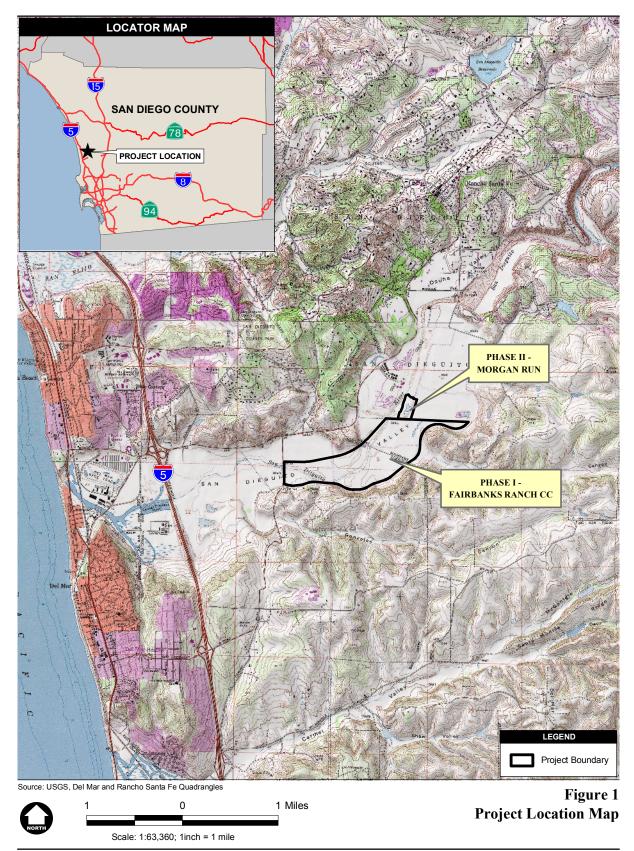
Project Location:Both phases of the proposed Project are located within the lower San Diegnito
River Basin, as shown on Figure 1:
Phase I - Fairbanks Ranch County Club
Phase II - Morgan Run Resort and Golf Club.Gregory J. Smith, Recorder/County ClerkAUG, 3 1 2004

BY. **Project Description:** The proposed Project is being considered by the Olivenhain Municipal Water District (OMWD) in order to maximize utilization of surface and groundwater storage capacity, improve water quality, and increase the dry-year groundwater supply within the basin. In an effort to reduce the level of dependency on imported water, to control costs, to ensure safety and reliability, and to promote responsible use and reuse of this county's water resource, OMWD has determined that the use of potable water for irrigation purposes represents an inefficient use of the available water resource. Thus, OMWD operates and maintains the 4S Ranch Wastewater Treatment Plant (4S Ranch WWTP) for the purpose of providing reclaimed water as a replacement for potable water currently being used for irrigation by OMWD customers. However, one of the requirements stipulated by the Regional Water Quality Control Board in the Master Reclamation Permit calls for OMWD to dispose of up to 1.2 MGD (soon to be increased to 2.0 MGD) during the wet season. Thus, in compliance with this permit requirement, OMWD has undertaken a search for appropriate locations to either store or dispose of excess reclaimed water during the wet season. Two destinations have been identified. The first delivery destination is Fairbanks Ranch Country Club and the second delivery location is Morgan Run Resort and Golf Club.

Phase I of the Project involves the delivery of reclaimed water from the 4S Ranch WWTP during wet weather periods to an existing surface water impoundment in the northern part of Fairbanks Ranch CC and would be implemented first. Delivery of the water would use the same supply system currently designed for delivery of the irrigation water to this OMWD customer. The reclaimed water would be delivered via pipeline into one of the existing golf course ponds, at the same location where irrigation water is currently delivered. The Phase I site location is shown in Figure 1. Phase I would not involve installation or modification of water-delivery infrastructure; rather, the small flow control facility on the 6-inch supply line would provide a means of regulating the flow of excess reclaimed water delivered to the site in accordance with the requirements of the golf course and OMWD's wet-weather water delivery needs. No construction would be necessary to implement Phase I.

In Phase II of the Project, OMWD would deliver up to 150 acre-feet per year (AF/yr) of excess Title 22 reclaimed water during wet-weather periods from their 4S Ranch WWTP to Morgan Run for groundwater storage. Delivery would be made via an existing OMWD pipeline to three new groundwater injection/extraction wells to be constructed in the extreme southeastern corner of Morgan Run. Each well would contain a submersible pump and a flow control valve; thus, each well would be capable of pumping and injecting groundwater in and out of an alluvial aquifer located approximately 80 to 150 feet belowground. Figure 1 shows the Phase II site location. Withdrawal from the aquifer would vary from year to year, but it would not exceed the net amount of water injected. Construction of Phase II would involve installation of up to three wells for the groundwater injection and extraction operations and a small flow control structure and on-site pipelines to convey the water to and from the well locations. Once constructed, all pipelines would be located underground and only minor pump and wellhead components would be situated aboveground.

Olivenhain Municipal Water District Notice of Availability August 30, 2004



San Dieguito Storage and Recovery Project EIR GIS/2003/2k035/Mxd/Figure 1 Project Location.mxd SP83f F6 (E. Coughlin) 6/17/04

Potential Environmental Impacts: Construction and operation of the Project would result in potentially significant impacts to the three following issue areas:

- Hydrology/Water Quality
- Biological Resources
- Cultural Resources

Potentially significant impacts associated with all of these issues would be mitigated to below a level of significance through Project design features and the mitigation measures outlined in the EIR.

DEIR Review Period: Pursuant to §15105 of CEQA Guidelines written comments must be sent as soon as possible but no later than 45 days after the DEIR review period begins. The 45-day public review period begins on September 1, 2004. Written comments on the DEIR will be accepted until October 15, 2004, at 5:00 p.m. All comments should be addressed to:

Olivenhain Municipal Water District 1966 Olivenhain Road Encinitas, CA 92024 Contact: Harry Ehrlich

The DEIR and all files and documents pertaining to this project are available for review at OMWD's offices located at the address shown above. The DEIR is also available on the OMWD website at www.olivenhain.com. A copy of the DEIR is also available at the Solana Beach Branch Library, located at Earl Warren Middle School, 157 Stevens Avenue in Solana Beach, California.

Public Meeting: A public meeting will be held during the DEIR review period on Wednesday, **September 22**, **2004**. The meeting will be at 7:00 p.m. in the OMWD Board Room at the address noted above. The public is encouraged to attend this meeting to ask questions and provide verbal and written comments on the DEIR.

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Olivenhain Municipal Water District Notice of Availability August 30, 2004

Affidavit of Publication

EDAW INC.

1420 KETTNER STE. 620

SAN DIEGO, CA 92101

Attn: KARA FRIEDMAN

STATE OF CALIFORNIA} ss. County of San Diego}

The Undersigned, declares under penalty of perjury under the laws of the State of California: That....She is a resident of the County of San Diego. THAT....She is and at all times herein mentioned was a citizen of the United States, over the age of twenty-one years, and thatShe is not a party to, nor interested in the above entitled matter; thatShe is...... Chief Clerk for the publisher of

The San Diego Union-Tribune

a newspaper of general circulation, printed and published daily in the City of San Diego, County of San Diego, and which newspaper is published for the dissemination of local news and intelligence of a general character, and which newspaper at all the times herein mentioned had and still has a bona fide subscription list of paying subscribers, and which newspaper has been established, printed and published at regular intervals in the said City of San Diego, County of San Diego, for a period exceeding one year next preceding the date of publication of the notice hereinafter referred to, and which newspaper is not devoted to nor published for the interests, entertainment or instruction of a particular class, profession, trade, calling, race, or denomination, or any number of same; that the notice of which the annexed is a printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following date, to-wit:

September 2, 2004 esn da Chief Clerk for the Publisher

Affidavit of Publication of

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Ordered by: KAREN FRIEDMAN



PROOF OF PUBLICATION (2010 & 2011 C.C.P.)

STATE OF CALIFORNIA County of San Diego

I am a citizen of the United States and a resident of the County aforesaid: I am over the age of eighteen years and not a party to or interested in the aboveentitled matter. I am the principal clerk of the printer of

North County Times

Formerly known as the Blade-Citizen and The Times-Advocate and which newspapers have been adjudicated newspapers of general circulation by the Superior Court of the County of San Diego, State of California, for the City of Oceanside and the City of Escondido, Court Decree number 171349, for the County of San Diego, that the notice of which the annexed is a printed copy (set in type not smaller than nonpariel), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

September 01st, 2004

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at SAN MARCOS California

This 01st Day of September, 2004

Signature

Jane Olson NORTH COUNTY TIMES Legal Advertising Proof of Publication of

Notice of Availability of the Draft Environmented Report (DEIR) for the San Dieguito Water Stora Recovery Project (SCH 2002101060). In an effic safety and reliability, and to promote the respons and reuse of this limited water resource. Olivent nicipal Water District (OMWD) has determined use of potable water for irrigation purposes re an inefficient use of the available water resource Storage and recovery project is being consist of WD to maximize the availability of recycled irrigation use in the lower San Dieguito rive Phase Lis located on Fairbanks Ranch County Road, Encinitas, CA: on the OMWD website (www.olivenhain.com); and at the Solana Beach Branc Library. Contact Harry Ehrlich, Deputy General Manager with questions at 760-753-6466. NCT 1690038 • September 03, 2004

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APPENDIX C HYDROLOGY STUDY

AUGUST 17, 2004

HYDROGEOLOGIC REPORT AQUIFER STORAGE AND RECOVERY PROJECT SAN DIEGUITO BASIN SAN DIEGO, CALIFORNIA

VOLUME I

PREPARED FOR: OLIVENHAIN MUNICIPAL WATER DISTRICT



HARGIS + ASSOCIATES, INC. Hydrogeology • Engineering



HARGIS + ASSOCIATES, INC. Hydrogeology • Engineering



Mission City Corporate Center 2365 Northside Drive, Suite C-100 San Diego, CA 92108 Phone: 619.521.0165 619.521.8580 Fax:

August 17, 2004

COURIER

Mr. Harry Ehrlich **Deputy General Manager OLIVENHAIN MUNICIPAL WATER DISTRICT** 1966 Olivenhain Road Encinitas, CA 92024

Re: Hydrogeologic Report, San Dieguito Basin Aquifer Storage and Recovery Program

Dear Mr. Ehrlich:

Enclosed is one copy of the report titled:

Hydrogeologic Report Aguifer Storage And Recovery Project San Dieguito Basin San Diego, California Volume I

If you have any questions or comments, please contact us.

Sincerely,

HARGIS + ASSOCIATES, INC.

lishael & P.l.

Michael A. Palmer, RG 5915, CHG 146 Principal Hydrogeologist **Project Manager**

MAP/RAN/kal

Attachments

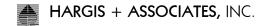
cc: Mr. George Briest, Olivenhain Municipal Water District Mr. Jack White, White Environmental Consulting Ms. Maya Rohr, Kleinfelder Mr. Chris Johnson, Kleinfelder

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HYDROGEOLOGIC REPORT AQUIFER STORAGE AND RECOVERY PROJECT SAN DIEGUITO BASIN SAN DIEGO, CALIFORNIA

VOLUME I

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Note: Appendices are not included as part of this report. These appendices are available for review at OMWD offices. Please contact Harry Ehrlich at (760) 753-6466 to schedule a time for review.



ACRONYMS AND ABBREVIATIONS

| AF | acre-feet |
|------------|--------------------------------------|
| AF/yr | acre-feet per year |
| AMP | Active Management Plan |
| ASR | Aquifer Storage and Recovery |
| bls | Below land surface |
| CPT | Cone Penetrometer Test |
| DWR | Department of Water Resources |
| EC | Electrical Conductivity |
| gpm | gallons per minute |
| H+A | Hargis + Associates, Inc. |
| mg/l | milligrams per liter |
| msl | mean sea level |
| Morgan Run | Morgan Run Resort & Club |
| OMWD | Olivenhain Municipal Water District |
| RWQCB | Regional Water Quality Control Board |
| SDCWA | San Diego County Water Authority |
| TDS | Total Dissolved Solids |
| USGS | United States Geological Survey |



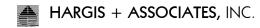
HYDROGEOLOGIC REPORT AQUIFER STORAGE AND RECOVERY PROJECT SAN DIEGUITO BASIN SAN DIEGO, CALIFORNIA

VOLUME I

EXECUTIVE SUMMARY

This Hydrogeologic Report has been prepared to describe the work conducted to date to evaluate the feasibility of an aquifer storage and recovery (ASR) project for the Olivenhain Municipal Water District (OMWD) for a portion of the San Dieguito Basin located in Central Coastal San Diego County, California. This report is a companion document to the Environmental Impact Report for the San Dieguito Water Storage and Recovery Project, San Diego, California. The ASR project represents one of two reclaimed water storage components that comprise the San Dieguito Water Storage and Recovery Project. The water storage project includes a surface water storage component referred to as Phase I – Fairbanks Ranch which involves storage of reclaimed water in existing ponds located at the Fairbanks Ranch Country Club. The water storage project also includes an underground water storage component, referred to as Phase II – Morgan Run, which involves seasonal storage and recovery of reclaimed water storage project is the focus of this report and is referred to hereafter as the ASR project.

OMWD is proposing to inject and extract water at the southeast corner of the approximate 220-acre parcel that comprises the Morgan Run Resort & Club. The project would utilize the groundwater storage capacity available and increase the dry-year groundwater supply within the basin. The project as proposed would include approximately three injection/extraction wells and



connecting pipelines to store up to 150 acre-feet (AF) of Title 22 tertiary-treated reclaimed water per year and withdrawal of up to 150 AF of groundwater per year.

The groundwater resources of the basin have been the subject of a number of studies by various researchers since 1983. Excessive agricultural pumping in the basin combined with drought conditions through the mid 1970's resulted in seawater intrusion, which degraded the groundwater quality in the basin. Since that time, groundwater use has been limited to the upstream portions of the basin due to the poor water quality in the lower portions of the basin. A reclaimed water ASR project in the basin has the potential to improve water quality and better utilize the groundwater resources of the basin.

Since 1997, OMWD has conducted various studies to evaluate the feasibility and potential impact of an ASR project in the San Dieguito basin. These studies have included the following:

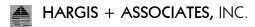
- Instituted a groundwater and river monitoring program;
- Conducted a well inventory;
- Collected samples to evaluate groundwater quality and conducted a preliminary geochemical evaluation to assess water compatibility;
- Conducted aquifer tests to evaluate aquifer properties;
- Conducted a test boring program to verify the lithology;
- Installed observation wells to evaluate water table conditions;
- Installed a test injection/extraction well and completed two injection/extraction tests to evaluate well capacity; water recoverability; and water level impacts; and
- Revised and recalibrated a numerical groundwater model of the basin which was used to evaluate project performance and potential groundwater-related impacts.



Based on the work conducted to date it appears that it is feasible to seasonally inject and extract 150 AF of reclaimed water in the southeast corner of the Morgan Run golf course. Overall, the results of the pilot testing and groundwater modeling have confirmed that the groundwater basin is capable of receiving water at the rates anticipated for the project. The water would be injected into a deep aguifer zone consisting primarily of sand and gravel. In the project area the deep aquifer is overlain by fine-grained, silty to clayey layers that confine the deep aquifer and restrict upward migration of water to the water table. During the injection tests, there was no discernable rise in the water table in the vicinity of the test well where the buildup in the underlying aguifer was the greatest. The response to the two injection tests was completely damped out at the water table due to the presence of the aquitard sediments. It appears that there could, however, be some limited water table rise in areas located north of the project based on modeling results, if the aguitard is less competent than observed in the project area. The maximum model projected rise in this area due to the proposed project injection was less than 1 foot. However, two additional shallow piezometers are proposed to be installed in this area to evaluate any water level changes during injection periods. A discussion of the rationale for these two wells is included in the Active Management Plan (AMP).

An AMP has been prepared to document the monitoring that the OMWD will perform in order to track groundwater levels, movement, and quality; surface water levels and quality; and the environmental conditions within the basin during the injection/extraction operations. Furthermore, the data collected as part of the AMP will be used by OMWD to adjust operational conditions of the injection/extraction system, such as, injection and pumping rates; locations and durations, to mitigate, if necessary, potentially significant impacts such as rising water levels in wells caused by the operation of the ASR project.

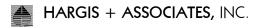
The results of the groundwater modeling indicate that during injection periods pressure in the deep aquifer could increase to the point where water levels in a few deep wells located near the



injection area and in areas to the south, including the Rancho Santa Fe Polo Club well could rise to about 10 to 15 feet above the top of the well. In other words, the groundwater in the deep aquifer does not reach land surface, only the pressure in the deep aquifer near the well exceeds land surface. The injection tests did not result in a rise in the water table in the vicinity of the test well, indicating that the aquitard in this area is competent and effectively restricts the upward movement of water. Existing inactive wells near the injection area would be backfilled with grout and existing production wells at the Rancho Santa Fe Polo Club would be fitted with water tight seals in the event that the water level in the wells rises above the top of the well casings, to prevent them from flowing during the injection periods. Further details regarding this work are provided in the AMP. Monitoring would be implemented in accordance with the AMP in areas surrounding the project to ensure that water levels do not exceed land surface during project operations in wells that have not had their casings properly sealed.

The results of the groundwater modeling indicate that during recovery periods water levels in the deep confined aquifer are not likely to draw down to the point where they would noticeably affect the capacity of existing production wells. Monitoring of water levels in the basin during extraction will be conducted in accordance with the requirements outlined in the AMP to ensure that capacity of existing wells is not affected.

The results of the pilot testing indicate that the proposed ASR project is not likely to affect the water level or water quality in the San Dieguito River. The lack of a water level response in the river and in the shallow piezometers located near the test well during the injection tests indicate that the proposed ASR project is unlikely to cause any significant seepage into the river. Given the relatively large volume of water associated with the river it is highly unlikely that there would be any impact to the river level or river water quality due to the ASR project operations.



The groundwater quality in the vicinity of the proposed ASR project is poor and is likely to be improved due to the operation of the proposed ASR project. Differences in groundwater quality can generally be characterized based on the total dissolved solids (TDS) concentration in the water. Based on the laboratory analysis of a groundwater sample collected from the test well, the TDS in the project area is about 4,400 milligrams per liter (mg/l). The expected TDS of the reclaimed water that will be used for injection is about 800 to 900 mg/l. The results of the pilot testing and groundwater modeling indicate that there will likely be some mixing of injected and native groundwater during each injection-extraction cycle. This mixing will result the development of a zone of lower TDS groundwater in the vicinity of the project. This mixing will also result in an increase in the TDS of the recovered water relative to the injected water during each seasonal recovery cycle. Based on the groundwater modeling results, the increase in TDS will likely diminish over the long term as the zone of improved groundwater quality expands.

The results of the groundwater modeling indicate that the injected water will probably not reach any of the existing active wells in the basin until about year thirteen of the simulation period assuming the amount of water extracted is about equal to the amount injected over time. Water quality monitoring in the basin will be conducted in accordance with the requirements outlined in the AMP to track any changes in water quality in the vicinity of the Project site.



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VOLUME I

1.0 INTRODUCTION

This Hydrogeologic Report has been prepared to describe the work that has been conducted to date for evaluation of an aquifer storage and recovery (ASR) project for the Olivenhain Municipal Water District (OMWD) for a portion of the San Dieguito Basin. This report is a companion document to the Environmental Impact Report for the San Dieguito Water Storage and Recovery Project, San Diego, California, (Kleinfelder, 2004). The ASR project represents one of two reclaimed water storage components that comprise the San Dieguito Water Storage and Recovery Project. The water storage project includes a surface water storage component referred to as Phase I – Fairbanks Ranch which involves storage of reclaimed water in existing ponds located at the Fairbanks Ranch Country Club. The water storage project also includes an underground water storage component, referred to as Phase II – Morgan Run which involves seasonal storage and recovery of reclaimed water using injection/extraction wells located at the Morgan Resort and Club. The underground water storage project is the focus of this report and is referred to hereafter as the ASR project.

The San Dieguito Basin is located in Central Coastal San Diego County (Figure 1). OMWD is proposing to inject and extract water on the 220-acre parcel that comprises Morgan Run Resort & Club (Morgan Run) (Figure 2). The project would utilize the groundwater storage capacity available and increase the dry-year groundwater supply within the basin. The project is proposed to include approximately three wells and connecting pipelines to store up



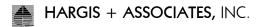
to 150 acre-feet (AF) of Title 22 tertiary-treated reclaimed water per year and withdrawal of up to 150 AF of groundwater per year.

It is intended that the information in this report will serve as the basis for the project description and environmental impact analysis being undertaken by OMWD in compliance with the California Environmental Quality Act. The focus of this report is to summarize the hydrogeologic assessment work that has been conducted to date and evaluate the potential performance and groundwater-related impacts associated with the proposed groundwater ASR project.

1.1 PURPOSE

The goals of the proposed ASR project include: 1) store excess reclaimed water in the basin for future extraction and use; 2) provide reclaimed water to Morgan Run and other potential end users; 3) satisfy the Regional Water Quality Control Board's (RWQCB) requirement for an 84-day emergency storage period of reclaimed water for a portion of the 4S Ranch Water Reclamation facility and/or the Santa Fe Valley Water Reclamation Facility; and 4) improve the basin water quality.

To implement this project, OMWD plans to acquire up to 150 acre-feet per year (AF/yr) of excess Title 22 tertiary-treated reclaimed water from one of three water reclamation plants during wet-weather periods, and convey the water, via an existing water delivery system, to appropriate injection wellhead locations on Morgan Run. The water would be placed under ground using injection wells screened in a confined alluvial aquifer located approximately 80 to 155 feet below the land surface (bls). Withdrawal from the aquifer each year would approach, but would not exceed the net amount of water injected during the preceding injection period.



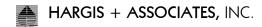
1.2 PREVIOUS INVESTIGATIONS

The San Dieguito groundwater basin has been the subject of a number of hydrogeologic studies conducted by the United States Geological Survey (USGS), academic institutions, and consultants retained by local public agencies since 1983. In the 1990's, the San Dieguito Basin Groundwater Management Planning Study was conducted, which was jointly sponsored by a Task Force made up of nine public entities, including San Diego County Water Authority (SDCWA) and OMWD. The first phase of this study involved the development of a basin-wide groundwater model which could be used to evaluate various groundwater management alternatives intended to improve water quality and maximize the use of groundwater resources in the basin (CH2M Hill, 1995). During the second phase of the study a range of groundwater management alternatives was developed and evaluated (HYA Consulting Engineers, 1997). Alternatives included storage and recovery of both reclaimed water and/or imported raw water using recharge basins and injection/extraction wells. The impact of the management alternatives on the groundwater basin was simulated using the groundwater flow and transport computer model developed during the previous Phase I study. The following sections briefly summarize Phases I and II of this study and highlight some of the key conclusions that resulted from this work.

1.2.1 SDCWA PHASE I

The overall objective of the SDCWA Phase I study was to develop a groundwater management plan and identify project alternatives to protect, replenish, and improve the groundwater resources of the San Dieguito Basin. The first phase of the study involved the construction of a computer-based groundwater flow and transport model of the San Dieguito groundwater basin.

The model was completed in 1995, utilizing the CFEST finite-element model code (CH2M Hill, 1995). The model domain encompassed the San Dieguito watershed below Lake Hodges, which included the alluvial groundwater basin as well as the bounding marine sedimentary rocks. At the time the model was constructed, there was little in the way of detailed



geologic information or aquifer test data for the basin. Because of this, the hydraulic properties incorporated into the model and the model layering was based almost entirely on available water well drillers' logs. The portion of the model representing the alluvial basin was constructed using four model layers, each representing hydrogeologic units that appeared to be correlatable within the basin based on the drillers' logs.

1.2.2 SDCWA PHASE II

The objective of the second phase of the San Dieguito Basin Groundwater Management Study was to use the model developed during Phase I to evaluate whether the groundwater resources of the San Dieguito basin could be better utilized while improving the basin water quality. The purpose of the SDCWA Phase II report was to identify technically and economically feasible groundwater management alternatives that would improve, protect, and maximize the use of the San Dieguito groundwater basin as a local water resource. It was also agreed by the Task Force that the study would include the assessment of groundwater storage opportunities using reclaimed water and/or imported water. During the SDCWA Phase II study, a range of groundwater storage and extraction projects ranging from 3,000 to 7,000 AF/yr were developed and simulated using the groundwater model developed during Phase I. The results of the SDCWA Phase II Study were presented in a report dated November 1997 (HYA Consulting Engineers, 1997).

Although the groundwater model simulations performed during the SDCWA Phase II study suggested that both of the simulated management concepts were technically feasible and resulted in improvement in basin groundwater quality, the SDCWA Phase II report concluded that an ASR project of this magnitude within the basin was not likely to be economically feasible.

However, it was concluded that a smaller, focused, local project with minimal capital costs might be feasible for storage of reclaimed water while enhancing the recharge of a segment of the basin. The utilization of existing and planned wastewater reclamation and distribution facilities as well as existing and planned retail water customers was deemed to be a cost-effective option for development of an alternative water supply. This would meet the Strategic Plan Goal of



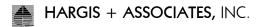
SDCWA for development of reliable water supply alternatives and the mission goals of OMWD and Santa Fe Irrigation District.

The SDCWA Phase II study also recommended the collection of additional groundwater data to update the current groundwater conditions in the basin and to verify certain assumptions utilized in the SDCWA Phase II groundwater model simulations and to provide data regarding changes in water levels, water quality, and groundwater extraction.

1.2.3 OLIVENHAIN MUNICIPAL WATER DISTRICT MONITORING PROGRAM

Based on the recommendations provided in the SDCWA Phase II report, a focused groundwater monitoring program was established in 1997 under a joint agreement between SDCWA and OMWD. Subsequently, work in the basin has been under the direction of OMWD. The monitoring program consisted of semi-annual measurement of water levels of about 20 wells within the basin. Over 100 wells have been installed in the basin since the 1900's, however, most of these wells have been destroyed (Figure 3). Prior to initiating the groundwater monitoring program, a survey was conducted to identify existing wells, either active or inactive, that could be used for monitoring water levels within the basin. Twenty wells were found to be both suitable and accessible for inclusion in the water level monitoring program. Reference point elevations were surveyed to the nearest 0.01-foot for each of the wells included in the monitoring program.

The groundwater monitoring program has continued from its inception in 1997 to the present time. The specific wells included in the program have varied over time as a result of changes in well status or as new wells have been installed or identified.



1.3 HYDROGEOLOGIC STUDY APPROACH

OMWD has elected to continue to perform the work in the basin in a phased approach. The first phase of work conducted in 2001 included continuation of the monitoring program, evaluation of the administrative feasibility of the project, acquisition of current groundwater use data, acquisition of lithologic data from existing sources, and collection of groundwater samples from the basin for general mineral analysis. The results of this first phase of work indicated that the smaller ASR project is feasible. The second phase of work was conducted primarily between January and June 2002. Tasks that were conducted included aquifer testing at selected wells in the basin, advancement of cone penetrometer test (CPT) borings to evaluate the geology at and in the vicinity of Morgan Run, documentation of the well status within 2,000 feet of Morgan Run, refinement of the conceptual groundwater conditions in the basin, and preliminary groundwater modeling. The results of this phase of work continued to indicate that the injection and extraction of reclaimed water is feasible and that the aquifer should be capable of accepting the additional injection of reclaimed water. The results obtained through this second phase of work were published in a Project Report dated October 3, 2002 and are summarized in this document (Hargis + Associates, Inc. [H+A], 2002).

