Starwood - Santa Fe Valley

Final
Habitat Management Plan
Second Amendment

Prepared by:

HELIX
environmental planning, inc.

Starwood - Santa Fe Valley

FINAL
HABITAT MANAGEMENT PLAN
SECOND AMENDMENT

November 10, 2000

Prepared for:

STARWOOD DEVELOPMENT
8011 Del Dios Highway
Rancho Santa Fe, California 92067

Prepared by:

HELIX ENVIRONMENTAL PLANNING, INC.
8100 La Mesa Boulevard, Suite 150
La Mesa, California 91941-6476

Starwood - Santa Fe Valley
Habitat Management Plan

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1.0 INTRODUCTION

This Habitat Management Plan (HMP) has been prepared for the proposed Starwood - Santa Fe Valley project in accordance with the mitigation measures identified in the Santa Fe Valley Specific Plan Environmental Impact Report (EIR, as amended) (County of San Diego 1995a) and the County of San Diego's conditions of approval for the project's tentative map (TM 5073). The HMP implements the habitat management guidelines for Planning Area II of the Santa Fe Valley Specific Plan (SFVSP). Specifically, the HMP provides direction for the permanent preservation of environmentally sensitive areas designated as Open Space I (OS I) in the referenced EIR. This HMP also follows the framework established by the HMP for the Bernardo Lakes Project (Affinis 1998), which is shown as Planning Area IV of the SFVSP. The Bernardo Lakes HMP was the first to be adopted within the SFVSP area and is intended to serve as a model for subsequent HMPs in the SFVSP. Specific project approval documents and permits related to this HMP include the referenced EIR and the following: Santa Fe Valley Specific Plan (County of San Diego 1995b); Balcor/Santa Fe Valley Land Company Administrative Permit AD 