The most recent phase of work has included continuation of the monitoring program, installation of a test injection/extraction well on Morgan Run, installation of two additional deep piezometers; installation of one intermediate piezometer; installation of 11 shallow piezometers to assess potential impacts to the water table (Figure 4); conducting two pilot injection and recovery tests; revision and recalibration of the groundwater model, simulation of project performance, evaluation of model sensitivity to selected parameters, and further assessment of project feasibility and potential groundwater related impacts. The results of this additional work are summarized in this report.

1.4 REPORT ORGANIZATION

The following summarizes the organization of this report:



- Section 1: Provides overview of the ASR project and summarizes the previous work conducted in the basin;
- Section 2: Provides background information regarding the basin including geology, hydrogeology, and surface water conditions;
- Section 3: Describes the scope and summarizes the results of the various investigations that have been conducted by OMWD;
- Section 4: Describes the refinement and recalibration of the groundwater model;
- Section 5: Evaluates the performance and potential groundwater related impacts associated with the proposed project based on the modeling results;
- Section 6: Provides conclusions regarding the project feasibility and potential groundwater-related impacts; and
- Section 7: Provides references for the documents cited in this report.



2.0 HYDROGEOLOGIC SETTING

This section provides an overview of the San Dieguito basin; describes the geology, hydrogeology, and surface water characteristics of the basin; and provides information regarding groundwater use in the basin.

2.1 OVERVIEW

The San Dieguito groundwater basin is an alluvial-filled valley that extends inland approximately six miles from the coast near Del Mar, California (Figure 5). The valley floor slopes gently from an elevation of approximately 50 feet in the upstream area to near sea level at the coast. The valley is bounded by gentle hills and bluffs that range in elevation from about 100 to 300 feet. The San Dieguito Valley and surrounding upland areas are drained by the San Dieguito River and its tributaries. The area drained by the San Dieguito River and its tributaries below Lake Hodges is approximately 37 square miles.

For the purposes of discussion in this report the alluvial basin has been informally divided into three sub-areas. The upstream area of the basin which includes Osuna Valley, the former sand and gravel quarry, and the Chino Farms area is referred to as the upper basin (Figure 5). The portion of the basin between the upper basin and the San Diego Corporate Boundary is referred to as the middle basin. The portion of the basin between the San Diego Corporate Boundary and the coast is referred to as the lower basin.

2.2 REGIONAL GEOLOGY

The site is located in the foothills of the Peninsular Ranges geomorphic province. The Peninsular Ranges are a northwest-southeast oriented complex of blocks bounded by similarly



trending faults (Norris and Webb, 1990). Structural blocks within the Peninsular Ranges are typically tilted gently to the west. Uplift and tilting of these blocks has resulted in a rugged mountain range over 600 miles in length, with a steep eastern escarpment and a relatively gentle western slope. The geology of the Peninsular Ranges is dominated by Cretaceous intrusive rocks of the Peninsular Ranges batholith (Norris and Webb, 1990). Composition of intrusive rocks of the western Peninsular Ranges batholith ranges from peridotite to granite, with rocks of tonalitic composition predominating. Pre-batholithic rocks are exposed adjacent to the western edge of the Peninsular Ranges batholith. The Jurassic-Cretaceous Santiago Peak volcanics represents a subduction-related volcanic arc intruded by the Peninsular Ranges batholith, a later phase of the subduction-generated complex (Walawender, 2000). The Santiago Peak volcanics is composed of volcanic rocks of various compositions, as well as associated volcaniclastic deposits.

Post-batholithic sedimentary rocks are exposed within and west of the foothills of the Peninsular Ranges. These sedimentary rocks range in age from Cretaceous to Pleistocene, and represent both marine and non-marine depositional environments (Kennedy and Peterson, 1975). The uplifted and exposed Peninsular Ranges batholith was one of several source-areas, which contributed sediments to the coastal plain and offshore embayments to the west, where sediments have accumulated since the late Cretaceous.

Following the uplift of the entire Peninsular Ranges block, including the areas underlain by Tertiary sedimentary rocks, the topography of the site vicinity formed as the San Dieguito River drained the western foothills of the Peninsular Ranges. The river, with its source in the Volcan Mountains near Santa Ysabel, eroded granitic rocks of the Peninsular Ranges batholith, carved a deep canyon in the area of the present Lake Hodges, and incised a wide valley through the softer Tertiary sediments of the coastal plain. Sea-level rise in the late Quaternary period resulted in a large estuary in the western river valley, which was infilled by river sediments derived from the east. Presently, the San Dieguito River valley west of the town of Rancho Santa Fe is wide and relatively flat due to the infilling of the basin with Quaternary alluvium. The modern estuary is restricted to the area west of El Camino Real, where tidal mudflats and river channel deposits characterize the valley floor.

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2.3 LOCAL GEOLOGY

The San Dieguito groundwater basin consists of Quaternary age alluvial sediments, which occur beneath the San Dieguito Valley. A conceptual cross section illustrating the basin geology has been provided (Figure 6). This alluvium contains the majority of the useable groundwater within the watershed west of Lake Hodges. Estimates of groundwater storage capacity of the alluvial basin by various researchers have ranged from approximately 24,000 AF to 50,000 AF (Carroll, 1985; Izbicki, 1983).

East of Interstate 5, alluvial sediments typically range up to 125 feet to 155 feet in thickness along the axis of the basin, decreasing to less than 50 feet near the margins. Alluvium in the eastern-most portion of the basin is composed primarily of coarse-grained sediments, typically sand and gravel, which can sustain relatively high well yields. A shallow, relatively fine-grained or clayey aquitard unit has been identified throughout much of the basin, which tends to restrict groundwater flow between the shallow and deeper coarse-grained aquifer units. Alluvium in the western portion of the basin has not been well characterized but based on available drillers logs, consists predominantly of fine-grained sediments such as silt and clay with occasional thin sand beds, probably representing channel deposits.

The alluvial sediments of the groundwater basin are flanked and underlain by Tertiary marine sedimentary rocks comprising the Del Mar Formation and Torrey Sandstone, and Jurassic/Cretaceous metavolcanic rocks (Izbicki, 1983). These rock units form the upland areas around the margins of the basin. Although these rock units contain some groundwater, wells completed in these rocks typically have very low yields typically less than 20 gallons per minute (gpm) and water quality is generally poor, especially at depth.

Available information regarding the local geology was incorporated into the SDCWA Phase I model. The following is a description of the modeling layer which has been excerpted from the Phase I report (CH2M Hill, 1995). Layer 1 of the model represents the shallowest layer of alluvium. In the eastern portion of the basin this layer was characterized as a shallow aquifer



unit composed largely of coarse-grained sands. This coarse-grained layer was not apparent in the logs of water wells drilled in the western portion of the basin, although some thin sand layers were identified locally. Model Layer 1 was, therefore, pinched out in the western basin area.

Model Layer 2, represents a laterally extensive zone of clay and clay-silt-sand mixtures that form an aquitard layer that tends to restrict the vertical movement of groundwater. This aquitard layer appears to be continuous throughout the middle and lower basin south of El Apajo Road, ranging in thickness from 50 to 100 feet.

Model Layer 3, represents a coarse-grained aquifer unit that is relatively thick in the eastern portion of the basin and transitions into a sequence of interbedded sandy horizons underlying the Layer 2 aquitard in the western portion of the basin.

Model Layer 4, represents a deeper fine-grained zone that occurs primarily in the western portion of the basin where it separates the Layer 3 aquifer unit from the underlying bedrock. In the eastern portion of the basin, Layer 4 tends to increase in coarseness where it is thought to act more as an aquifer. Layer 4 truncates in the far eastern portion of the basin.

Model Layer 5, represents the bedrock, which bounds and underlies the alluvial sediments. Bedrock consists primarily of the marine Del Mar formation and Torrey Sandstone. Model Layer 5, was configured in such a way that it was hydraulically connected to model Layer 1 at the alluvial basin boundary.

2.4 GROUNDWATER

Historically, the quality and quantity of groundwater within the basin has varied substantially, affecting the usefulness of the groundwater resources of the basin. Principal factors which control groundwater quality and the amount of groundwater in storage within the basin include: 1) the amount of groundwater pumped from the basin; 2) sea water intrusion resulting from the inflow of salt water from the ocean and estuary; 3) recharge to the basin from

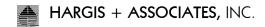


precipitation and surface flow in the San Dieguito River; and 4) inflow of poor quality water from the surrounding marine sedimentary rock formations.

The San Dieguito groundwater basin terminates at the Pacific Ocean where it is in direct communication with the ocean and estuary near the mouth of the San Dieguito basin. Recharge from the ocean and estuary can occur under certain circumstances. During periods when water levels in the basin have been substantially lowered, such as when groundwater extractions exceed other sources of recharge to the basin for a number of years, salt water will begin to migrate inland into the basin in the subsurface. This process, referred to as seawater intrusion, essentially results in recharge to the basin of high total dissolved solids (TDS) seawater. The amount of seawater recharge will vary depending on the extent to which groundwater levels are lowered within the basin.

Seawater intrusion occurred in the basin due to, excessive agricultural pumping combined with drought conditions through the mid-1970's, degrading the groundwater quality in the lower portion of the basin to the point where it is no longer suitable for meeting local irrigation needs. Water quality monitoring conducted by the USGS in 1982 indicated that the concentration of TDS in the lower basin west of El Camino Real ranged from 5,000 to 20,000 milligrams per liter (mg/l) (Izbicki, 1983). Based on the more recent sampling conducted during 2001 and 2002, the concentration of TDS of the groundwater in the middle and upper portions of the basin currently ranges from about 1,600 to 4,600 mg/l. The current distribution of groundwater quality is further discussed in Section 3.2.

Recharge to the basin also occurs from subsurface inflow from the marine sedimentary rocks that bound the alluvial basin (Izbicki, 1983). The amount of this inflow likely varies from year to year depending on the difference between basin water levels and water levels in the upland areas around the margin of the basin. Evidence suggests that inflow from the marine sediments is limited when the alluvial basin is full. Hence, inflow from the marine sediments is likely to be greatest when water levels in the basin have been lowered due to pumping. Recharge from these rocks is expected to be of poor quality typically 3,000 to 5,000 mg/I TDS and can potentially degrade the quality of the groundwater stored within the basin.

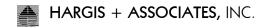


When water levels in the basin are high, indicating that the groundwater basin is essentially full, subsurface outflow will occur from the basin to the ocean and estuary. The amount of subsurface outflow is likely to vary seasonally depending on the balance between groundwater extraction and recharge. When water levels are lowered within the basin due to excessive groundwater extraction, subsurface outflow stops and subsurface inflow results.

2.5 SURFACE WATER

The San Dieguito River is the principal surface water feature within the San Dieguito basin. Prior to the construction of Hodges Dam in 1919, the San Dieguito River flowed naturally depending on variations in local precipitation. Since the dam was constructed, flow within the San Dieguito River has been substantially reduced.

Annual precipitation in the area has varied from six inches to 33 inches in the 1920 to 1996 period, averaging 14.6 inches as shown on Figure 7. Precipitation patterns appear to be cyclic within the basin, as they are throughout Southern California. During dry years, Lake Hodges Dam does not spill and surface water flow in the upper reaches of the basin is minimal, limited to the dam underflow and seepage from the surrounding sedimentary rocks. Lake Hodges Dam spills during wet years, which occur on average about once in every three years, although there have been periods of up to 25 years during which no spills have occurred. The last time Lake Hodges spilled was the winter of 1997-98. The amount of spillage during these events can exceed estimates of the total volume of the groundwater stored within the entire alluvial basin. The majority of this water flows out to the ocean as surface flow in the San Dieguito River. The amount of this surface water that percolates and recharges the basin depends in part on how full the basin was just prior to the runoff event. If groundwater levels are high prior to the spill event, then little of the surface flow in the river will percolate and recharge the groundwater basin. If basin groundwater levels have been lowered due to extensive pumping prior to the runoff event, then the river will tend to recharge the basin until groundwater levels recover. Groundwater recharge appears to occur quickly, based on the rapid rise in water levels observed during the winter of 1997-98.

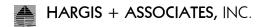


Data regarding water quality for the San Dieguito River below Lake Hodges for the period 1946 to 1981 indicate that the TDS in the river varies substantially over time. Reported TDS concentrations during this period ranged from less than 500 mg/l to over 2,500 mg/l (Izbicki, 1983). Lower TDS values are indicative of surface water quality during larger storm events (Izbicki, 1983). If groundwater levels have been lowered due to groundwater extraction prior to storm runoff events, then significant recharge of lower TDS water probably occurs along the San Dieguito River in the upper reaches of the basin. This may account in part for the better groundwater quality observed near the San Dieguito River in this portion of the basin.

2.6 GROUNDWATER USE

Information regarding current groundwater use within the basin was obtained from well owner interviews, when possible, and field observation when property owners could not be contacted. Available information indicates that there are at least 31 parties currently extracting groundwater from within or immediately adjacent to the alluvial basin (Table 1). The total annual groundwater extracted by these users is currently estimated at about 1,800 AF/yr. Most groundwater extraction occurs from wells located in the middle and upper portions of the basin, where the effects of previous seawater intrusion are least. The bulk of the groundwater extracted during the fall and winter. Approximately 45 percent of the groundwater extracted from the basin is currently used for golf course irrigation, approximately 30 percent is used by equestrian facilities for pasture and field irrigation and/or animal maintenance, approximately 20 percent is used for landscape and recreational field irrigation, and less than 5 percent is used for agricultural production (Table 1).

There is no known potable use of groundwater within the alluvial basin. The nearest known potable well 7BA is located approximately 400 feet south and 1,200 feet east of El Camino Real and about 2.5 miles south west of the proposed ASR wells located on Morgan Run (Figure 3). This well is completed within the marine sedimentary rocks outside the alluvial basin.



A groundwater sample obtained from this well in 2001 had a TDS concentration of 5,100 mg/l. The water from this well is treated using reverse osmosis prior to use.

Based on the sampling conducted during 2001 and 2002, the TDS of groundwater currently being extracted from the alluvial basin ranges from about 1,600 mg/l to about 4,600 mg/l with the better quality water generally being extracted from wells located in the upper portion of the basin and the poorest quality being extracted from wells located in the lower middle portion of the basin.



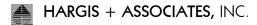
3.0 SUPPLEMENTAL HYDROGEOLOGIC INVESTIGATIONS

Based on the data collected as of 2001 and the analysis performed in previous investigations, OMWD determined that an ASR project appeared feasible and has undertaken a series of supplemental hydrogeologic investigations to further plan for an ASR project in the San Dieguito basin. This section summarizes the data collection activities and hydrogeologic evaluations performed in support of the ASR project thru June 2004. Information regarding the water level monitoring program, groundwater sampling, geochemical mixing evaluation, aquifer testing, CPT investigations, piezometer and test well installation, pilot testing, groundwater model refinement and recalibration and project feasibility and groundwater impact evaluation are presented in this section.

3.1 WATER LEVEL MONITORING

Several hydrogeologic units have been defined in the project vicinity which respond differently to hydraulic stresses within the basin and are therefore monitored separately. The shallowest unit, referred to as the shallow zone or water table zone is composed of predominantly silty and sandy sediments which extend from land surface to a depth of approximately 20 to 40 feet bls in the project area. The depth to the water table is approximately equivalent to the depth where groundwater is first encountered in the subsurface. The shallow groundwater that occurs in this zone is unconfined i.e. it is not under pressure. Twelve shallow zone piezometers are currently being monitored in the middle basin to provide data on the depth to the water table in the project vicinity. The shallow zone corresponds to Layer 1 of the groundwater model.

The second hydrogeologic unit, which is composed primarily of silty to clayey sediments, is referred to as the aquitard zone because it restricts the vertical movement of groundwater between the shallow and deep zones. In the project area the aquitard zone underlies the shallow zone and ranges in thickness from approximately 20 feet to 60 feet. Due to the very low permeability of this zone it is not used for groundwater production in the basin. Groundwater



monitoring is not conducted in the aquitard zone except at an intermediate depth piezometer located adjacent to the test well. The aquitard zone corresponds to Layer 2 of the groundwater model.

The third hydrogeologic unit, which is composed primarily of sand and gravel, is referred to as the deep zone or deep aquifer. In the project area the deep aquifer underlies the aquitard zone and ranges in thickness from approximately 30 feet to 60 feet. Most of the existing production wells are screened in the deep aquifer and it is the source of nearly all the groundwater produced from the basin. Three piezometers were installed in the deep aquifer in support of the ASR project evaluation. Groundwater that occurs in the deep zone is confined or under pressure. Water level data obtained from the production wells included in the monitoring program and the deep piezometers provide an indication of the change in hydraulic head or pressure in the deep aquifer. The pressure in the deep aquifer is strongly influenced by seasonal changes in regional pumping as exhibited by the substantial change in water levels in the deep wells. The deep aquifer corresponds to Layer 3 of the groundwater model.

Since the inception of the groundwater monitoring program in 1997, water levels have been monitored in approximately 20 active and inactive regional wells on a semi-annual basis. (H+A, 2000). The number of active and regional wells monitored during any measurement round varies due to access restrictions and well conditions. A series of shallow piezometers has been installed within the past several years, and these piezometers are currently being monitored to provide an indication of the behavior of the water table at these locations. As discussed above, water levels measured in deep regional wells are representative of the hydraulic head in the deeper, confined aquifer and the water level in these wells are not indicative of the shallow water table.

Water levels are measured by hand to the nearest 0.01 foot using a water level sounder. Water levels have also been monitored in the wells using pressure transducers which provide a continuous record of the water level in the well being monitored. Pressure transducers are able to record the rapid drawdown and recovery of water levels caused by local pumping. Production well pumping schedules are variable, with different wells turning on and off at



irregular intervals. Transducer data plots allow the change in the static water level to be identified over time under these pumping conditions.

The following discussion is specific to the conditions observed during the past seven years of groundwater monitoring. Water levels within the deep aquifer are generally higher in winter and early spring and lower in the summer and fall as is typical for groundwater basins. Given the limited amount of precipitation that has fallen over the past seven years, the observed fluctuations in the deep zone water levels appear to be related more to seasonal variations in the amount of groundwater pumping rather than to variations in the amount of recharge to the basin.

Since the installation of a series of shallow piezometers in the vicinity of Morgan Run between March 2002 and June 2003, water levels have also been monitored in the shallow zone, representing the water table, as well as in the deep aquifer zone, where most of the active water supply wells are screened. Water level contour maps for October 2003 and March 2004 are provided for both the deep aquifer zone and the water table (Figures 8 to 11).

Water level contour maps for the two most recent monitoring events in October 2003 and March 2004 are typical of the seasonal variation in groundwater levels that have been observed during the 7-year monitoring program (Figures 8 to 11; Appendix A). During the late spring and summer, a substantial pumping depression typically forms in the central portion of the basin where most of the groundwater is pumped (Figure 9). During these periods of maximum pumping, water levels in this area of the basin have been observed to decline to more than 10 feet below sea level. These pumping depressions have been observed to persist well into the fall. A smaller, localized pumping depression has also been observed in the southwest portion of the monitored area due to extraction from one or two wells at the Rancho Santa Fe Polo Club (Appendix A). The water level elevations within the main pumping depression are often low enough to result in a local reversal of the natural gradient, which is normally toward the ocean. This causes groundwater in the southern portion of the middle basin to change direction and flow to the northeast toward the northern portion of the middle basin during these periods.



The water level contour maps for March 2004 are representative of periods when pumping has declined allowing water levels in the middle basin to rebound (Figures 10 and 11). This typically occurs during the winter and early spring when irrigation demand is minimal due to the cooler wetter weather. During March 2004, water level elevations in the deep zone ranged from about 31 feet above mean sea level (msl) in the upper area of the basin to about eight feet above msl in the middle basin area, then increased to approximately 16 feet above msl in the southern portion of the study area (Figure 11). This indicates that although the predominant groundwater flow direction was downstream toward the ocean, a residual reversal in the middle portion of the basin persisted into the spring of 2004, later than the observed pattern in previous years, particularly 2003 (Appendix A).

Based on the data obtained from shallow piezometers, the water table is generally higher in elevation than the hydraulic head or pressure in the deeper aquifer and appears to be relatively stable (Appendix A). Comparative graphs of the water level within the deep aquifer and in the water table in the southern, central, and northern portion of the Morgan Run property during the monitoring program are provided in Figures 12 to 14.

The change in the water level in the deep aquifer at well 5H2 located in the southeast corner of Morgan Run since monitoring began in 1998 is shown in Figure 12. Also shown on the graph is the change in the water table at this same location based on a shallow Morgan Run piezometer P-1, installed in 2002. The seasonal fluctuation in the deep zone water level at well 5-H2 has ranged from 10 to 15 feet, primarily due to seasonal changes in groundwater extraction from deep wells located in the middle basin. In contrast, the water table at this location has been relatively constant, with a seasonal fluctuation of less than two feet. The limited response in the water table is due the presence of low permeability aquitard sediments that effectively confine the deep aquifer and prevent the vertical transmission of water level changes occurring in the deep aquifer.

The change in the water level in the deep aquifer and the water table over time at piezometer cluster P-4 in the central area of Morgan Run is shown on Figure 13. A seasonal fluctuation ranging from 13 to 15 feet is evident in the deep aquifer primarily due to the variation in pumping, whereas the water table fluctuation at this location is less than three feet.



The change in the water level in the deep aquifer and at the water table at one of the golf course production wells 32-JD, and piezometer cluster P-4 in the northern portion of Morgan Run is shown on Figure 14. A seasonal fluctuation ranging from 9 to 16 feet is evident in the deep zone due to the variation in pumping, whereas the water table fluctuation is about 9 to 12 feet. It is apparent that the water table response to local pumping is greater in the northern area of Morgan Run compared to that observed in the central and southern areas of the property. This appears to be related to the fact that some production wells located in the northern portion of the middle basin are screened within the shallow zone and/or that the sediments that comprise the aquitard zone tend to pinch out and become less fine-grained in the area north of Morgan Run, resulting in somewhat greater seasonal fluctuation in the water table in the northern area of the Morgan Run property.

3.2 GROUNDWATER SAMPLING

As part of the groundwater monitoring program, water samples were collected during 2001 and 2002 from 16 wells within the basin to assess the variation in water quality and to aid in evaluating the chemical compatibility of potential injection source water and native groundwater (Appendix B) (Table 2). Prior to this recent sampling, the last relatively complete set of groundwater quality data for the basin was obtained by the USGS in 1982. The 2001 groundwater sampling program involved the collection of samples from eight active production wells and four inactive wells. Four of the active wells were sampled again in 2002 as part of the aquifer-testing program. Groundwater samples for all wells were submitted to Del Mar Analytical, Irvine, California, for analysis for one or more of the following constituents:

- Cations including, Calcium, Magnesium, Potassium, Sodium, Iron, Manganese, Boron; and
- Anions including, Bromide, Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate; TDS.

The following water quality parameters were also measured and recorded in the field:



- Temperature;
- PH;
- Electrical Conductivity (EC);
- Oxidation/Reduction Potential; and
- Dissolved Oxygen.

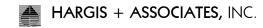
The groundwater sample from the inactive Morgan Run Fairway No. 2 well also identified as 5-H2, during 2001, was also analyzed for odor, turbidity, color, and MBAS to characterize the well discharge water for evaluation of disposal options in anticipation of conducting an aquifer test at this well.

The distribution of groundwater quality in the deep aquifer within the basin, based on the TDS of water samples, is shown on Figure 15. The concentration of TDS in groundwater samples collected during 2001 and 2002, ranged from 1,600 mg/l to 5,100 mg/l (Table 2). The highest quality groundwater, as indicated by the lower TDS concentrations, tended to occur in the upper portion of the basin in wells located in closer proximity to the river. Water quality was typically poorest i.e., TDS was generally highest in wells located furthest downstream. The TDS of a groundwater sample collected from the project test well was 4,400 mg/l which is consistent with the poor quality in the southern area of the Morgan Run golf course. A comparison of the water quality data recently collected from the basin to the RWQCB basin plan objectives has been provided (Table 3).

During December 2004, as part of the monitoring program, field measurements of EC were made on groundwater samples collected from shallow piezometers to characterize the distribution of water quality within the shallow groundwater system in the vicinity of Morgan Run. The TDS of the shallow groundwater was estimated based on temperature corrected field EC data using the following formula:

TDS (mg/l) = EC (umho/cm) * 0.65 *1000

Note: umho/cm = micromho per centimeter



The distribution of estimated TDS in the shallow groundwater ranges from about 1,700 to about 6,000 mg/l which is similar to the range of TDS in the deep aquifer (Figure 16).

3.3 SAN DIEGUITO RIVER MONITORING

As part of the monitoring program, surface water levels have been periodically measured at five locations along the channel of the San Dieguito River, where bridge crossings provide locations where a measurement from a surveyed reference point can be taken.

Transducers were placed beneath the Morgan Run north and south bridges for the near-continuous measurement of river levels during the 2003-04 winter season (Figure 17, Appendix A). River water level data are included on the water table contour maps for comparison to adjacent groundwater levels (Figures 8 and 10). Hydrographs that illustrate the change in river levels have been provided (Figures 18 and 19). At the North Bridge the river typically goes dry in the summer months at an elevation of approximately 17.5 feet msl. Water levels at the North Bridge ranged up to 18.5 feet msl during the past year (Figure 18). At the South Bridge there is standing water in the river throughout the year. Water levels ranged between approximately 14.5 and 17 feet msl during the past year (Figure 19).

During 2004, field measurements of EC were made on surface water samples collected from the San Dieguito River (Figure 16). The samples were collected from the river at various accessible locations from upstream of the alluvial basin to just downstream of El Camino Real. The estimated TDS of the river water samples was calculated as described in Section 3.2 to provide a comparison to groundwater samples. The estimated TDS of a river water sample collected approximately 2.6 miles upstream from the alluvial basin was about 1,800 mg/l. The TDS of the river within the upper basin ranged from about 2,600 to 2,900 mg/l (Figure 16). The TDS of the river within the middle basin ranged from about 2,400 to 2,700 mg/l (Figure 16). Given the low precipitation, which occurred during the prior winter, the river water within the upper and middle basin at the time the samples were collected probably represented base flow



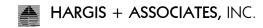
derived from Hodges Dam underflow and seepage from the surrounding bedrock areas upstream of the sampling points.

The estimated TDS in the river water samples collected in the lower portion of the basin, downstream of Morgan Run, were higher than the estimated TDS of surface water samples collected in the middle and upper portions of the basin (Figure 16). The estimated TDS of the surface water in the river at the El Camino Bridge exhibited an increase in TDS with depth from about 3,500 to about 7,300 mg/l. The same trend was noted at a location approximately 0.5 mile downstream of the El Camino Bridge where the estimated TDS increased from about 11,000 mg/l near the water surface to about 30,000 mg/l at a depth of about 18 inches. Based on the elevated TDS and apparent stratification, the surface water in the San Dieguito river in the lower portion of the basin appears to be effected by inland migration of seawater via the estuary.

3.4 GEOCHEMICAL EVALUATION

A geochemical evaluation was performed to assess whether the reclaimed water proposed for project use is compatible with native groundwater and to what extent precipitation of minerals would be expected when reclaimed water is injected (Appendix C). Geochemical simulations using the USGS model PHREEQC were performed to calculate equilibrium conditions between dissolved constituents in solution to assess the potential for in-situ mineral precipitation which may result in a reduction in aquifer permeability, ASR efficiency, or recovered water quality.

For the purposes of the geochemical evaluation, it was assumed that water would be injected at well location 5-H2. One model simulation was performed to evaluate mixing of groundwater at this well location with reclaimed water from the North City Reclamation Plant and a second simulation using the anticipated water quality for reclaimed water from the 4S Ranch Waste Water Treatment Plant. The simulations evaluated progressive mixing of the native groundwater from well 5-H2 and injected reclaimed water types in 10 percent increments. The equilibrated water quality for each of the mixing steps was then evaluated. Additionally, the



saturation indices for potential mineral phases were also evaluated as the waters were mixed. Although some mineral phases showed an increased tendency to precipitate, most saturation indices decreased. Results of these simulations indicate that precipitation of minerals phases due to mixing of water types is not likely to have a negative impact on proposed ASR operations based on the data currently available.

3.5 AQUIFER TESTING

An aquifer testing program was conducted in the San Dieguito groundwater basin in the vicinity of Morgan Run to obtain site-specific estimates of aquifer parameters and assess the preliminary feasibility of the project (Appendix D). Constant rate aquifer pumping tests were performed on four active production wells located in the vicinity of the proposed ASR project (Figure 20). Aquifer tests were conducted on two active production wells owned by Morgan Run, one active well owned by Rancho Paseana, and one active well owned by the Rancho Santa Fe Polo Club to estimate aquifer parameters and assess potential well extraction/injection rates. Aquifer test duration was often constrained by owner water demands and ranged from 47 to 218 hours. Pumping rates for the pumped wells ranged from 141 to 675 gpm. Drawdown and recovery data were obtained from both the pumped well and nearby inactive wells, when available.

An aquifer test scheduled for an inactive well located near the southeast corner of the Morgan Run golf course could not be completed. When the well was pumped using a temporary test pump installed in the well, it was found that the pumping level rapidly drew down to the pump intake. This response indicated that the well had become plugged and could no longer yield water at a sufficient rate to conduct the planned test. This well reportedly pumped at rates of approximately 200 to 300 gpm in the past.

In addition to the planned aquifer tests, useful drawdown data was obtained from an inactive well located near the Schoenfelder south production well. The inactive well had been fitted with a pressure transducer as part of the water level monitoring program, which allowed it to record



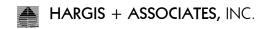
drawdown data when the nearby production well began pumping. Drawdown data combined with water meter data obtained during and after the pumping period were used to provide an estimate of aquifer transmissivity at this location. During this event the production well pumped at a rate of 710 gpm for 33.5 hours.

Aquifer test data were analyzed using a number of methods depending on the nature of the aquifer response. Preliminary aquifer transmissivity estimates obtained from the above tests ranged from 1,600 to 2,700 ft²/day at the Rancho Santa Fe Polo Club well 5-FA, to 11,000 to 15,000 ft²/day at the Morgan Run No. 3 Green North well. Preliminary estimates of aquifer storativity ranged from approximately 0.02 at the Schoenfelder south production well to 0.0004 near the Morgan Run wells.

During the aquifer testing it was noted that the drawdown response tends to propagate to a greater degree along the axis of the valley compared to transverse to the valley. This is most likely related to the fact that the deep aquifer is not laterally continuous but rather appears to be composed of stream channel deposits which tend to be oriented along the axis of the valley. Because of this, the aquifer test results do not strictly conform to the Theis assumptions and the calculated transmissivity values should therefore be considered order-of-magnitude estimates. The drawdown observed during the aquifer tests was subsequently simulated using the model and used to adjust the hydraulic conductivity distribution within Layer 3 of the San Dieguito basin groundwater model. As discussed in Section 2.3, Layer 3 represents the deeper confined aquifer from which most production wells in the basin derive their water.

3.6 CPT INVESTIGATION

After reviewing available drillers' logs for the basin, it was determined that the available information was insufficient to adequately characterize geologic conditions in the project vicinity. Additional detailed lithologic data were therefore obtained in the project vicinity and surrounding area using direct-push CPT equipment. CPT borings were advanced at 27 locations at Morgan Run, Rancho Paseana, Rancho Santa Fe Polo Club, and Fairbanks Ranch Country Club

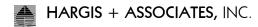


(Appendix E) (Figure 21). The total depth of the CPT borings ranged from approximately 10 feet to approximately 155 feet. Refusal was occasionally encountered at depths considerably shallower than the expected depth to bedrock. In these instances, it is likely that the shallow refusal was related to the CPT rod encountering a gravel or cobble zone, which prevented further advancement of the rod.

CPT data were compiled and incorporated into a three-dimensional visualization computer program which was used to further evaluate the lateral and vertical continuity of aquitard and aquifer units in the vicinity of the proposed recharge area. At most CPT locations, the results obtained were generally consistent with the basin conceptual model and the layering utilized in the Phase I groundwater model, although the CPT logs tended to exhibit considerably greater lithologic detail and complexity compared to the drillers' logs. The CPT data indicate that the Layer 2 aquitard is present in all borings installed on Morgan Run. Pore pressure dissipation tests were conducted to provide preliminary data regarding the hydraulic conductivity of the aquitard sediments (Appendix F). The CPT data were also used to rank potential locations for the test well. Potential test well sites were eliminated from further consideration, if soils were found to be predominantly fine grained.

3.7 WELL INVENTORY

A well inventory and field reconnaissance were conducted during 2002 to identify the location and status of all wells within 2,000 feet of the proposed project wells (Appendix G). Previous review of historical documents indicated that over 100 wells may have been installed within the basin since the early 1900s (Figure 3). However, the current status of many of these wells is unknown. It was anticipated that most of these wells had been abandoned or destroyed. Geographic coordinates of potentially abandoned and destroyed wells whose status was unknown were digitized from historical well location maps maintained by the California Department of Water Resources (DWR), the USGS, and information in local agency files. Well coordinates were subsequently downloaded into a GPS unit to facilitate locating these wells in the field. Several field reconnaissance trips were conducted to interview property owners and to



document the apparent presence or absence of these wells. In addition, interviews have been conducted with local drillers and pump service companies in the area to obtain additional information on the status of the wells and to improve the reliability of the historical well data collected.

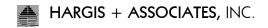
A review of historical well location maps obtained from DWR indicated that three wells, 5-B1, 5-C1, and 32Q1, which may have been located on the Morgan Run property were not identified in the field during the well inventory task described above. A more intensive search of agency documents and historical aerial photographs was conducted in December 2003, in order to establish the condition and confirm the location of these wells. However, no clear evidence of these wells was found.

3.8 WELL INSTALLATION

A series of shallow and deep piezometers were installed at the site between March 2002 and July 2003 (Appendix H) (Figure 4). In addition, a test injection-extraction well, and an adjacent exploratory boring were installed in the southeast corner of the Morgan Run golf course (Figure 4). Well construction information and available lithologic logs are provided in Appendix H.

Eleven shallow piezometers were installed to total depths of 23 feet bls to 35 feet bls, and provide data regarding the depth to the water table in the area. Two deep piezometers were screened in the deep confined aquifer, to total depths of approximately 90 feet bls to 99 feet bls. The depth to water in the deep piezometers indicates the hydraulic head or water pressure within the deep confined aquifer, which can differ significantly from the water table.

Piezometers P-1 and P-2 were installed near the southeast corner of the Morgan Run golf course to monitor the water table during a planned aquifer test. Piezometer P-3 was installed at the north end of the Morgan Run golf course to monitor the water table response to regional water extractions.



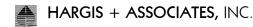
At two locations, multiple piezometers were installed at adjacent locations to different depths forming a piezometer cluster. Clustered piezometers provide data regarding the water table and deeper zones at the same location. Piezometer cluster P-4, located in the central portion of the Morgan Run golf course, adjacent to the residential area, includes both a shallow P-4S and deep P-4D piezometer. Piezometer cluster P-11 was constructed 60 feet north of the test well to provide data regarding the response to injection and extraction in the immediate vicinity of the test well. Piezometer cluster P-11 includes a shallow P-11A, an intermediate P-11B, and a deep P-11D piezometer. The intermediate depth piezometer was screened from 40 feet bls to 45 feet bls, within the aquitard sediment sequence overlying the deep confined aquifer.

Shallow piezometers P-5 through P-10, were installed throughout the Morgan Run residential area to evaluate to what extent the water table would respond to injection and extraction in this area.

Prior to installing the test well, an exploratory boring EB-1 was drilled 10 feet north of the proposed test well location to provide lithologic data for the design of the test well. The test well was drilled to a depth of 137 feet bls and completed as an 8-inch diameter well within the deep confined aquifer screened from 87 feet bls to 137 feet bls. The test well was subsequently used to conduct a series of pilot injection and recovery tests within the deep confined aquifer at the project site.

3.9 PILOT TESTING

Two pilot injection and extraction tests were conducted at the test well located near the southeast corner of the Morgan Run golf course to further evaluate the feasibility and potential impacts related to the proposed storage and recovery of water in the deep aquifer (Appendix I). These tests involved the injection of water at a flow rate of 400 gpm, for periods ranging from 8 to 10 days. Injection tests were conducted utilizing potable water obtained from a fire hydrant and brought to the test well via a temporary 6-inch pipeline. The injected water was



then recovered by pumping the test well for a period of time approximately equal to the duration of the prior injection period.

The principal objectives of the pilot testing program were to:

- Evaluate the injection well capacity and potential for plugging;
- Evaluate the potential water level build-up in the deep confined aquifer;
- Evaluate the drawdown as a result of withdrawal from the extraction well;
- Evaluate the impact on the water table from injection; and
- Evaluate water quality of the injected and recovered water.

Details regarding each of the injection and recovery test cycles are provided in Appendix I. Results of the pilot injection and extraction tests indicate that the deep aquifer is capable of accepting and yielding water at sufficient rates to support the proposed project. However, during the two injection tests the test well experienced a significant reduction in capacity, which appears to be related to gradual plugging by the small amount of suspended sediment in the source water. A third injection test, which will incorporate a filtration unit, has been conducted to evaluate whether the well capacity can be sustained using conventional filtration technology.

3.9.1 Water Level Response-Injection

Hydrographs showing the water level response in the vicinity of the test well during the two injection tests have been prepared (Figures 22 and 23). Water levels within the deep confined aquifer P-11D, an intermediate depth P-11B, and the water table P-11A are shown together for comparison based on data obtained from piezometer cluster P-11 located 60 feet north of the test well. Data are shown for a 10-day period preceding the injection test, during the injection period, and for approximately 10 days following the test.

It should be noted that static water level in the intermediate and deep wells were 5 to 12 feet lower than the water table at the start of the first injection test (Figure 22). In contrast, the static water levels in all three wells were higher at the start of the second injection test because it was



conducted following the winter rainy months when water levels are near their highest level due to minimal pumping in the basin (Figure 23).

The hydrographs indicate that pressure in the deep zone increased by as much as 13 feet of water during the two injection tests, however, based on the regional water level trend before and after the injection phase it appears that about two feet of this pressure change can be attributed to the regional trend (Figures 22 and 23). Therefore, about 10 to 11 feet of the observed buildup in the pressure in the deep zone appears to be related to the injection.

The water level rise in the intermediate depth piezometer P-11B was damped compared to the response in the deep aquifer during both injection tests due to the presence of fine-grained aquitard sediments overlying the deep aquifer (Figures 22 and 23). The total water level rise in the intermediate depth piezometer P-11B was about 2.5 to 3 feet.

There was no discernable rise in the water table in the vicinity of the test well where the buildup in the underlying aquifer was the greatest. The response to the two injection tests was completely damped out at the water table due to the presence of the aquitard sediments (Figures 22 and 23). Although there were some minor daily fluctuations, there was no discernable test-related response at the water table due to the injection. There was some minor fluctuation of less than 0.2 feet in the water table at several piezometers located to the north of the test well, these fluctuations appear to be related to regional pumping in the vicinity rather than the injection of water during the test. There was also no discernable rise in the water table at the Morgan Run middle bridge which is located near the test well where the buildup in the underlying aquifer is likely to be greatest.

The change in pressure within the deep aquifer due to the injection of water decreases with distance away from the test well. The change in pressure observed in other piezometers screened in the deep aquifer ranged from approximately 11 feet at piezometer P-11D, located near the test well to about 2.5 ft in piezometer P-4D located about 1,800 feet north of the test well (Figure 24).



Overall, the results of the pilot testing indicated that the deep aquifer is capable of receiving water at the rates anticipated for the project. The test well did experience some loss of capacity during the pilot injection tests, which appears to be due to plugging by suspended solids. This plugging may be significantly reduced or eliminated by the use of conventional filtering and chlorination of the reclaimed water prior to injecting. Plugging of injection wells can also be addressed by periodic redevelopment by pumping the well for a short period.

During the pilot testing the change in pressure in the deep aquifer near the test well was about 11 feet. For any well constructed in the deep zone in the vicinity of the test well the change in pressure is sufficient to result in the water level in the well rising above land surface if the injection is conducted during the winter high water level conditions. In other words, the groundwater in the deep aquifer does not reach land surface, only that the pressure in the deep aquifer near the well exceeds land surface. The injection tests did not result in a rise in the water table in the vicinity of the test well, indicating that the aquitard in this area is competent and effectively restricts the upward movement of water within the alluvial sediments. The change in pressure measured during the injection tests decreased with distance away from the test well, ranging from about 4 to 5.5 feet in the nearest active wells.

An Active Management Plan (AMP) has been prepared to document the monitoring that the OMWD will perform in order to track groundwater levels, movement, and quality; surface water levels and quality; and the environmental conditions within the basin during the injection/extraction operations (H+A, 2004). Furthermore, the data collected as part of the AMP will be used by OMWD to adjust operational conditions of the injection/extraction system, such as, injection and pumping rates; locations and durations, to mitigate, if necessary, potentially significant impacts such as rising water levels in wells caused by the operation of the ASR project.

3.9.2 Water Level Response-Extraction

The water injected during the first injection test was recovered beginning on November 4, 2003, approximately one month following the completion of injection. During the first recovery test the



test well was continuously pumped at a rate of 400 gpm for a period of 10 days. A hydrograph showing the water level response in the vicinity of the test well during the first recovery test have been prepared (Figure 25). Water levels within the deep confined aquifer P-11D, an intermediate depth P-11B, and the water table P-11A are shown together for comparison based on data obtained from piezometer cluster P-11 located 60 feet north of the test well. Data are shown for a 10-day period preceding the recovery test, during the extraction period, and for approximately 10 days following the test. During the second recovery test which followed the second injection test the test well had to be pumped on an intermittent basis due to constraints imposed by Morgan Run in terms of their ability to utilize the extracted water, and thus a hydrograph for this test was not prepared.

It should be noted that static water level in the intermediate and deep wells were 4 to 9 feet lower than the water table at the start of the first recovery test (Figure 25). The hydrograph indicates that the water level in the deep piezometer, P-11D, declined by approximately 9 feet during the recovery test (Figure 25). The water level decline in the intermediate depth piezometer P-11B was damped compared to the response in the deep aquifer during the recovery test due to the presence of fine-grained aquitard sediments overlying the deep aquifer (Figure 25). The total water level decline in the intermediate depth piezometer P-11B was less than two feet (Figure 25). There was no discernable change in the water table in the vicinity of the test well where the drawdown in the underlying aquifer was the greatest. The response to the groundwater extraction was completely damped out at the water table due to the presence of the aquitard sediments (Figure 25).

Overall, the results of the recovery test indicated that the deep aquifer is capable of producing water at the rates anticipated for the project.

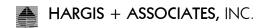
3.9.3 Water Quality Results

The water quality of the native groundwater, the injected water, and the recovered water were also evaluated during the injection and recovery tests based on laboratory analysis of water samples collected during testing and field measurements of EC. Laboratory results and field



parameter measurement data are provided in Appendix I. Differences in water quality can be generally characterized based on the TDS concentration in the water samples. The water quality of the native groundwater in the vicinity of the test well is poor based on the laboratory reported TDS of 4,400 mg/l. In contrast, the TDS of the injected potable was 490 mg/l.

During the recovery test, the TDS of the recovered water gradually increased from about 500 mg/l to about 3,000 mg/l by the end of each injection test, indicating the there is significant mixing of injected and native groundwater during the storage and recovery process (Figure 26). Although on most ASR projects, the recovered water quality typically improves during subsequent injection/recovery cycles, this was not observed during the second test. During the second recovery period, the TDS increased above what which occurred during the first recovery test but returned to about the same TDS by the end of the recovery period (Figure 26). This may be due in part to differences in the amount of groundwater extraction occurring within the basin during the first and second tests which effects the regional gradient or it may be due in part to the longer period of storage between the second injection and recovery tests. Both of these factors may have caused the injected water to migrate further from the test well during the second test. It is likely that the recovered water quality will improve during subsequent cycles if the injection and recovery are conducted during the winter season each year when groundwater flow conditions are similar.



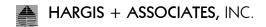
4.0 MODEL REFINEMENT AND RECALIBRATION

Prior to conducting the model wellfield simulations, the data collected from the supplemental hydrogeologic investigations were incorporated into the existing groundwater model. The following sections briefly describe key elements of the conceptual hydrogeologic model and summarizes the revisions that were made to the numerical groundwater model prior to using the model to simulate the project performance. Additional details regarding the groundwater model may be found in Appendix J.

4.1 CONCEPTUAL HYDROGEOLOGIC MODEL

Data obtained during the recent investigations described above were compiled and evaluated to refine the understanding of the hydrogeology of the project site. Available lithologic data from both drillers' logs and CPT borings were digitized and entered into a three-dimensional visualization software package that allows presentation of data in various orientations from cross section to map view. The following discussion briefly summarizes key aspects of basin hydrogeology that may impact ASR project feasibility based on the data obtained during the recent field investigations.

The bulk of the sediments, which comprise the alluvial basin in the vicinity of the recharge site, consist predominantly of finer-grained clayey to silty flood-plain deposits. These fine-grained deposits do not transmit appreciable amounts of groundwater and therefore tend to act as aquitards. The principal aquifer within the basin is composed of coarser-grained channel deposits, consisting primarily of sands with varying amounts of gravel, which are typically encountered at depths of about 60 to 110 feet. These deeper, more permeable channel deposits form what is referred to as the deep confined aquifer. This deep aquifer provides the bulk of groundwater that is extracted from production wells in the project area. The depth, thickness, lateral extent, and permeability of the channel deposits vary from location to location within the project vicinity. In some localized areas the channel deposits comprise a substantial



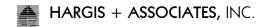
thickness of predominantly coarse sand and gravel and may support well yields of 500 to 1,000 gpm. In other locations the channel deposits are either largely absent, or not as coarse and of limited thickness. In these areas well yields tend to be lower and may only sustain flow rates of from less than 100 gpm, up to several hundred gpm.

Based on the magnitude of the drawdown at different piezometers during the aquifer testing program, the channel deposits appear to have greater hydraulic continuity along the longitudinal axis of the basin and less continuity transverse across the width of the basin. This pattern is expected given the nature of river channels, which tend to exhibit long, narrow meandering configurations, which shift position across the valley floor over time due to ongoing sediment deposition and periodic flooding.

Based on the water level monitoring data collected to date, water levels in the deeper confined channel deposits rise and fall seasonally, primarily due to the variation in the amount of groundwater pumped from the basin. These data also indicate that the water table in the project vicinity is generally higher in elevation than the water level in the deeper confined zone and that the water table does not appreciably fluctuate in response to regional pumping. This indicates that the fine-grained aquitard sediments overlying the deep aquifer function as an effective confining zone. The results of the pilot testing were consistent with the long-term monitoring results in that there was no observable water table response to injection in the vicinity of the test well where the change in pressure in the confined aquifer was greatest.

4.2 MODEL REVISION AND RECALIBRATION

The current numerical groundwater model is based on a previous three-dimensional, finite-element, groundwater flow and transport model of the San Dieguito basin (CH2M-Hill, 1995; HYA, 1997). The model, which was originally developed using the CFEST code, was subsequently converted to the USGS finite difference code MODFLOW to facilitate appropriate model revisions based on additional field investigations (H+A, 2002). Once the model was converted, selected model parameters were then modified and the model



recalibrated to better replicate the hydraulic responses observed during the aquifer testing and pilot testing programs. Details regarding the model revisions, recalibration, and the results of a model sensitivity analysis are provided in Appendix J. The following briefly summarizes the model revisions made prior to conducting the project well field simulations.

Initially, a detailed topographic map of the land surface at the Morgan Run golf course and vicinity was prepared. Updated land surface topography was then incorporated into the groundwater model to allow a more accurate assessment of the shallow groundwater conditions relative to land surface in the study area.

The alluvium-bedrock contact and the geometry of hydrostratigraphic units within the basin alluvium were revised based on new lithologic data obtained from the CPT program. The hydraulic conductivity of the deep aquifer Layer 3 was adjusted based on the response observed during the aquifer testing and pilot testing programs. The hydraulic conductivity data obtained from the pore pressure dissipation tests were used to refine the previously assigned hydraulic conductivity of the aquitard sediments Layer 2. The rates and locations of recharge, water level conditions at the river and at the alluvium/ocean boundary, and rates and locations of regional groundwater extraction wells were also updated based on the results of field investigations and other available data.

The flow model was recalibrated to benchmark the model against measured groundwater conditions in the study area. Two phases of calibration were conducted: 1) Steady–state calibration; and 2) Transient calibration, which included seasonal extraction from regional wells. The flow calibration obtained acceptable agreement between measured and projected groundwater elevations, flow directions, and vertical gradients.

A sensitivity analysis was also performed to evaluate the sensitivity of the model results to uncertainty in selected hydraulic properties (Appendix J). Sensitivity of the flow model to aquitard Layer 2 vertical hydraulic conductivity, bedrock hydraulic conductivity, and the horizontal hydraulic conductivity of the deep aquifer Layer 3 were evaluated.



5.0 PROJECT FEASIBILITY EVALUATION

The following sections describe the proposed project and evaluate the performance and potential groundwater-related impacts based on the project simulations that were performed using the numerical groundwater flow and transport model. Potential groundwater-related impacts evaluated based on the model simulations include: impacts to existing groundwater users, shallow water table response to injection and extraction, and changes in groundwater quality, specifically TDS.

5.1 PROJECT DESCRIPTION

To implement this project, OMWD plans to inject up to 150 AF/yr of excess Title 22 tertiary-treated reclaimed water from one of three water reclamation plants during wet-weather periods, and convey the water, via an existing water delivery system, to appropriate injection wellhead locations on Morgan Run. The water would be placed under ground using injection wells screened in a deep confined alluvial aquifer located approximately 80 to 155 feet bls.

The proposed project location is in the southeast corner of the Morgan Run golf course. This area of the basin was selected for several reasons:

- The area contains deep coarse-grained channel deposits which appear to be capable of receiving injected water;
- The area is underlain by shallow fine-grained deposits which likely acts as an effective aquitard and therefore minimize any associated rise in the water table during injection;
- It is located away from existing residential areas;
- Groundwater quality is marginal;
- Most existing groundwater users are located to the north of the proposed project area;
- The hydraulic gradient is relatively flat in the area, which would minimize migration of injected water;



- There appears to be sufficient potential well sites on Morgan Run;
- Morgan Run is a potential user of reclaimed water;
- The location is near the terminus of an OMWD pipeline; and
- Management of the ASR project is expected to prevent impact upon other well owner/operators in the basin.

It is anticipated that the ASR project would consist of the injection and extraction of excess reclaimed water on a seasonal basis. During the wet winter months each year, up to 150 AF of excess reclaimed water would be injected using wells completed in the deep confined aquifer. Typically, injection would occur during three months in the period between November and April. During the injection period, the total system flow rate is anticipated to range up to a maximum of 400 gpm. During the following summer months, when local demand for reclaimed water exceeds the available supply, the injected water would be extracted using the same wells or additional wells if necessary and made available for irrigation by local subscribers.

The number of wells required to achieve the anticipated injection rate will depend on the actual capacity of the project wells, which will depend on the geologic conditions at available well sites. The actual number of wells required will be determined after the wells are installed and tested. It is currently estimated that two wells would be required to achieve the maximum reclaimed water project injection rate. It is anticipated that a third well would be installed to act as a backup well should the capacity of the two primary wells decline over time due to plugging, so that one well can be taken out of service for a short period of time for redevelopment.

Reclaimed water is considerably lower in TDS than existing groundwater at the project location and would therefore improve basin water quality by reducing TDS and would be available for extraction for local irrigation use during summer months. The storage of excess reclaimed water in the basin during the winter could also help reduce the capital costs required for handling excess reclaimed water such as for storage ponds or ocean disposal.



5.2 MODEL SIMULATION RESULTS

Model simulations were conducted to evaluate the long-term feasibility and potential impacts associated with the proposed project. The project well field was assumed to consist of two wells located in the southeast corner of the Morgan Run golf course. One of the well locations represents the existing test well. The location of the second injection well was approximately 1,000 feet south of the test well. This location was selected in consultation with Morgan Run personnel and based on local CPT data, which suggest that well yields should be reasonable in this area. It should be noted that due to the preliminary nature of the modeling, the well flow rates were not optimized and pumping was assumed to be distributed evenly between the two project wells. Existing regional production wells were assumed to be active during the model simulations.

The aquifer storage and recovery project was simulated using the model for a period of 13 years. In order to evaluate the project performance during extremes in possible weather conditions, the simulation was conducted assuming seven years of project injection/extraction under dry conditions followed by six years of project injection/extraction under wet conditions. The amount of recharge to the basin from precipitation and the San Dieguito River were varied during the wet and dry model simulation periods based on precipitation data from historical wet and dry periods and by defining selected segments of the river as being either wet or dry. During each year of the simulation 150 AF of reclaimed water was injected into two project wells for three months each winter at a combined rate of 372 gpm. The injected water was recovered over a period of six months during the spring and summer using the same two project wells pumping at a combined rate of 186 gpm. Water level hydrographs were prepared comparing the simulated baseline seasonal water level fluctuations with no project, to the water level fluctuations that are projected to occur with project injection and extraction.



5.2.1 Water Level Response

The water level change in the deep aquifer near the test well during the 7-year dry and 6-year wet periods is shown on Figure 27. The pressure in the deep aquifer rises about 10 to 15 feet above land surface in the deep aquifer near the injection location at the end of each injection cycle. Note that this does not indicate that groundwater actually reaches land surface, only that the pressure in the deep aquifer near the well exceeds land surface. The distribution of the maximum model-projected change in pressure in the deep aquifer during the 13-year simulation is shown on Figure 28. The change in pressure is greatest in the vicinity of the project wells reaching approximately 14 feet. The change in pressure decreases to about 11 feet at the Rancho Santa Fe Polo Club well 5-FC located west of the project. The maximum change in pressure decreases to about two feet at the north end of the Morgan Run golf course (Figure 28).

The level of the water table in the vicinity of the injection/extraction well during the 13-year project simulation is shown on Figure 29. There is no discernable difference in the water table in this area due to the project, which is consistent with the results of the injection/extraction pilot testing. The rise in the water table at year 7 is due to the shift from dry to wet boundary and recharge conditions in the basin. Figure 30 indicates that there could be an area of limited change in pressure in the water table in the area north of the project and east of Morgan Run. Based on available drillers logs, the fine-grained sediments which comprise the aquitard may thin and/or pinch out in this north area which may allow some change in pressure to occur. The maximum model-projected change in pressure in the water table in this area is about 0.7 feet. The depth to water during the winter months in this area is expected to range from about 15 to 20 feet bls, therefore the amount of projected water table rise should not have any adverse effects.

The projected drawdown in the deep aquifer in the vicinity of the test well during the spring and summer pumping periods is shown on Figure 31. The project is projected to cause about eight feet of additional drawdown in the vicinity of the project wells. The distribution of the maximum model-projected drawdown in the deep aquifer during the 13-year simulation is shown on Figure 31. The drawdown is greatest in the vicinity of the project wells reaching approximately



eight feet. The drawdown decreases to about 5.5 feet at the Rancho Santa Fe Polo Club well 5-FC located west of the project. The maximum drawdown also decreases to about two feet at the north end of the Morgan Run golf course (Figure 31). This amount of drawdown is not expected to noticeably affect the capacity of existing wells.

Water level graphs for the 13-year project simulation for the deep confined aquifer and the water table for other well locations in the basin are also provided in Appendix J. Of the active wells, the only well experiencing a water level above land surface is the Rancho Santa Fe Polo Club well. At this well, the pressure in Layer 3 is conservatively projected to exceed land surface by as much as 12 feet. This suggests that this well would need to be fitted with a water tight seal at the top or the casing to prevent it from flowing during the injection periods. The water table at this location is not projected to change appreciably from the baseline level. The change in pressure in the deep aquifer is not projected to exceed land surface at any existing wells located north of the project, however the pressure in the deep aquifer may approach land surface in the nearest wells to the north. Monitoring would need to be implemented in this area to ensure that water levels in these wells do not exceed land surface during project operation, if these wells are not also sealed.

5.2.2 Water Quality

The change in TDS of the water recovered from the Test Well during the 13-year project simulation as shown on Figure 32. The starting concentration of TDS in the deep aquifer at this location is 4,200 mg/l. During the first injection cycle the TDS drops to a concentration approaching the injected reclaimed water. The TDS increases during each extraction cycle but attains a lower concentration at the end of each cycle due to the zone of lower TDS water, which builds up in the aquifer around the test well. After 13 injection cycles the simulated TDS increases to approximately 1,500 mg/l during the recovery cycle.

The extent of reclaimed water in the deep aquifer in the area surrounding the project well field at the end of 7 and 13 years respectively is shown on Figures 33 and 34. Because the reclaimed water mixes with the native groundwater the map presents the ratio of reclaimed water to native



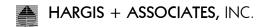
groundwater. After 7 years of project operation it appears that the reclaimed water has yet to reach the nearest active wells. After 13 years of operation, groundwater containing about 1 percent reclaimed water is projected to reach the nearest active well, Polo Club Well (Figure 34).



6.0 CONCLUSIONS

Based on the work conducted to date it appears that it is feasible to seasonally inject and extract 150 acre-feet of reclaimed water in the southeast corner of the Morgan Run golf course. The water would be injected into a deep aquifer zone consisting primarily of sand and gravel. In the project area the deep aquifer is overlain by fine-grained, silty to clayey layers that confine the deep aquifer and restrict upward migration of water. The results of the pilot testing and groundwater modeling indicate that the water table is unlikely to experience significant increase in pressure or drawdown due to the project injection and extraction. It appears that there could, however, be some limited water table rise in the area located north of the project, if the aquitard is less competent than observed in the project area. Given the expected depth to water in this area of 15 to 20 feet the small water table rise is not expected to result in any adverse impact. Monitoring of water levels in the basin during injection and extraction would be conducted in accordance with the requirements outlined in the AMP (H+A, 2004). If necessary, the rate and location of injection or extraction would be adjusted to prevent significant water level impacts.

The results of the groundwater modeling indicate that during injection periods the pressure in the deep aquifer could rise to about 10 to 15 feet above land surface near the injection wells and in areas to the south, including the RSF Polo Club well. This suggests that existing inactive wells in this area would need to be grouted up and existing production wells at the Polo Club would need to be fitted with water tight seals on the top of the casings to prevent them from flowing during the injection periods. Further detail regarding this work is provided in the AMP (H+A, 2004). The results of the groundwater modeling indicate that the pressure in the deep confined aquifer do not build up to levels above land surface at existing production wells located to the north of the project wells. The model results do however indicate that during injection periods the pressure in the deep aquifer could rise to levels approaching land surface at the nearest existing wells located to the north. Monitoring will be conducted in accordance with the AMP to ensure that water levels do not exceed land surface during project operations if these wells are not also sealed.



The results of the groundwater modeling indicate that during recovery periods the pressure in the deep confined aquifer are not likely to draw down to the point where it would noticeably affect the capacity of existing production wells. Monitoring of water levels in the basin during extraction will be conducted in accordance with the requirements outlined in the AMP to ensure that capacity of existing wells is not affected (H+A, 2004).

The TDS of the recovered reclaimed water is likely to increase up to roughly 3,000 mg/l during the initial recovery cycles. The maximum concentration reached at the end of each subsequent recovery cycle may decrease in each subsequent year although some variation should be expected depending on the variability of groundwater extraction elsewhere in the basin. It will likely require on the order of 13 years of repeated injection and extraction before TDS concentrations would remain at or below 1,500 mg/l throughout the recovery cycle. The results of the groundwater modeling also indicate that the injected water will probably not reach any of the existing active wells in the basin until the end of the thirteen-year simulation period assuming the amount of water extracted is equal to the amount injected over time (Figure 34). Water quality monitoring will also be done in accordance with the AMP to monitor the changes in water quality in the project area (H+A, 2004).

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ACTIVE REGIONAL WELL SUMMARY

| Township/ | Well | | | Approx. Property | Annual Pumpage | |
|------------|------------|------------------------------------|--|---------------------|-------------------|--|
| Range | Identifier | Well Owner/Alternate Name | Well Usage | Acreage | (AF/yr) | Source of Data / Remarks |
| Active Wel | | | | . ier eelige | (,))) | |
| 13S / 3W | 28-QA | Former Owner: Bauce | Irrigation, landscape | 14 | 32 | Calculated based on acreage. |
| 13S / 3W | 28-RA | Buie | Equestrian; Irrigation, pasture | 10 | 23 | Calculated based on acreage. |
| 13S / 3W | 28-RB | International Farms (Shallow Well) | Irrigation, landscape; ponds | 39 | 88 | Calculated based on acreage. |
| 13S / 3W | 32-HA | Friedkin | Irrigation, landscape | 7 | 16 | Calculated based on acreage. Completed in older alluvium and bedrock. |
| 13S / 3W | 32-JD | Morgan Run (Gun R Well) | Irrigation, golf course | NA | 226 | Annual Pumpage = 566 AF/yr based on booster pump hour meters and assummed -pump efficiency (10/2001) Assumed 40:60 |
| 13S / 3W | 32-RB | Morgan Run (No.3 Green N. Well) | Irrigation, golf course | NA | 340 | ratio for No.3 Green N : Gun R Extraction Rates. |
| 13S / 3W | 33-BA | Albert Court | Equestrian; Irrigation, pasture | 46 | 104 | Calculated based on acreage. |
| 13S / 3W | 33-EA | Mac Farlane (North Well) | Construction; future landscape irrigation | NA | 45 | Rough Estimate |
| 13S / 3W | 33-FB | Schoenfelder (South Well) | Fairbanks Ranch golf course | 373 | 200 | Maintentance Manager estimate is 180 AF/yr. Contract is for 200 AF/yr. |
| 13S / 3W | 33-FA | Schoenfelder (North Well) | Irrigation, landscape | 20 | 45 | Calculated based on acreage. |
| 13S / 3W | 33-K8 | Helen Woodward Animal Center | Irrigation, lawn/field (neighbor's property) | 8.5 | 10 | Calculated based on neighbors acreage (x0.4). |
| 13S / 3W | 33-LC | Harris | Irrigation, landscape | 5 | 11 | Calculated based on acreage. |
| 13S / 3W | 33-LA | FBR Homeowners | Irrigation, landscape; ponds | NA | 15 | Property Manager estimate. |
| 13S / 3W | 33-MB | Altman | Irrigation, landscape | 5 | 11 | Calculated based on acreage. |
| 13S / 3W | 33-MD | Goldberg | Irrigation, landscape | 2 | 5 | Calculated based on acreage. |
| 13S / 3W | 33-ME | Wassermann | Irrigation, landscape | 4.7 | 11 | Calculated based on acreage. |
| 13S / 3W | 33-MF | Farhood | Irrigation, landscape | 5 | 11 | Calculated based on acreage. |
| 13S / 3W | 33-ND | Bosstick | Irrigation, landscape | 10 | 23 | Calculated based on acreage. |
| 13S / 3W | 33-NE | Hazel | Irrigation, landscape | 3 | 7 | Calculated based on acreage. |
| 13S / 3W | 33-CA | Rancho Paseana (North Well) | Equestrian; Irrigation, pasture | | 90 | Assumed to be 50 percent of south well extraction. |

Refer to Page 2 for footnotes and references

ACTIVE REGIONAL WELL SUMMARY

| | | | | Approx. | Annual | |
|--------------|------------|------------------------------|---------------------------------|----------|---------|---|
| Township/ | Well | | | Property | Pumpage | |
| Range | Identifier | Well Owner/Alternate Name | Well Usage | Acreage | (AF/yr) | Source of Data / Remarks |
| | | | | | | Based on south well totalizer readings; |
| | | | | | | Property also uses 200 AF/yr of reclaimed |
| 13S / 3W | 33-PA | Rancho Paseana (South Well) | Equestrian; Irrigation, pasture | 228 | 180 | water. |
| 13S / 3W | 33-PB | Fairbanks Country Day School | Irrigation, lawn/field | 9 | 20 | Calculated based on acreage. |
| 13S / 3W | 33-C7 | Chino Farms | Irrigation, agriculture | 56 | 60 | Owner Estimate |
| | 5-FA 5 | RSF Polo Club (No. 1 and 2R | | | | |
| 14S / 3W | FC | Wells) | Equestrian; Irrigation; field | NA | 125 | Property Manager Estimate |
| | | | | | | Rough Estimate; located outside alluvial |
| | | | | | | basin; Completed in marine sedimentary rock |
| 14S / 3W | 7-BA | Rancho Del Mar | Equestrian; Domestic Supply | 5.5 | 5 | water treated using reverse osmosis unit. |
| 14S / 3W | 7-K3 | Far West Farms | Equestrian | 20 | 5 | Rough Estimate |
| 14S / 3W | 7-LA | Rancho El Camino | Equestrian | 10 | 5 | Rough Estimate |
| 13S / 3W | 33-L8 | Nativity Catholic Church | Irrigation, lawn/field | 10 | 15 | Calculated based on acreage (x0.5). |
| Existina / F | Probably A | Active Wells | | | | |
| 13S/3W | 33-CB | Edwards | Equestrian, Irrigation | 7.8 | 18 | Calculated based on acreage. |
| | | | | | | Calculated based on acreage. Completed in |
| 13S / 3W | 32-JC | Skeets-Dunn | Irrigation, landscape | 4 | 9 | older alluvium and bedrock. |
| 13S / 3W | 33-LD | Heller | Irrigation, landscape | 5 | 11 | Calculated based on acreage. |
| 13S / 3W | 33-LE | Champion | Irrigation, landscape | 2.5 | 6 | Calculated based on acreage. |
| 13S / 3W | 33-MC | Rogers | Irrigation, landscape | 2 | 5 | Calculated based on acreage. |
| Probably E | xisting an | d Active Wells | | | | |
| 13S / 3W | 28-JA | Vinci | Irrigation, landscape | 3.15 | 7 | Calculated based on acreage. |
| | | | | | | Calculated based on acreage. Completed in |
| 13S / 3W | 32-GA | Williams | Irrigation, landscape | 3.5 | 8 | older alluvium and bedrock. |
| | | | | TOTAL | 1,791 | |

FOOTNOTES: gpm = gallons per minute

AF/yr = acre-feet per year

NA = not available

Note: For those wells where yield is calculated based on acerage, groundwater pumpage = acreage * landscape area * estimated water use

where: landscape area is assumed to be 75 percent of total acreage estimated water use is 3 feet of water per acre per year

GROUNDWATER MONITORING GENERAL MINERAL AND PHYSICAL ANALYSIS RESULTS

| YEAR | | | | | | | | | | | | | | | | | | | | | |
|-----------------|-------------|----------|----------|-----------|-----------|------------|--------|------------|-------------|-------------|--------------|----------|-------------|-------------|------------|--------------|--------------|-----------|---------|---------|---------------------|
| SAMPLED | | 2001 | 2002 | 2001 | 2001 | 2001 | 2001 | 2002 | 2001 | 2002 | 2001 | 2001 | 2001 | 2001 | 2001 | 2001 | 2002 | 2003 | | | 1 |
| SAIVIFLLD | PROJECT | 2001 | 2002 | 2001 | 2001 | 2001 | 2001 | 2002 | 2001 | 2002 | 2001 | 2001 | 2001 | 2001 | 2001 | 2001 | 2002 | 2003 | | | |
| | WELL | | | | | | | | | | | | | | | | | | | | 1 |
| | NUMBER | 5-FA | 5-FA | 5-GA | 5-H2 | 7-BA | 32-JD | 32-JD | 32-RB | 32-RB | 33-FA | 33-K8 | 33-LA | 33-PB | 33-NC | 33-PA | 33PA | | | | 1 |
| | NOWBER | 3-1 A | 3-1 A | 3-0A | 5-112 | I-DA | Morgan | 32-3D | 32-IND | 32-ND | 33-1 A | 33-110 | 33-LA | 33-I D | 33-110 | 55-1 A | 551 A | | | | |
| | | RSF Polo | RSF Polo | RSF Polo | Morgan | | Run | Morgan Run | Morgan Run | Morgan Run | | Helen | Fairbanks | Fairbanks | | Rancho | Rancho | | | | 1 |
| | WELL | Club No. | Club No. | Club Test | Run | Rancho Del | Newest | Newest Gun | No. 3 Green | No. 3 Green | Schoenfelder | Woodward | HOA EI | Country Day | Morgan Run | Paseana | Paseana | OMWD Test | | | 1 |
| | IDENTIFIER | 2R | 2R | Well | Fairway 2 | Mar | Gun R | R | North | North | No. 1 North | New | Apaio W. #2 | School | East Well | South Active | South Active | Well | | | 1 |
| COMPOUND | UNITS | | | | · • | | | | | | | | | | | | | | MINIMUM | MAXIMUM | AVERAGE |
| Aluminum | ma/l | NA | < 0.050 | NA | NA | NA | NA | < 0.050 | NA | NA | NA | NA | NA | NA | NA | NA | 0.056 | < 0.050 | < 0.050 | 0.056 | NA |
| Barium | mg/l | NA | 0.27 | NA | NA | NA | NA | 0.32 | NA | 0.15 | NA | NA | NA | NA | NA | NA | 0.27 | NA | 0.15 | 0.32 | 0.25 |
| Boron | mg/l | 0.93 | NA | 1.1 | 0.76 | 2.7 | 0.22 | NA | 0.25 | NA | 0.24 | 1.3 | 0.28 | 0.20 | 0.41 | 0.38 | NA | 0.57 | 0.20 | 1.1 | 0.70 |
| Calcium | mg/l | 290 | 290 | 380 | 170 | 390 | 220 | 240 | 220 | 240 | 150 | 220 | 300 | 230 | 96 | 200 | 190 | 320 | 96 | 390 | 241 |
| Iron | mg/l | 2.0 | 0.21 | 470 | 18 | <0.080 | <0.040 | 0.044 | 0.049 | <0.040 | 2.5 | 4.8 | 1.3 | 5.3 | 25 | 2.6 | <0.040 | 0.280 | < 0.040 | 470 | 31.3 ⁽¹⁾ |
| Magnesium | ma/l | 190 | 140 | 320 | 290 | 93 | 110 | 130 | 130 | 130 | 78 | 170 | 170 | 120 | 61 | 120 | 110 | 190 | 61 | 320 | 152 |
| Manganese | mg/l | 1.6 | 1.4 | 9.1 | 0.48 | 0.97 | 0.89 | 0.99 | 0.97 | 1.0 | 1.3 | 1.5 | 2.5 | 3.4 | 0.96 | 1.4 | 1.3 | 1.5 | 0.48 | 9.1 | 2.2 |
| Potassium | mg/l | 50 | 53 | 200 | 19 | 18 | 12 | 13 | 11 | 11 | 9.3 | 62 | 18 | 17 | 14 | 24 | 28 | 52 | 9.3 | 200 | 42 |
| Sodium | mg/l | 1,200 | 1,000 | 630 | 920 | 1,400 | 410 | 400 | 460 | 490 | 310 | 1,100 | 440 | 350 | 390 | 660 | 660 | 930 | 310 | 1,400 | 681 |
| Bromide | mg/l | 5.0 | NA | <2.5 | <2.5 | <5.0 | <5.0 | NA | <5.0 | NA | 1.0 | <5.0 | <5.0 | <2.5 | <1.0 | <5.0 | NA | NA | <1.0 | 5.0 | 3.0 ⁽²⁾ |
| Chloride | mg/l | 2,300 | 1,800 | 1,000 | 1,700 | 2,400 | 1,000 | 880 | 940 | 860 | 600 | 1,900 | 1,400 | 930 | 490 | 1,400 | 1,100 | 1,600 | 490 | 2,300 | 1,268 |
| Fluoride | mg/l | <2.5 | <5.0 | <2.5 | <2.5 | <5.0 | <5.0 | <2.5 | <5.0 | <2.5 | <1.0 | <5.0 | <5.0 | <2.5 | <1.0 | <5.0 | <2.5 | <2.5 | <1.0 | <5.0 | ND |
| Zinc | mg/l | NA | 0.14 | NA | NA | NA | NA | 0.084 | NA | 0.024 | NA | NA | NA | NA | NA | NA | 0.033 | 0.056 | 0.024 | 0.14 | 0.08 |
| Nitrate-N | mg/l | <0.55 | <1.1 | <0.55 | <0.55 | <1.1 | 1.7 | 2.0 | 2.8 | 1.4 | <0.22 | <1.1 | <1.1 | <0.55 | 0.22 | <1.1 | <0.55 | <0.55 | <0.22 | 2.8 | 1.6 ⁽²⁾ |
| Nitrite-N | mg/l | <7.5 | <1.50 | <0.75 | <3.0 | <7.5 | <3.0 | <1.5 | <3.0 | <0.750 | <1.5 | <3.0 | <3.0 | <1.5 | <0.75 | <1.5 | <0.75 | <0.75 | <0.75 | <7.5 | ND |
| Orthophosphate | mg/l | <2.5 | 0.56 | <2.5 | <2.5 | <5.0 | <5.0 | < 0.050 | <5.0 | 0.097 | <1.0 | <5.0 | <5.0 | <5.0 | <1.0 | <5.0 | < 0.050 | NA | <1.0 | <5.0 | NA |
| Sulfate | mg/l | 770 | 610 | 530 | 840 | 920 | 510 | 440 | 570 | 510 | 410 | 650 | 510 | 470 | 430 | 580 | 400 | 610 | 410 | 920 | 573 |
| TDS | mg/l | 4,600 | 4,400 | 2,500 | 3,700 | 5,100 | 2,600 | 2,400 | 2,500 | 2,600 | 1,600 | 4,200 | 3,000 | 2,300 | 1,600 | 3,100 | 2,800 | 4,400 | 1,600 | 5,100 | 3,082 |
| EC | µmhos/cm | 7,080 | 7,100 | 4,000 | 5,905 | 7,540 | 3,700 | 4,000 | 3,880 | 4,200 | 1,854 | 6,490 | 4,690 | 3,570 | 1,891 | 4,600 | 4,800 | 6,700 | 1,891 | 7,540 | 4,687 |
| DO | mg/l | 3.35 | NA | 1.38 | 1.44 | 2.09 | 4.16 | NA | 3.23 | NA | 6.17 | 1.79 | 1.62 | 1.76 | 1.24 | 1.4 | NA | | 1.24 | 6.17 | 2.59 |
| рН | pH units | 6.88 | 7.59 | 7.31 | 7.7 | 7.10 | 6.84 | 7.14 | 7.03 | 6.91 | 7.37 | 7.22 | 7.04 | 6.93 | 7.42 | 7.25 | 7.29 | 7.37 | 6.84 | 7.7 | 7.22 |
| Temperature | °C | 23.7 | NA | 24.0 | 21.3 | 23.9 | 21.4 | NA | 21.8 | NA | 25.4 | 23.5 | 21.6 | 25.0 | 21.9 | 20.6 | NA | 21 | 20.6 | 25.4 | 22.68 |
| Redox Potential | mv | -80 | NA | -125 | -190 | 45 | 87 | NA | 100 | NA | -130 | -118 | -52 | -105 | -155 | -15 | NA | | -190 | 100 | -58 |
| Odor | T.O.N. | NA | NA | NA | <1.0 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | <1.0 | | | |
| Turbidity | NTU | NA | 14 | NA | 180 | NA | NA | <1.0 | NA | <1.0 | NA | NA | NA | NA | NA | NA | 26 | NA | <1.0 | 180 | NA |
| MBAS | mg/l | NA | NA | NA | <0.10 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | | | |
| Color | Color units | NA | NA | NA | 20 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | | | |
| Silicon | mg/l | NA | 32 | NA | NA | NA | NA | 31 | NA | 30 | NA | NA | NA | NA | NA | NA | 29 | 33 | 29 | 32 | 31 |
| Bicarbonate | mg/l | NA | 330 | NA | NA | NA | NA | 260 | NA | 340 | NA | NA | NA | NA | NA | NA | 420 | 380 | 260 | 420 | 344 |
| Hardness | mg/l | NA | 1,300 | NA | NA | NA | NA | 1,100 | NA | 1,100 | NA | NA | NA | NA | NA | NA | 1,000 | 1,600 | 1,000 | 1,300 | 1,191 |
| | | | | | | | | | | | | | | | | | | | | | |

FOOTNOTES

- (1) Average calculated using detected and non-detected values.
- (2) Average calculated using only detected values.
 - mg/I = Milligrams per liter
 - NA = Not analyzed
 - (<) = Less than
 - TDS = Total dissolved solids
 - EC = Electrical conductivity
 - DO = Dissolved oxygen
 - MBAS = Methylene Blue Activated Substances
 - ND = Non-detect
 - μ mhos/cm = Micromhos per centimeter
 - °C = Degrees centigrade
 - mv = Millivolts
 - T.O.N. = Threshold Odor Number
 - NTU = Nephalometric turbidity units
 - NA = Not analyzed
 - (--) = Not applicable

WATER QUALITY COMPARISON

| | | GROUNDWATER MONITORING RESULTS | | | NORTH CITY RECLAMATION PLANT ⁽¹⁾ | 4S WWTP EXPECTED EFFLUENT ⁽²⁾ | WATER QUALITY OBJECTIVES SOLANA BEACH (HA-905.10) ⁽³⁾ |
|-----------------|-------------|-----------------------------------|---------|-----------------------|---|--|---|
| COMPOUND | UNITS | MINIMUM | MAXIMUM | AVERAGE | AVERAGE | | |
| Boron | mg/l | 0.20 | 1.1 | 0.73 | 0.508 | 0.51 | 0.75 |
| Calcium | mg/l | 96 | 390 | 239 | 57.6 | | |
| Iron | mg/l | <0.040 | 470 | 44.3 ⁽⁴⁾ | 0.153 | 0.07 | 0.85 |
| Magnesium | mg/l | 61 | 320 | 154 | 23.1 | | |
| Manganese | mg/l | 0.48 | 9.1 | 2.1 | 0.074 | 0.05 | 0.15 |
| Potassium | mg/l | 9.3 | 200 | 38 | 11.0 | | |
| Sodium | mg/l | 310 | 1,400 | 689 | 147 | | |
| % Sodium | mg/l/% | | | 61.5 | 59 | 49 | 60 |
| Bromide | mg/l | <1.0 | 5.0 | 3.0 ⁽⁵⁾ | | | |
| Chloride | mg/l | 490 | 2,300 | 1,340 | 187 | 175 | 500 |
| Fluoride | mg/l | <1.0 | <5.0 | ND | 0.4 | 0.4 | 1.0 |
| Nitrate-N | mg/l | <0.22 | 2.8 | 1.6 ⁽⁵⁾ | | | 45 |
| Nitrite-N | mg/l | <0.75 | <7.5 | ND | | | |
| Orthophosphate | mg/l | <1.0 | <5.0 | ND | | | |
| Sulfate | mg/l | 410 | 920 | 599 | 226 | 246 | 500 |
| TDS | mg/l | 1,600 | 5,100 | 3,100 | 772 | 906 | 1,500 |
| EC | µmhos/cm | 1,891 | 7,540 | 4,600 | | | |
| DO | mg/l | 1.24 | 6.17 | 2.47 | | | |
| PH | pH units | 6.84 | 7.7 | 7.17 | 7.42 | 6.5 – 8.5 | |
| Temperature | °C | 20.6 | 25.4 | 22.8 | | | |
| Redox Potential | Μv | -190 | 100 | -61.5 | | | |
| Odor | T.O.N. | | | <1.0 ⁽⁶⁾ | | | NONE |
| Turbidity | NTU | | | 180 ⁽⁶⁾ | 1.5 | 2 | 5 |
| MBAS | mg/l | | | < 0.10 ⁽⁶⁾ | 0.17 | 0.08 | 0.5 |
| Color | Color units | | | 20 ⁽⁶⁾ | | | 15 |

NOTE: Refer to page 2 of this table for footnotes.

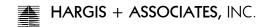
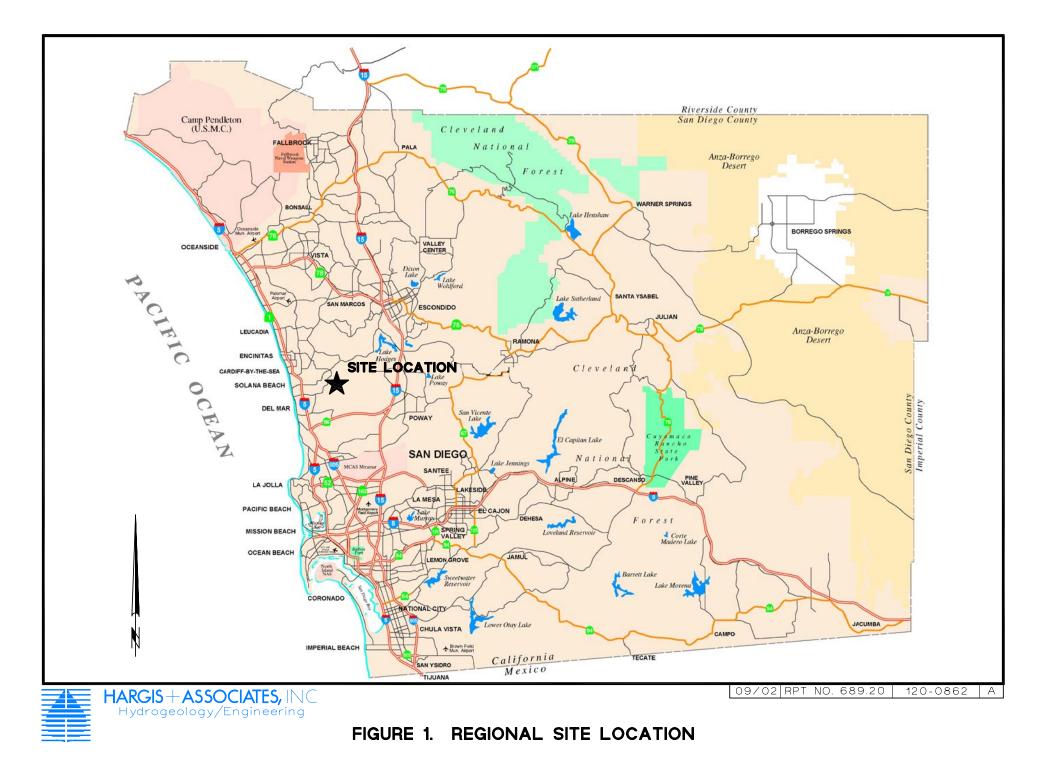


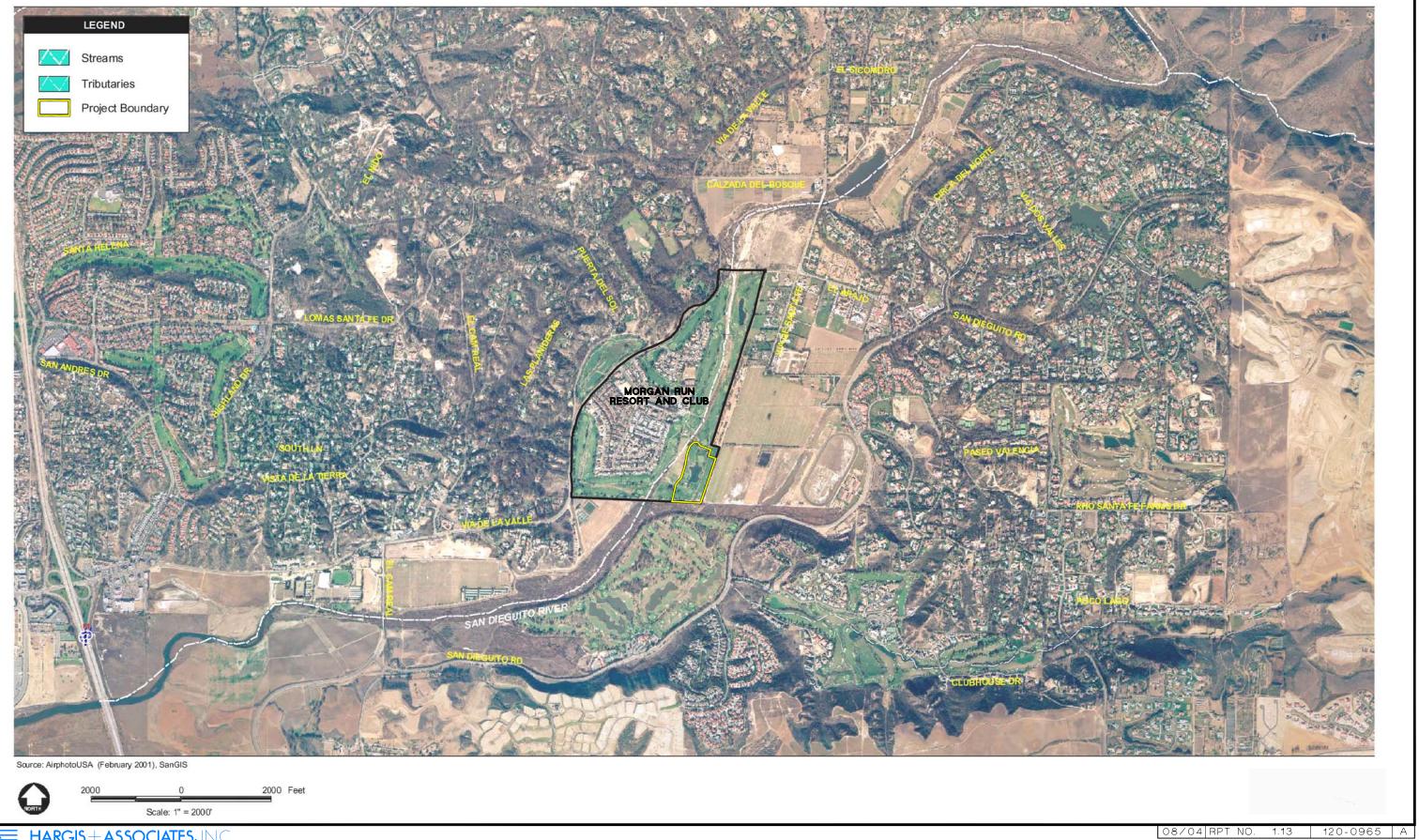
TABLE 3

WATER QUALITY COMPARISON

FOOTNOTES

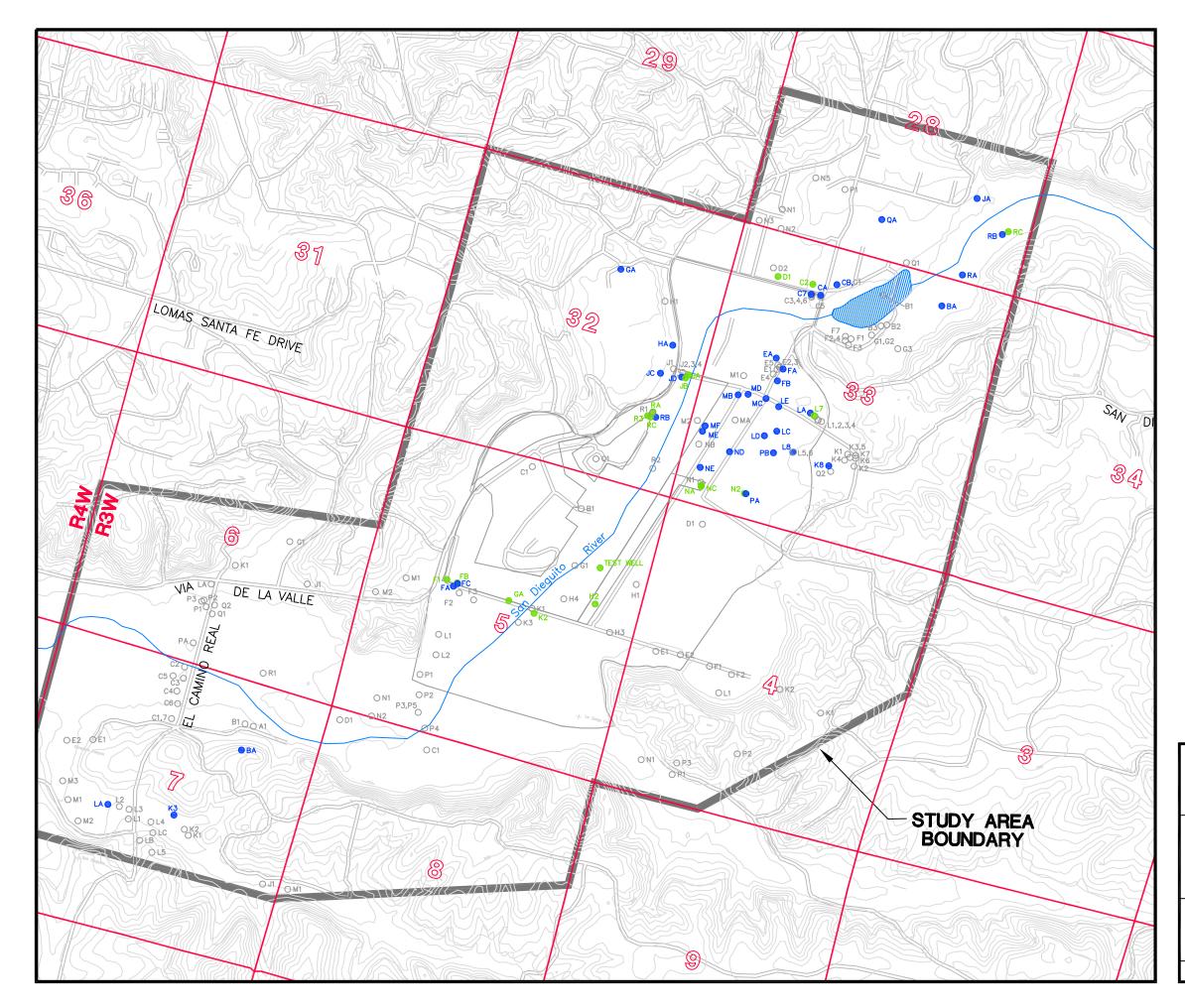
- (1) Average of data from April December 2000.
- (2) From Table 2-2 of Montgomery Watson report.
- (3) San Diego Regional Water Quality Control Board Basin Plan, 1994.
- (4) Average calculated using detected and non-detected values.
- (5) Average calculated using only detected values.
- (6) Only one analysis was run for these analytes.
 - mg/l = Milligrams per liter
 - (<) = Less than
- % Sodium = Na \div (Na + Ca + Mg + K) x 100%
 - TDS = Total dissolved solids
 - EC = Electrical conductivity
 - DO = Dissolved oxygen
 - MBAS = Methylene Blue Activated Substances
- μ mhos/cm = Micromhos per centimeter
 - °C = Degrees centigrade
 - mv = Millivolts
 - T.O.N. = Threshold Odor Number
 - NTU = Nephalometric turbidity units
 - NA = Not analyzed
 - WWTP = Waste Water Treatment Plant



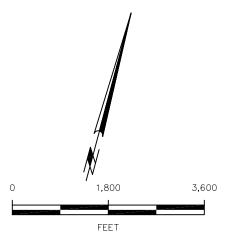




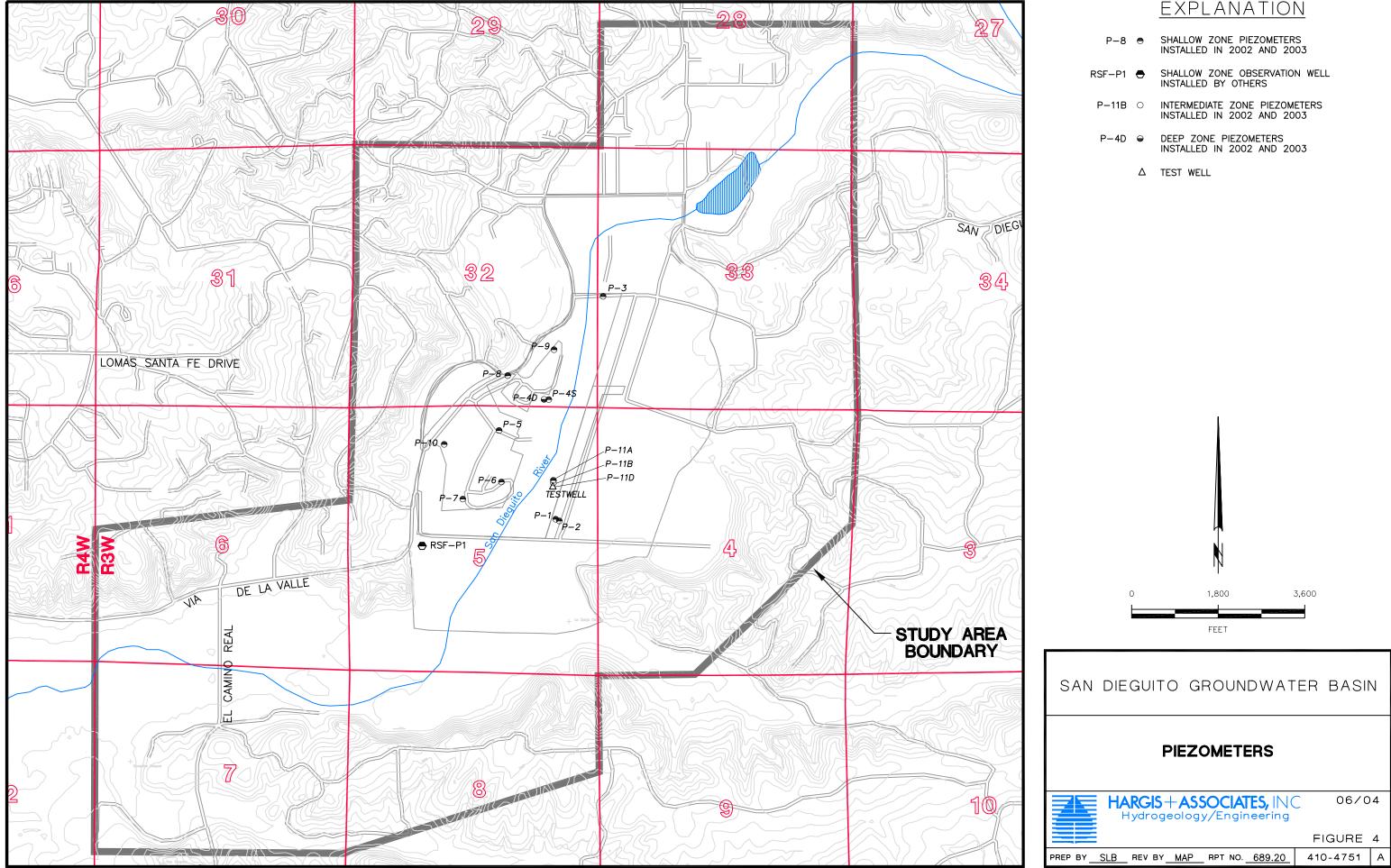


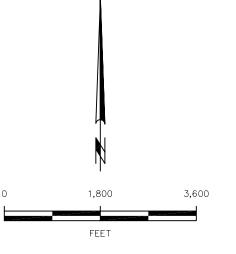


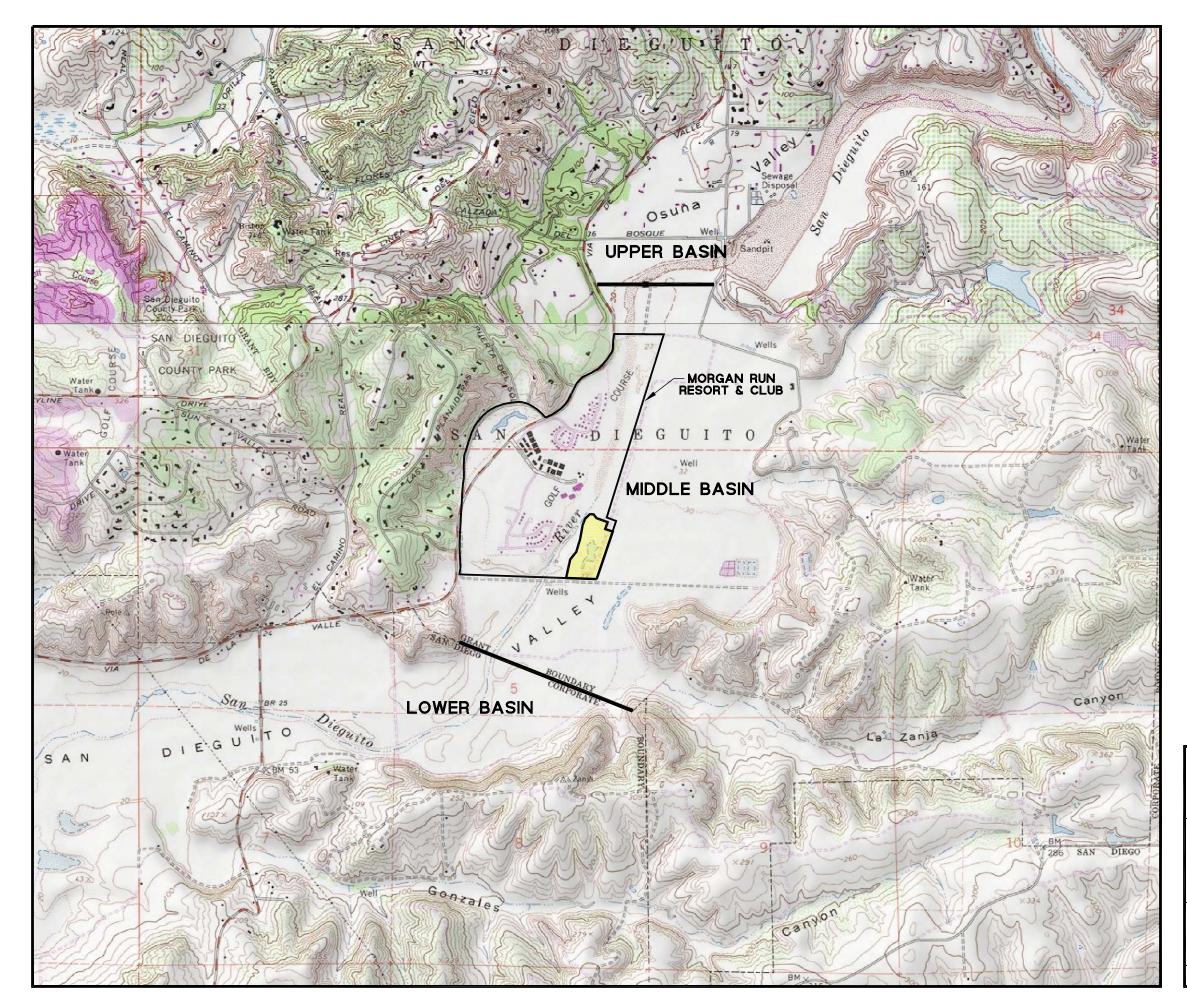
- JA LOCATION OF ACTIVE AND PROBABLY ACTIVE WELL IN STUDY AREA
- RC LOCATION OF INACTIVE WELL IN STUDY AREA
- Q1 O LOCATION OF DESTROYED WELL IN STUDY AREA AND WELLS THAT COULD NOT BE LOCATED OR WHOSE EXISTENCE IS UNCERTAIN
- NOTE: WELL IDENTIFIERS ENDING IN NUMBERS ARE AN ABBREVIATION OF THE STATE WELL NUMBER. WELLS WITH IDENTIFIERS ENDING IN LETTERS HAVE NOT BEEN ASSIGNED A STATE WELL NUMBER, BUT ARE BASED ON A SIMILAR IDENTIFICATION SCHEME.

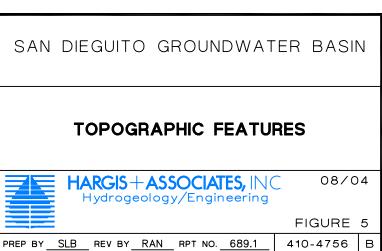


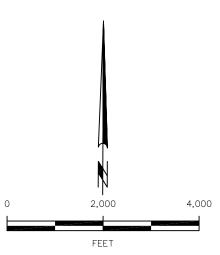
| SAN DIEGUITO GROUNDWATER | R BASII | N | | | | | |
|--|---------|---|--|--|--|--|--|
| REGIONAL WELLS | | | | | | | |
| HARGIS + ASSOCIATES, INC 08/04 Hydrogeology/Engineering | | | | | | | |
| | FIGURE | 3 | | | | | |
| PREP BY RAN REV BY MAP RPT NO. 689.20 4 | 10-4753 | В | | | | | |











PROJECT AREA



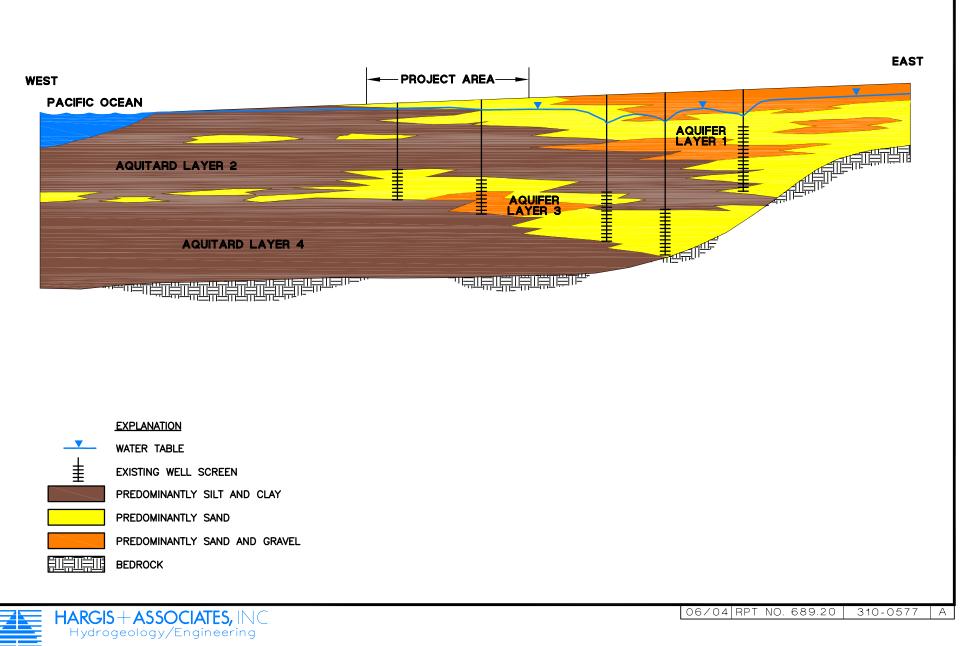
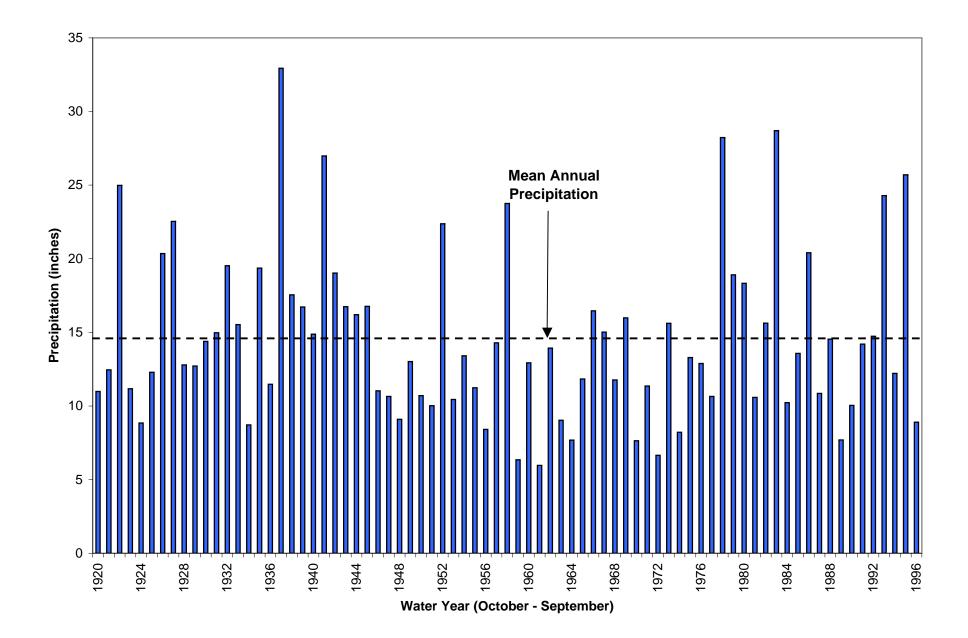
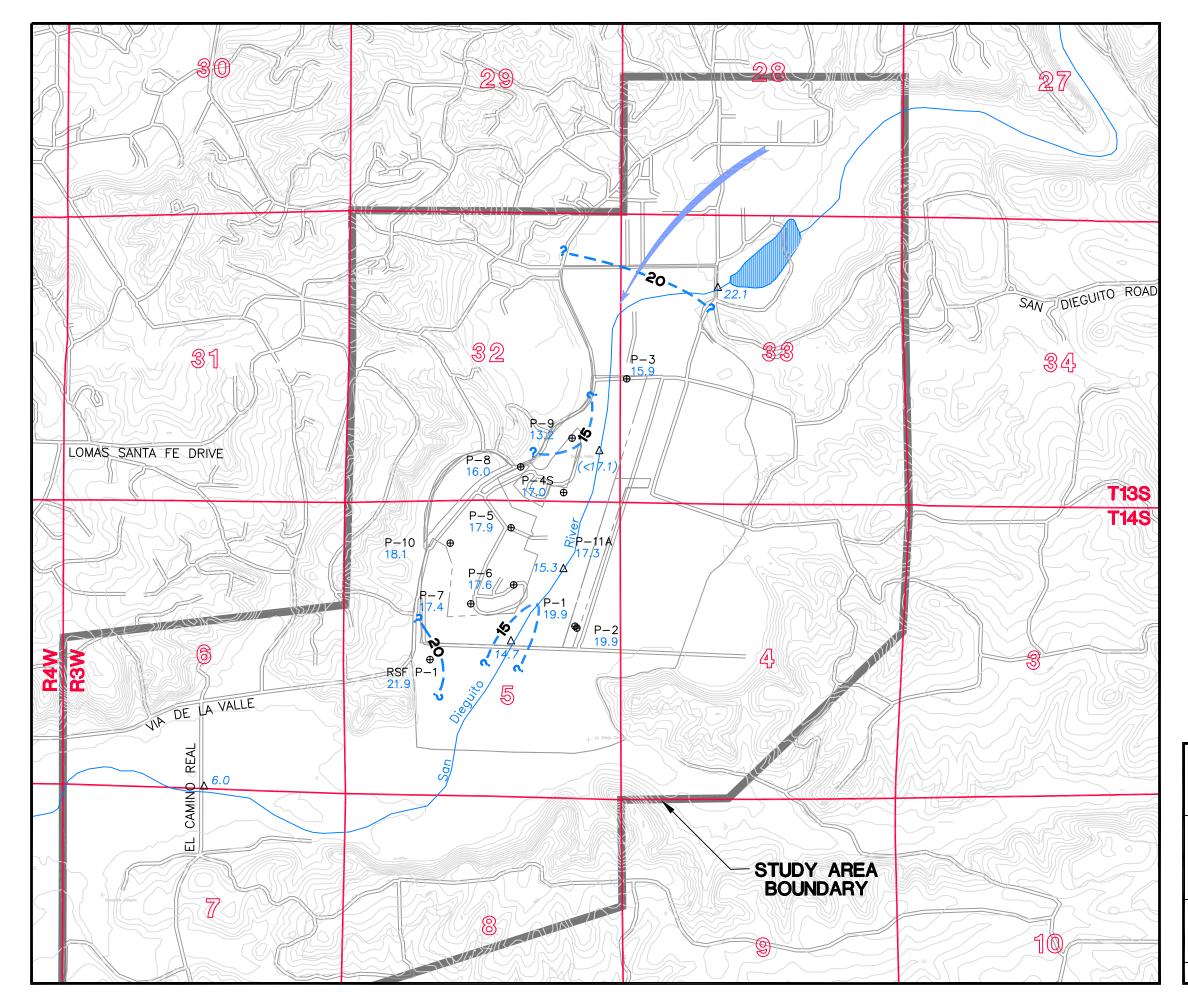


FIGURE 6. CONCEPTUAL GEOLOGY



689 Rpt 2004-1 Fig 07 08/17/04

FIGURE 7: ANNUAL PRECIPITATION



- P−1 ⊕ SHALLOW PIEZOMETER
 - 19.9 WATER LEVEL ELEVATION, IN FEET MEAN SEA LEVEL
 - (23.5) WATER LEVEL ELEVATION NOT CONTOURED

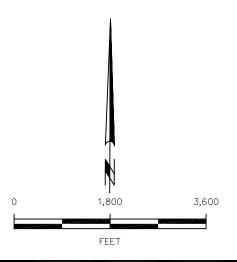
?_____ 20 - - - - -?

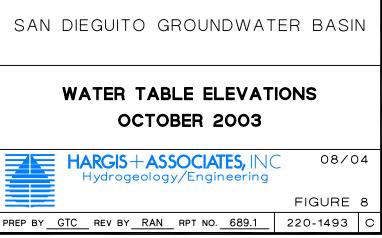
CONTOUR LINE OF EQUAL WATER LEVEL ELEVATION IN FEET MEAN SEA LEVEL, DASHED WHERE APPROXIMATE, QUERIED WHERE INFERRED

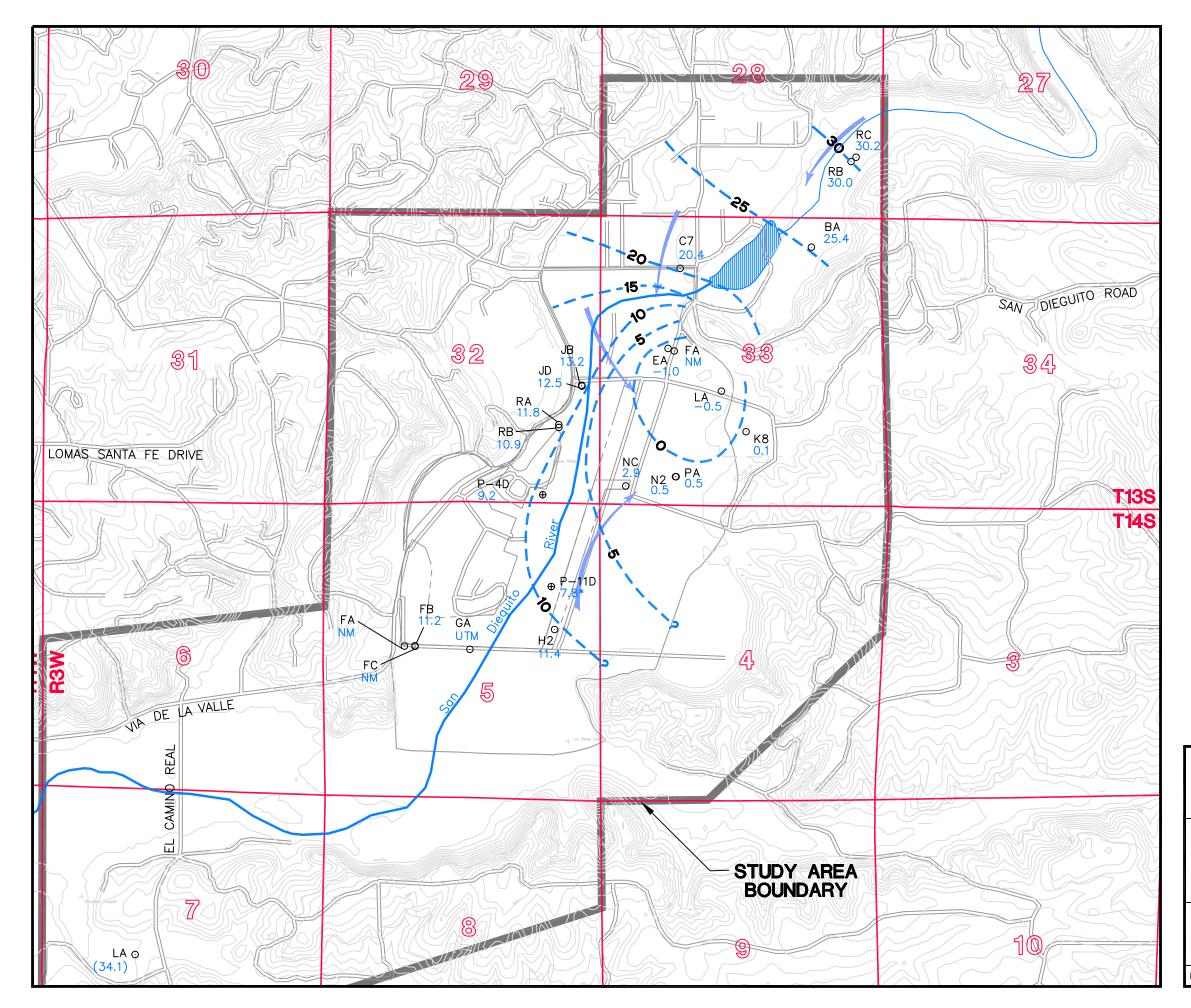
> INDICATES DIRECTION OF GROUNDWATER FLOW

NOTES: WATER LEVELS MEASURED ON OCTOBER 22-23, 2003

WELL IDENTIFIERS ENDING IN NUMBERS ARE AN ABBREVIATION OF THE STATE WELL NUMBER. WELLS WITH IDENTIFIERS ENDING IN LETTERS HAVE NOT BEEN ASSIGNED A STATE WELL NUMBER, BUT ARE BASED ON A SIMILAR IDENTIFICATION SCHEME.







- P-4D ⊕ DEEP PIEZOMETER
- RC O WATER LEVEL MONITORING WELL
- 30.2 WATER LEVEL ELEVATION, IN FEET MEAN SEA LEVEL
- (34.1) WATER LEVEL ELEVATION NOT CONTOURED
 - * WATER LEVEL RECORDED BY TRANSDUCER
- NM NOT MEASURED

?

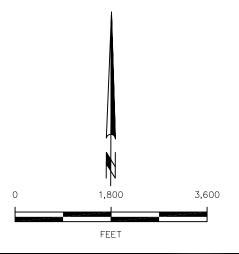
_____ 20 - - - - -?

CONTOUR LINE OF EQUAL WATER LEVEL ELEVATION IN FEET MEAN SEA LEVEL, DASHED WHERE APPROXIMATE, QUERIED WHERE INFERRED

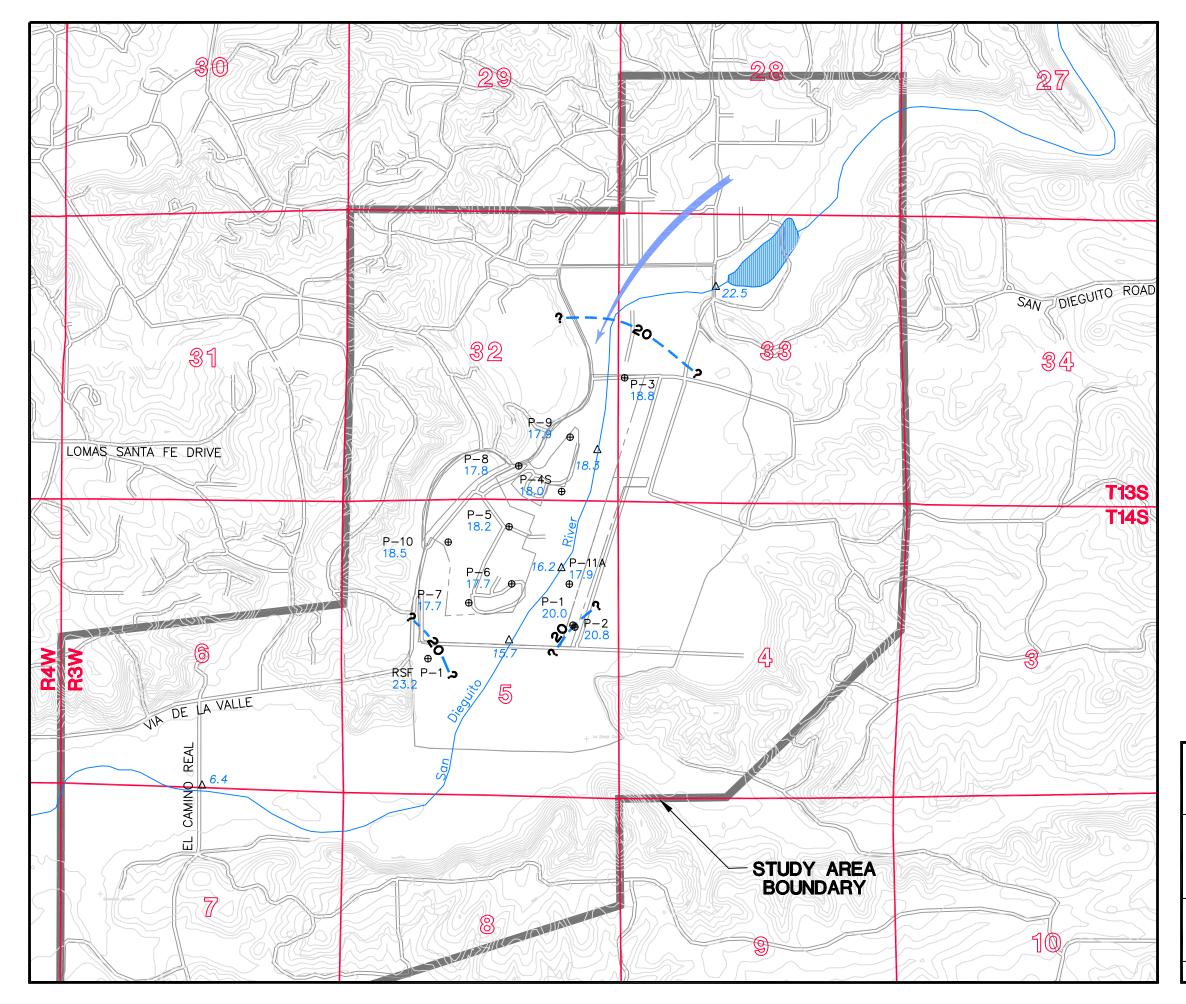
> INDICATES DIRECTION OF GROUNDWATER FLOW

NOTES: WATER LEVELS MEASURED ON OCTOBER 22-23, 2003

WELL IDENTIFIERS ENDING IN NUMBERS ARE AN ABBREVIATION OF THE STATE WELL NUMBER. WELLS WITH IDENTIFIERS ENDING IN LETTERS HAVE NOT BEEN ASSIGNED A STATE WELL NUMBER, BUT ARE BASED ON A SIMILAR IDENTIFICATION SCHEME.



SAN DIEGUITO GROUNDWATER BASIN DEEP WATER LEVEL ELEVATIONS OCTOBER 2003 MARGIS + ASSOCIATES, INC Hydrogeology/Engineering PREP BY_GTC_REV BY_RAN_RPT NO. 689.09 220-1496 C



- P−1 ⊕ SHALLOW PIEZOMETER
 - 20.0 WATER LEVEL ELEVATION, IN FEET MEAN SEA LEVEL
 - (23.5) WATER LEVEL ELEVATION NOT CONTOURED

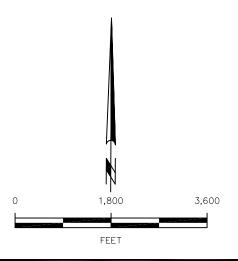
?_____ 20 - - - - -?

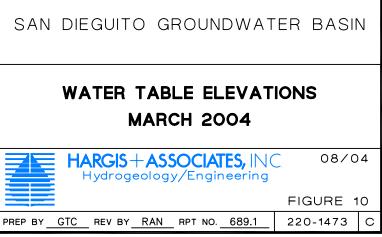
CONTOUR LINE OF EQUAL WATER LEVEL ELEVATION IN FEET MEAN SEA LEVEL, DASHED WHERE APPROXIMATE, QUERIED WHERE INFERRED

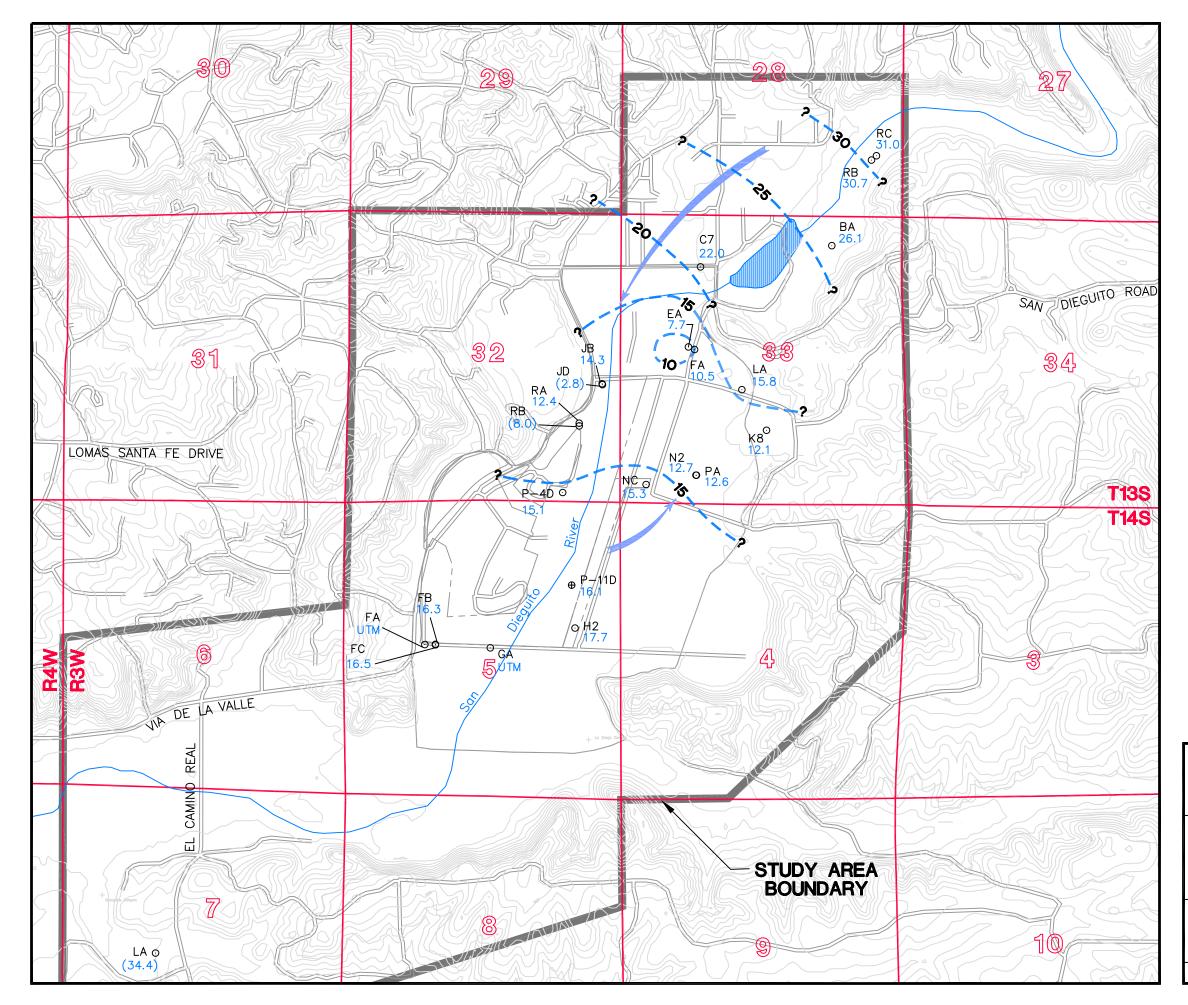
> INDICATES DIRECTION OF GROUNDWATER FLOW

NOTES: WATER LEVELS MEASURED ON MARCH 11-12, 2004

WELL IDENTIFIERS ENDING IN NUMBERS ARE AN ABBREVIATION OF THE STATE WELL NUMBER. WELLS WITH IDENTIFIERS ENDING IN LETTERS HAVE NOT BEEN ASSIGNED A STATE WELL NUMBER, BUT ARE BASED ON A SIMILAR IDENTIFICATION SCHEME.







P−11D ⊕ DEEP PIEZOMETER

?-

- EA O WATER LEVEL MONITORING WELL
- 7.7 WATER LEVEL ELEVATION, IN FEET MEAN SEA LEVEL
- UTM UNABLE TO MEASURE
- (8.0) WATER LEVEL ELEVATION NOT CONTOURED

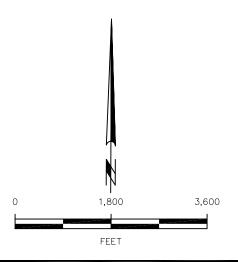
_____ 20 - _ _ _ _ ?

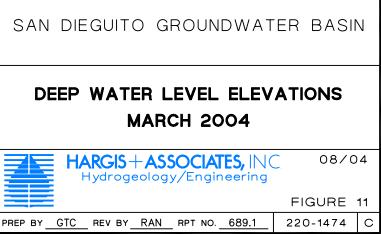
CONTOUR LINE OF EQUAL WATER LEVEL ELEVATION IN FEET MEAN SEA LEVEL, DASHED WHERE APPROXIMATE, QUERIED WHERE INFERRED

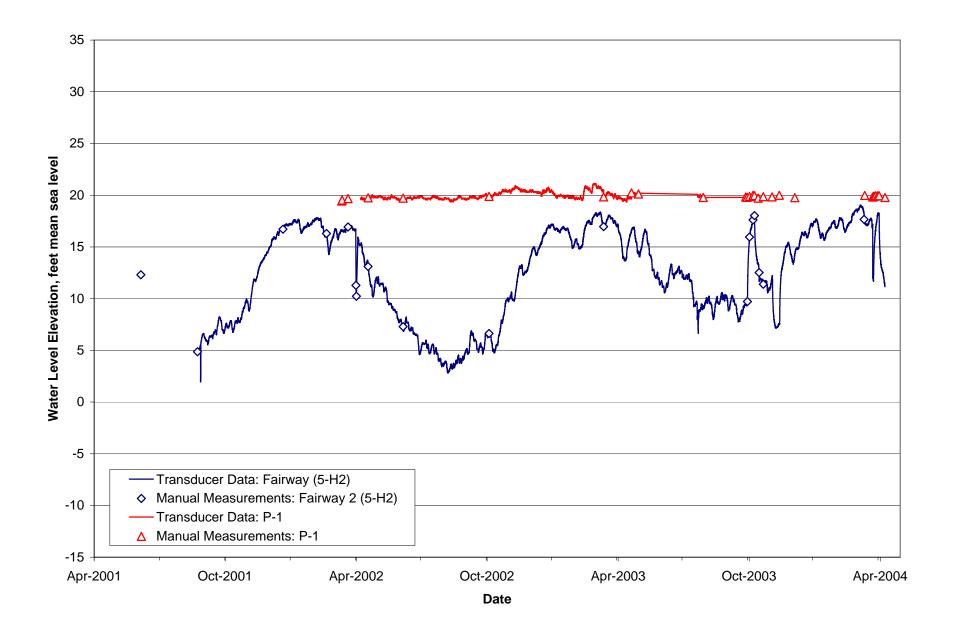
> INDICATES DIRECTION OF GROUNDWATER FLOW

NOTES: WATER LEVELS MEASURED ON MARCH 11-12, 2004

WELL IDENTIFIERS ENDING IN NUMBERS ARE AN ABBREVIATION OF THE STATE WELL NUMBER. WELLS WITH IDENTIFIERS ENDING IN LETTERS HAVE NOT BEEN ASSIGNED A STATE WELL NUMBER, BUT ARE BASED ON A SIMILAR IDENTIFICATION SCHEME.







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FIGURE 12: WATER LEVEL HYDROGRAPH, 5-H2 AND MORGAN RUN P-1

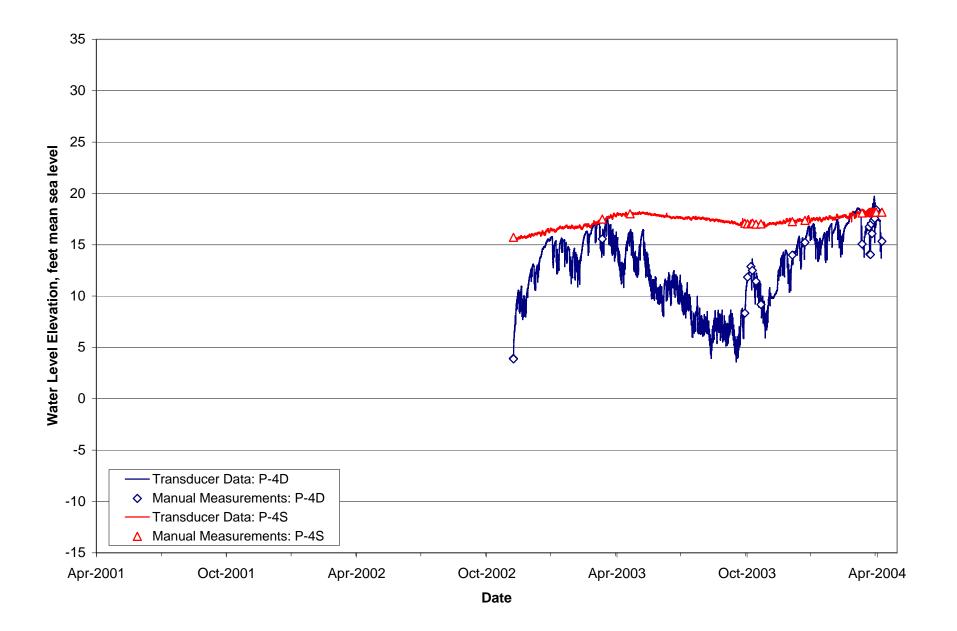
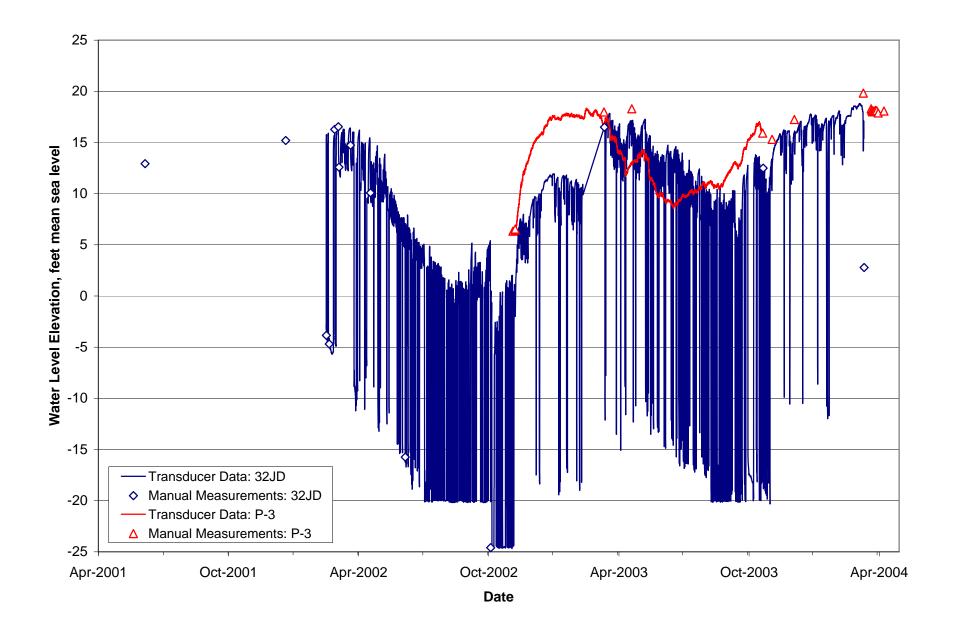
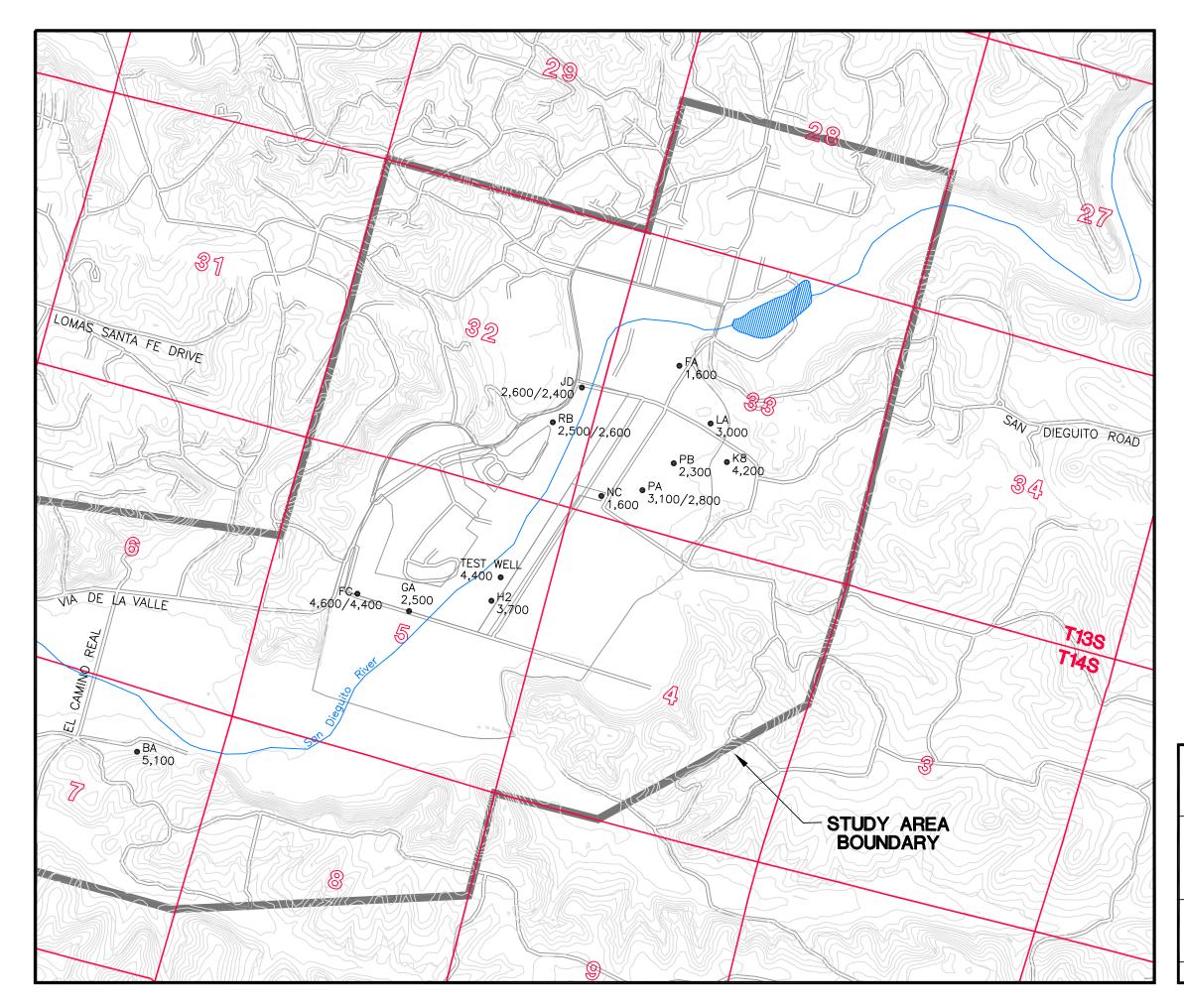


FIGURE 13: WATER LEVEL HYDROGRAPH, MORGAN RUN P-4S AND P-4D

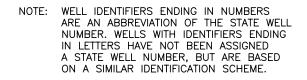


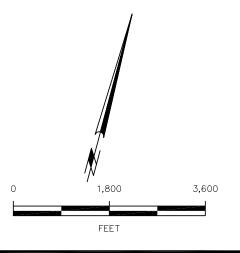
689 Rpt 2004-1 Fig 14 08/17/04

FIGURE 14: WATER LEVEL HYDROGRAPH, 32-JD AND MORGAN RUN P-3

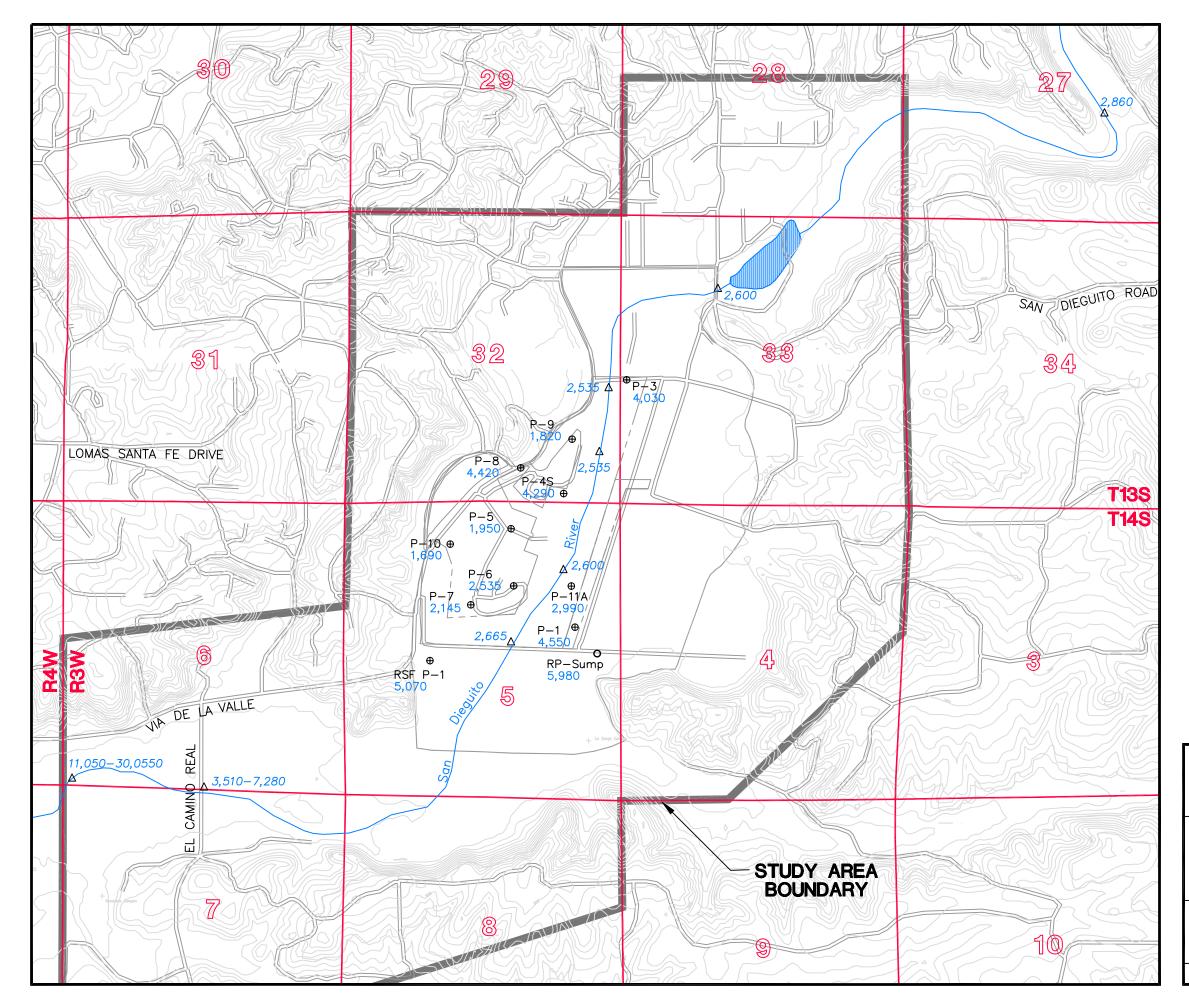


- H2 GROUNDWATER TDS CONCENTRATION 3,700 IN MILLIGRAMS PER LITER (mg/l)
 - NOTE: GROUNDWATER SAMPLES COLLECTED AUGUST-SEPTEMBER 2001/FEBRUARY-APRIL 2002 EXCEPT TEST WELL WHICH WAS CONSTRUCTED AND SAMPLED IN 2003
 - TDS = TOTAL DISSOLVED SOLIDS



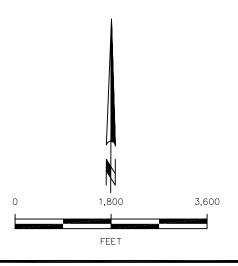


| SAN | DIEGUITO | GROUN | DWAT | ER BASII | N | |
|--|---------------|-----------|--------|----------|---|--|
| TOTAL DISSOLVED SOLIDS 2001/2002 | | | | | | |
| HARGIS+ASSOCIATES, INC 08/04 Hydrogeology/Engineering | | | | | | |
| | | | | FIGURE 1 | 5 | |
| PREP BY | MAP REV BY RA | N RPT NO. | 689.20 | 210-2322 | в | |
| | | | | | | |

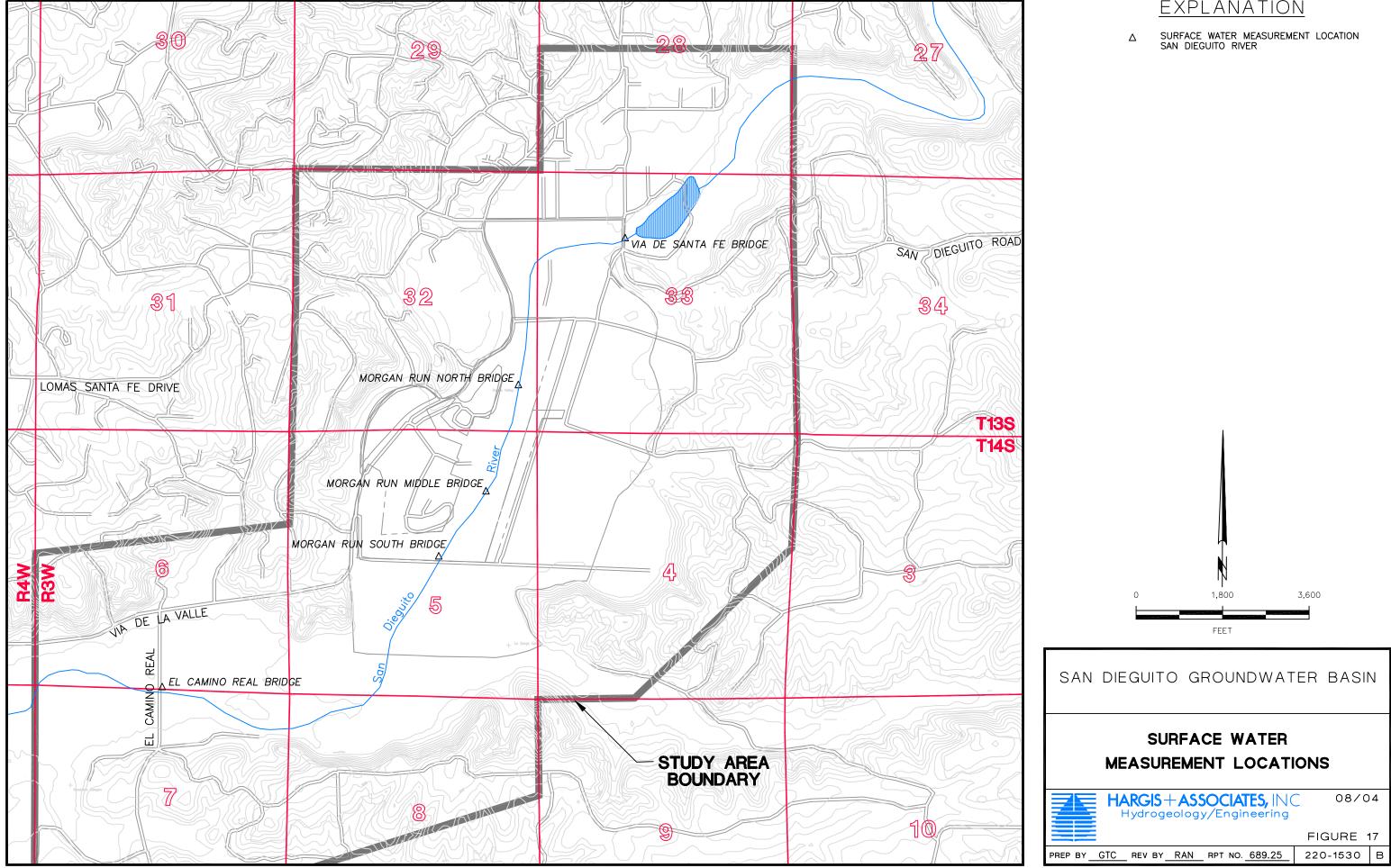


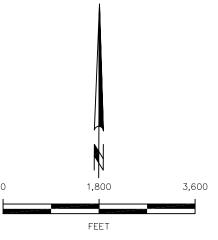
- △ SURFACE WATER MONITORING LOCATION SAN DIEGUITO RIVER
- P−1 ⊕ SHALLOW PIEZOMETER
- O SUMP

| 1,775 | TDS IN MILLIGRAMS PER LITER |
|-------|--------------------------------|
| | ESTIMATED FROM EC MEASUREMENT, |
| | SAMPLES COLLECTED IN 2003 |

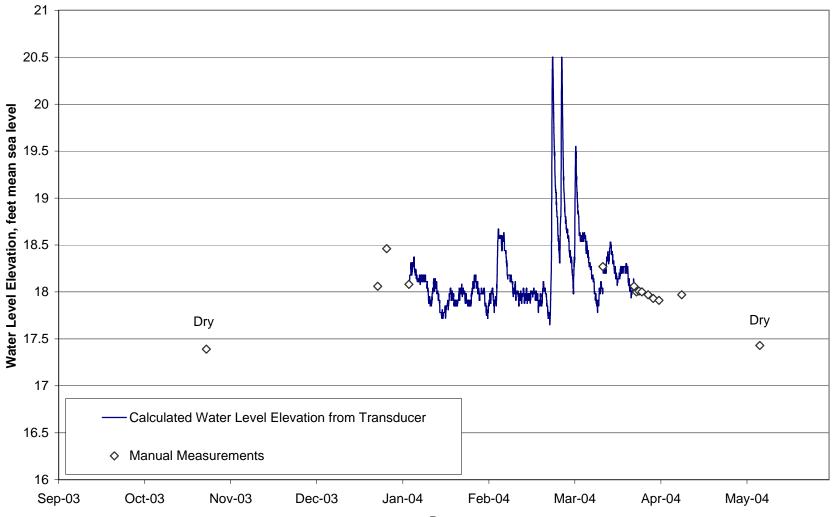


| SAN DIEGUITO GROUNDWAT | ER BASIN | ١ | | | | | |
|---|------------------|---|--|--|--|--|--|
| ESTIMATED TOTAL DISSOLVED SOLIDS SHALLOW ZONE AND SURFACE WATER, 2003 | | | | | | | |
| HARGIS + ASSOCIATES, IN(Hydrogeology/Engineering | 08/0 FIGURE 1 | | | | | | |
| PREP BY SLB REV BY RAN RPT NO. 689.1 | 410-4752 | в | | | | | |



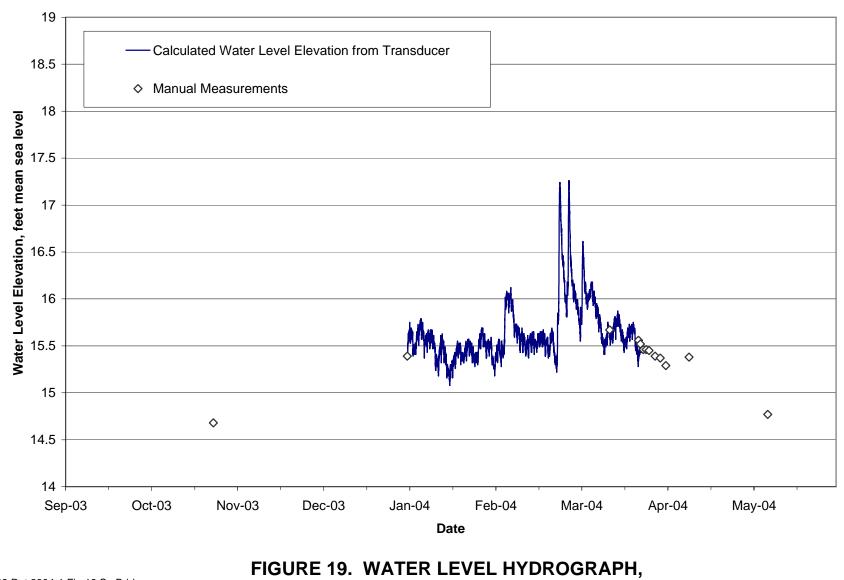


HARGIS + ASSOCIATES, INC.



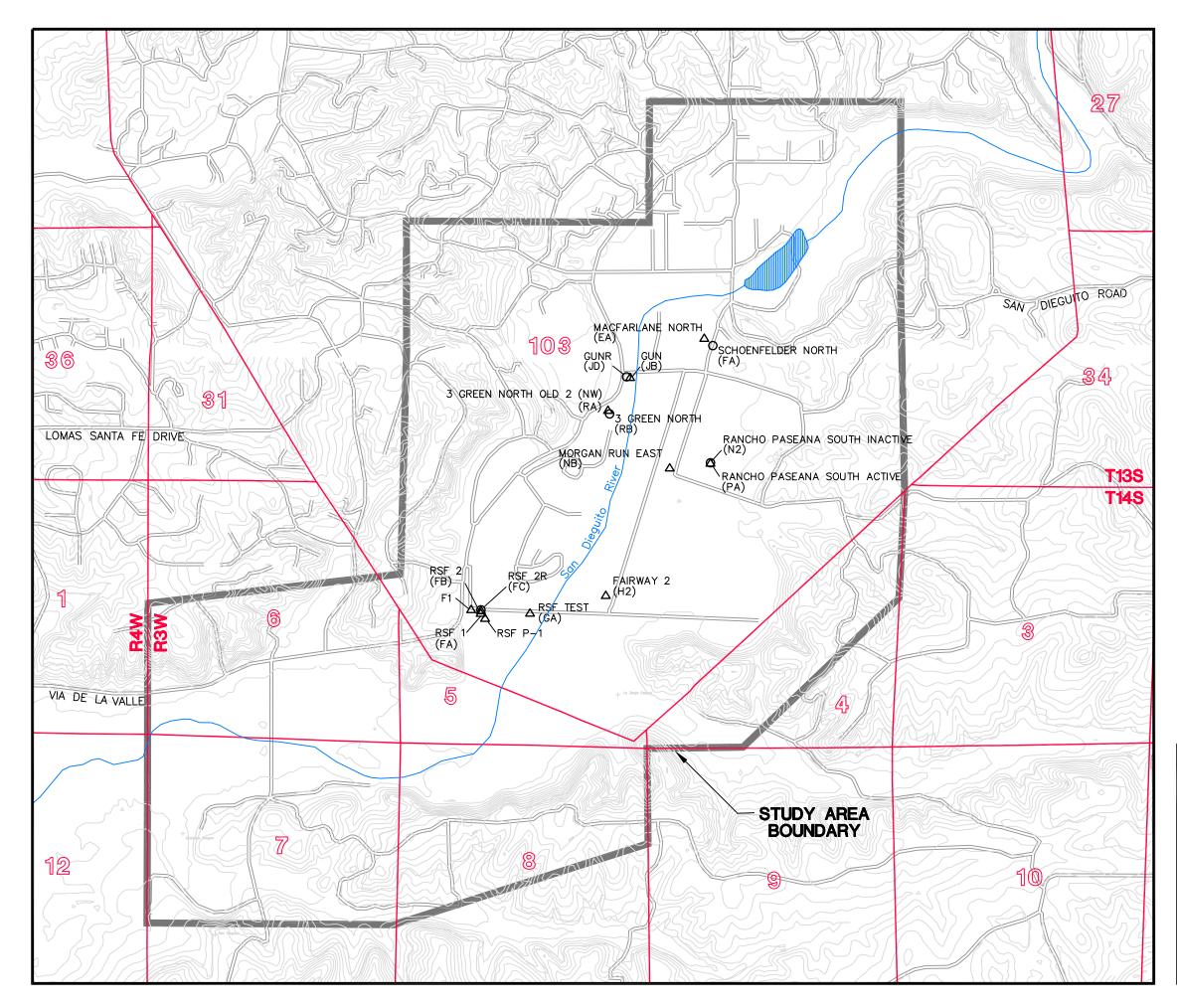
Date

FIGURE 18. WATER LEVEL HYDROGRAPH, MORGAN RUN NORTH BRIDGE



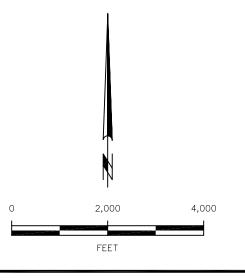
689 Rpt 2004-1 Fig 19 So Bridge 08/17/04

MORGAN RUN SOUTH BRIDGE



- O PUMPING TEST LOCATION
- Δ OBSERVATION WELL LOCATION

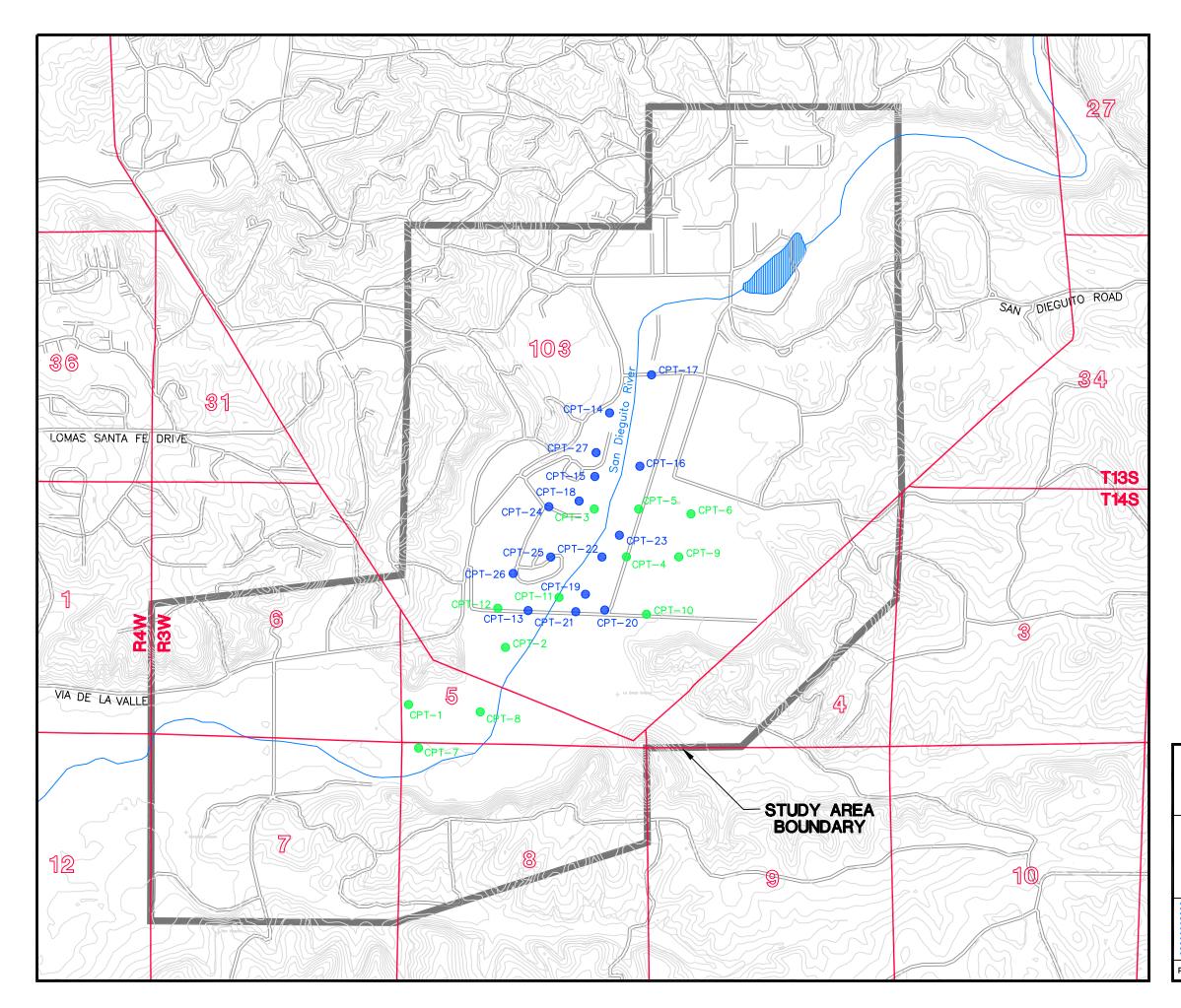
WELL IDENTIFIERS ENDING IN NUMBERS ARE AN ABBREVIATION OF THE STATE WELL NUMBER. WELLS WITH IDENTIFIERS ENDING IN LETTERS HAVE NOT BEEN ASSIGNED A STATE WELL NUMBER, BUT ARE BASED ON A SIMILAR IDENTIFICATION SCHEME.



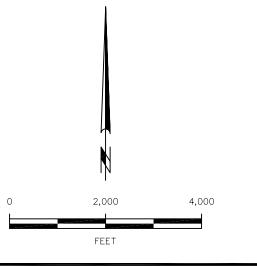
SAN DIEGUITO GROUNDWATER BASIN

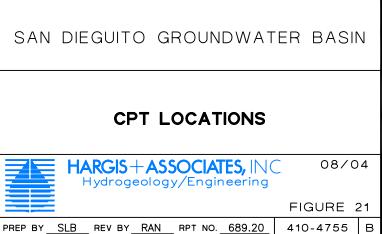
AQUIFER TEST LOCATIONS



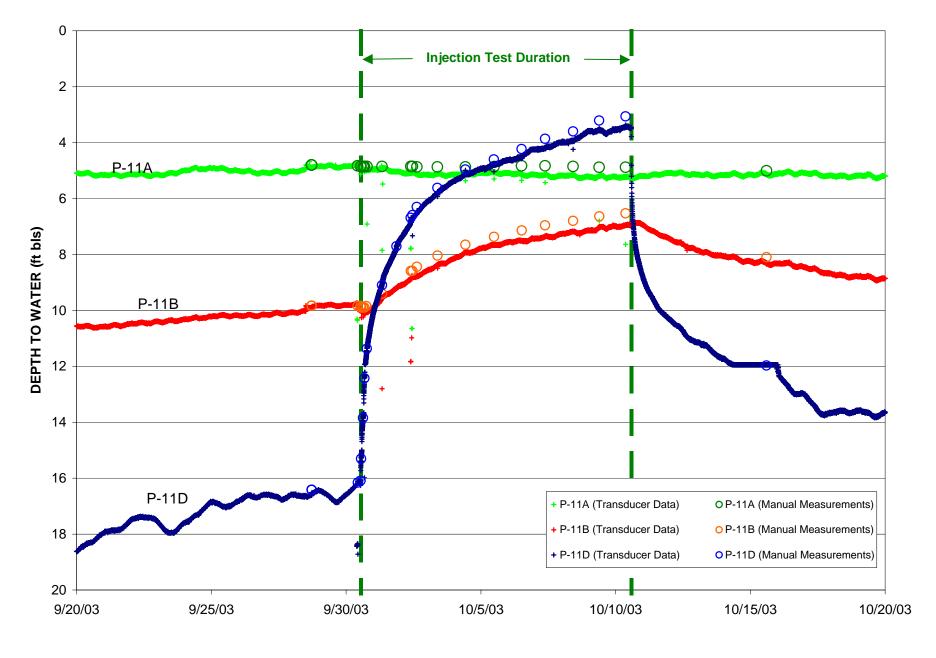


- ROUND I CPT LOCATION
- ROUND II CPT LOCATION
- CPT = CONE PENETROMETER TESTING



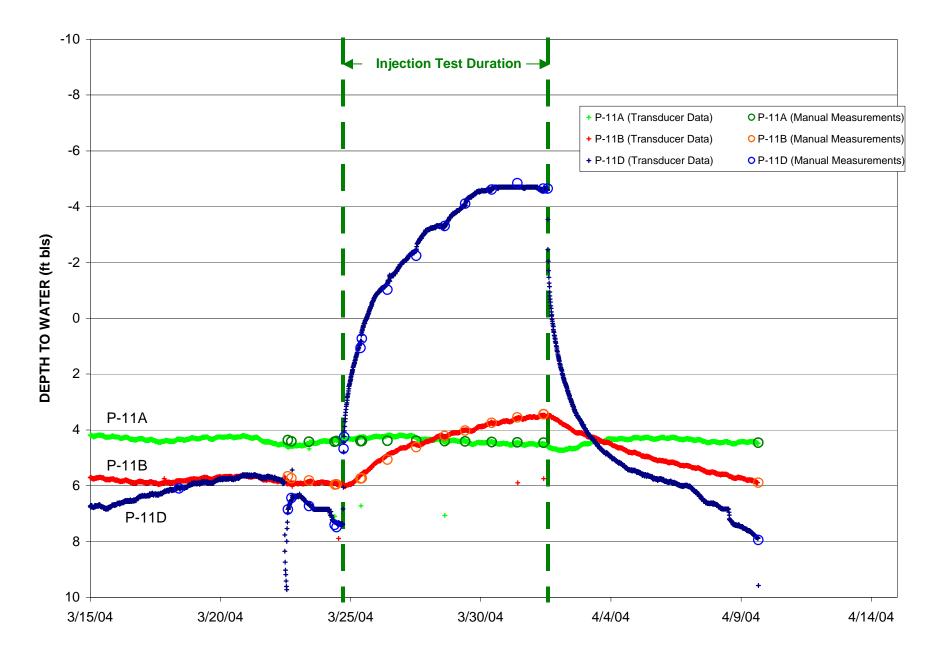


HARGIS + ASSOCIATES, INC.



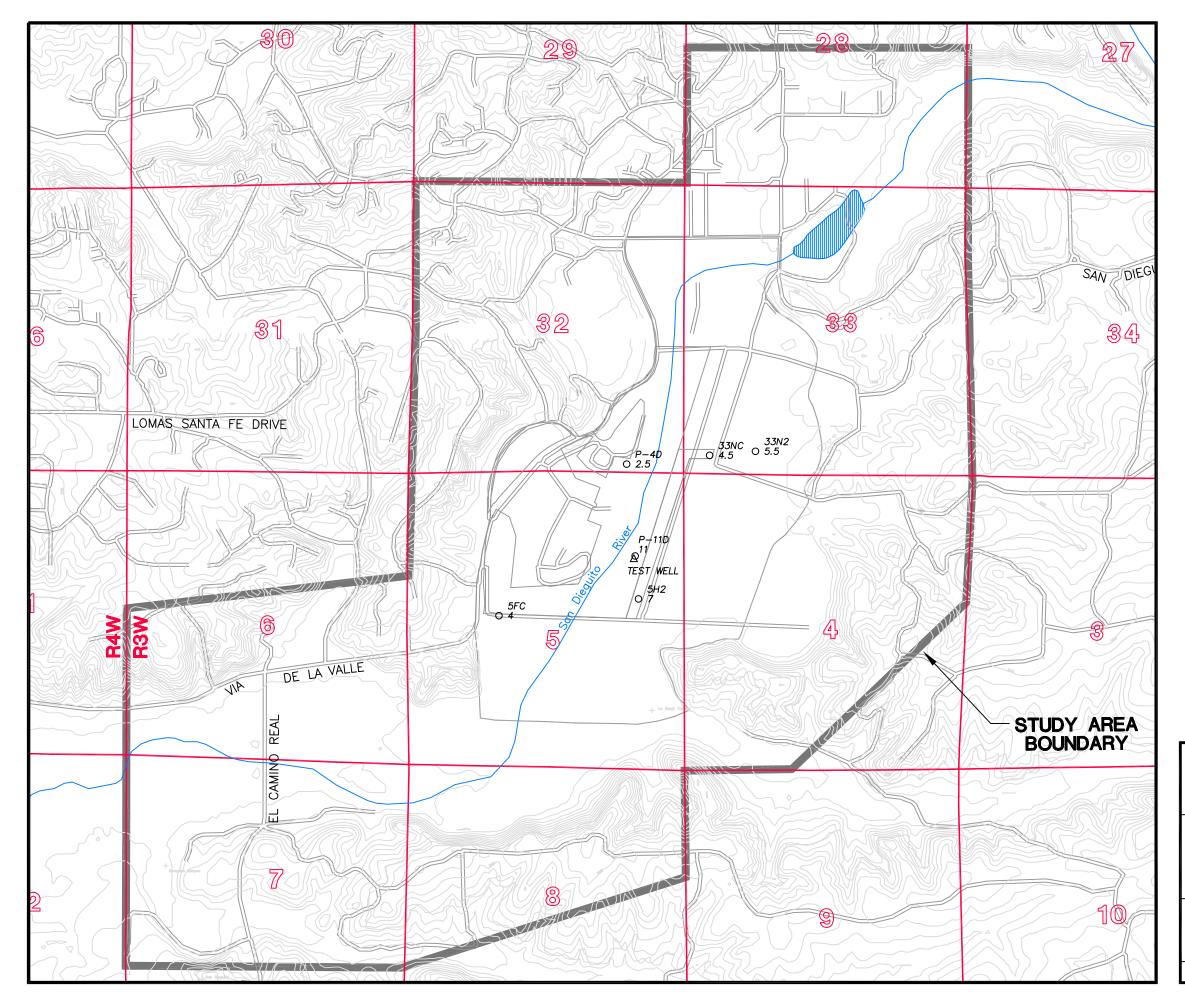
689 Rpt 2004-1 Fig 22 08/17/04

FIGURE 22: INJECTION TEST NO. 1 WATER LEVELS, PIEZOMETER CLUSTER P-11

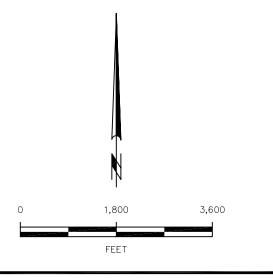


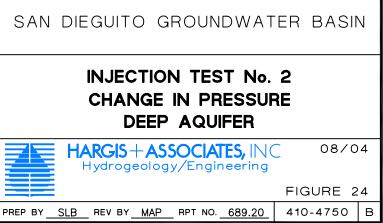
689 Rpt 2004-1 Fig 23 08/17/04

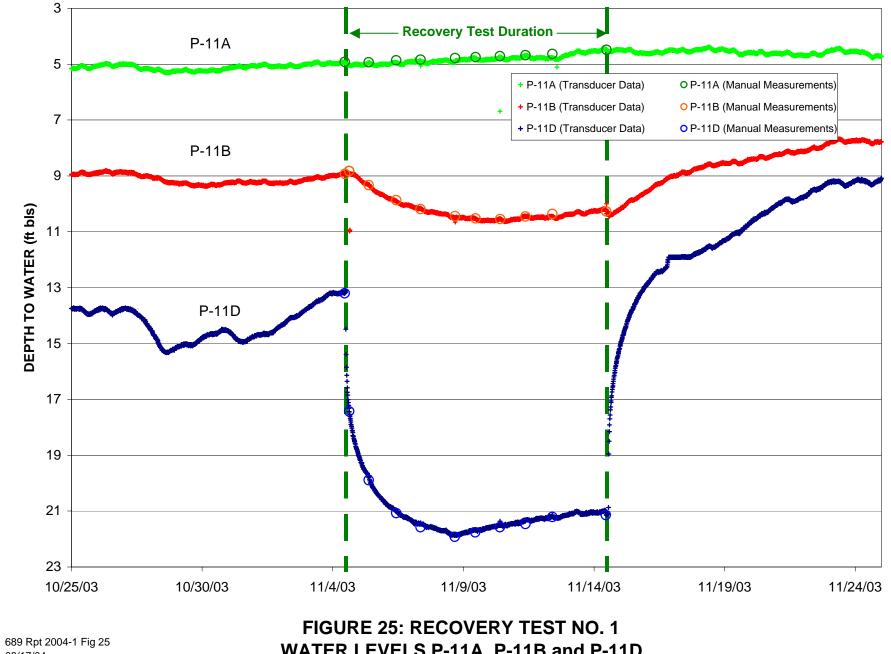
FIGURE 23: INJECTION TEST NO. 2 WATER LEVELS, PIEZOMETER CLUSTER P-11



- 5H2 O OBSERVATION WELL ID 7 MAXIMUM OBSERVED PRESSURE INCREASE (FEET OF WATER)
 - \triangle INJECTION/EXTRACTION WELL



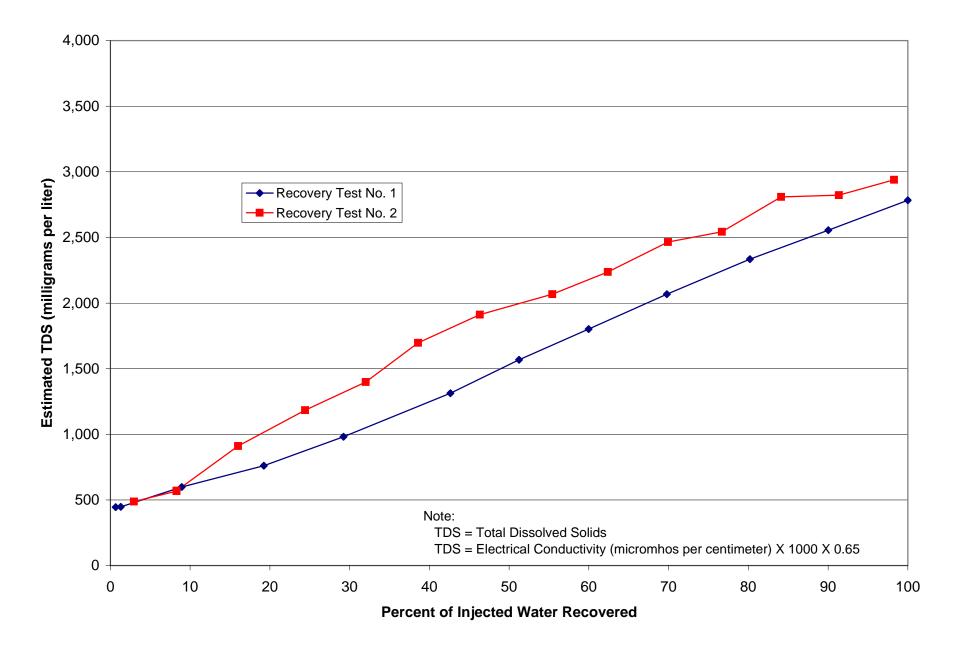




08/17/04

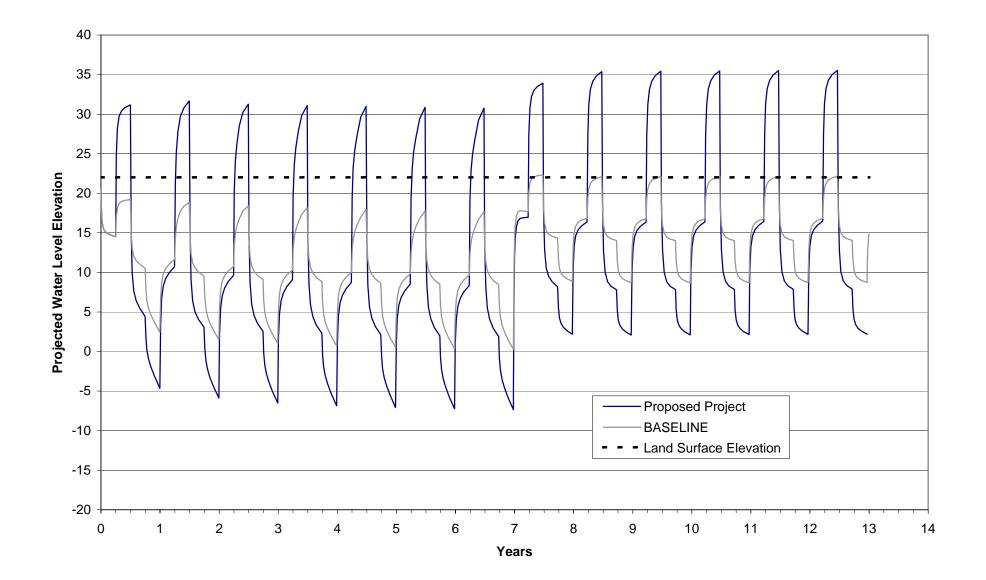
WATER LEVELS P-11A, P-11B and P-11D

HARGIS + ASSOCIATES, INC.



689 Rpt 2004-1 Fig 26 08/17/04

FIGURE 26: ESTIMATED TDS OF RECOVERED WATER



689 Rpt 2004-1 Fig 27 and 29 08/17/04 FIGURE 27. MODEL PROJECTED WATER LEVEL ELEVATIONS, WELL P-11D

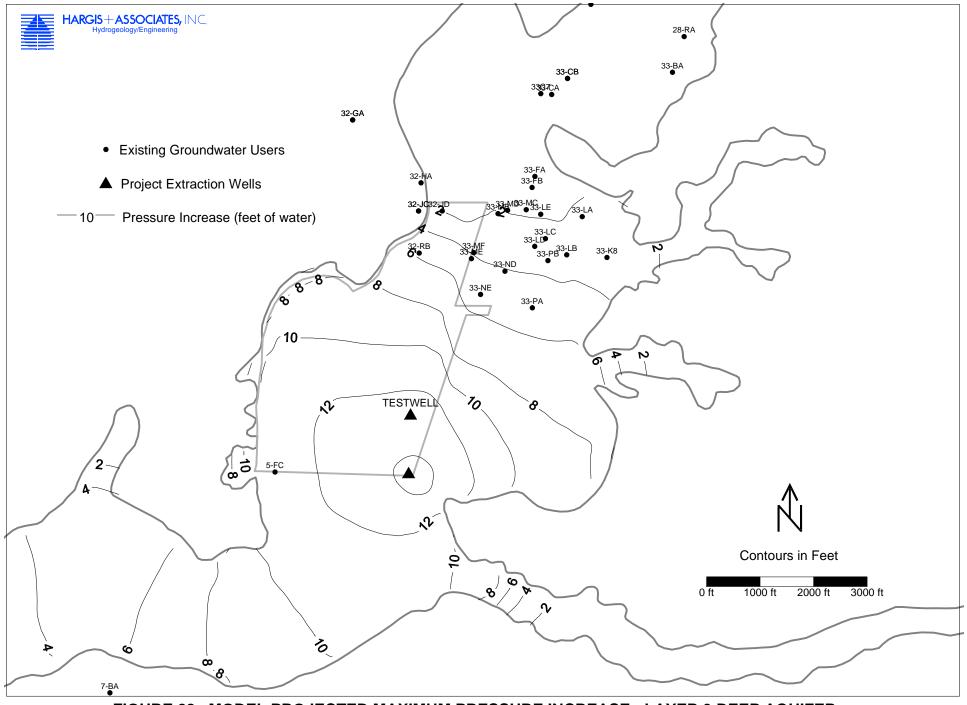
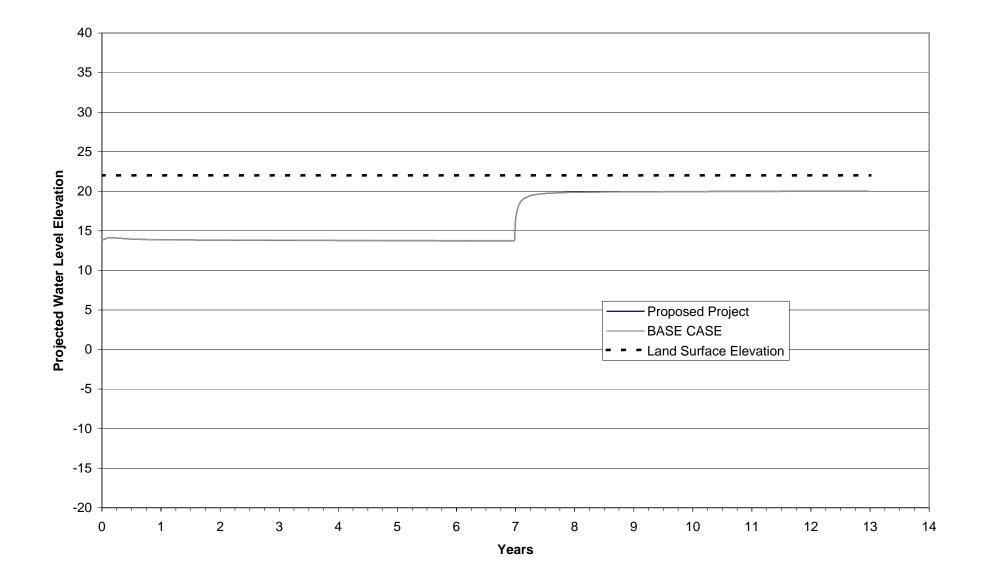


FIGURE 28. MODEL PROJECTED MAXIMUM PRESSURE INCREASE - LAYER 3 DEEP AQUIFER



689 Rpt 2004-1 Fig 27 and 29 08/17/04

FIGURE 29. MODEL PROJECTED WATER LEVEL ELEVATIONS, WELL P-11S

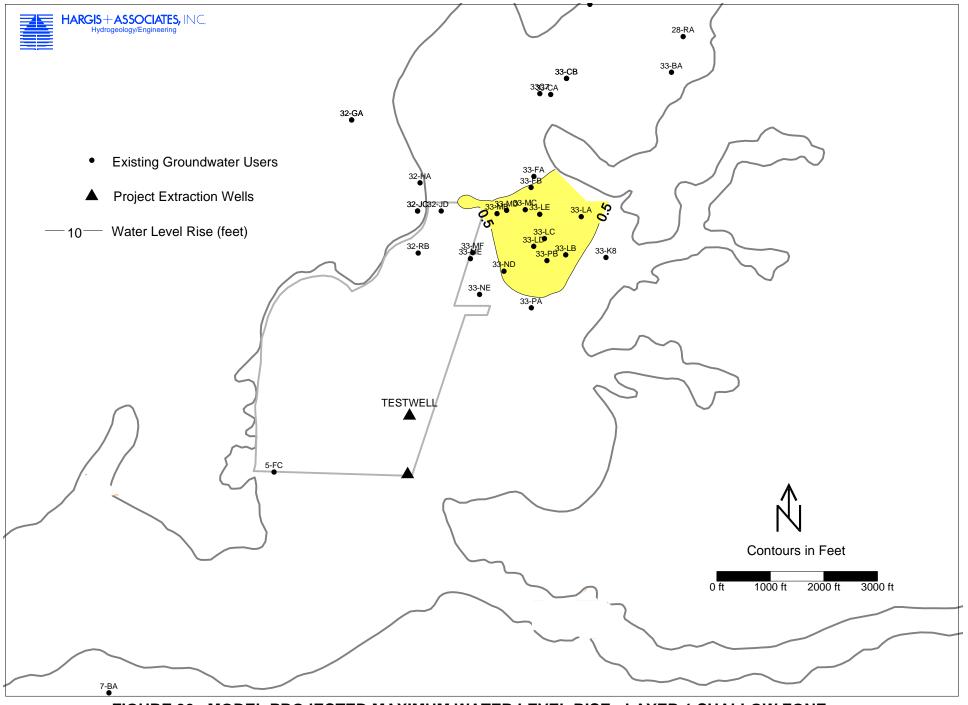


FIGURE 30. MODEL PROJECTED MAXIMUM WATER LEVEL RISE - LAYER 1 SHALLOW ZONE

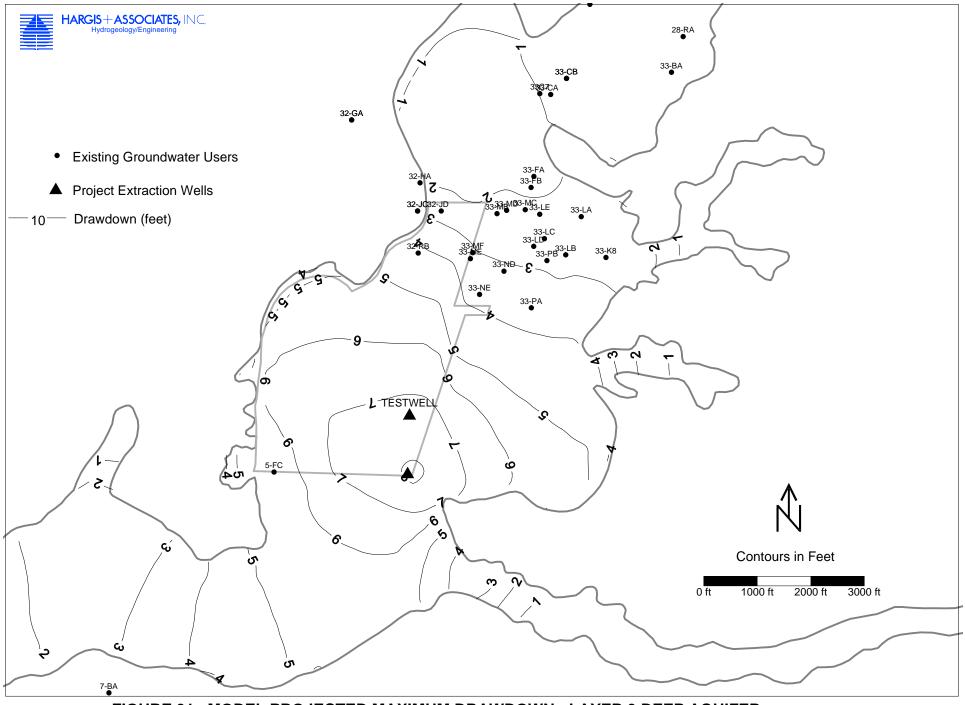
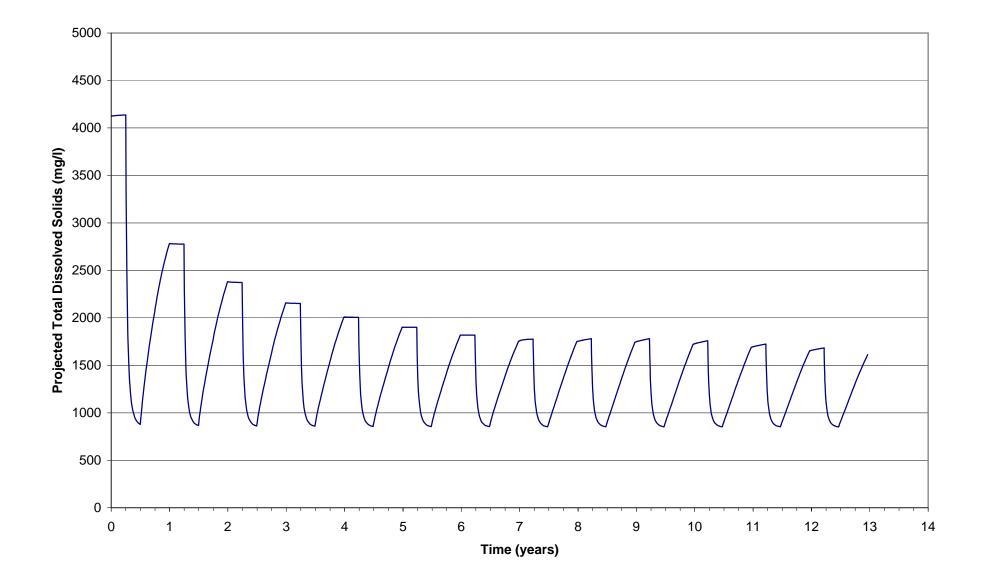


FIGURE 31. MODEL PROJECTED MAXIMUM DRAWDOWN - LAYER 3 DEEP AQUIFER



689 Rpt 2004-1 Fig 32 08/17/04

FIGURE 32. MODEL PROJECTED TOTAL DISSOLVED SOLIDS - TEST WELL

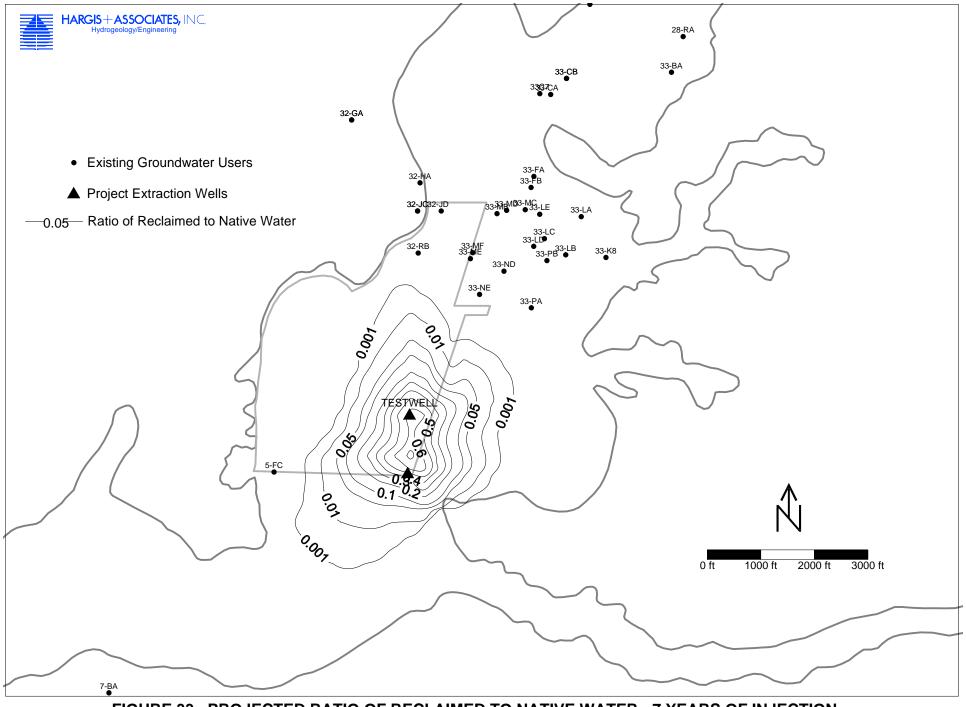


FIGURE 33. PROJECTED RATIO OF RECLAIMED TO NATIVE WATER - 7 YEARS OF INJECTION

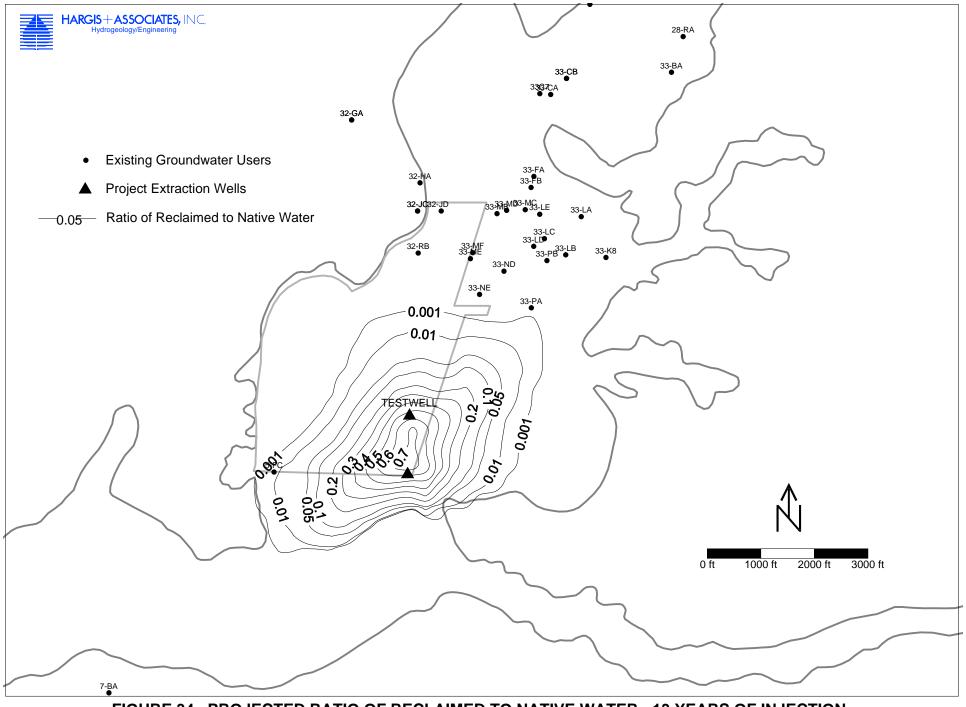


FIGURE 34. PROJECTED RATIO OF RECLAIMED TO NATIVE WATER - 13 YEARS OF INJECTION

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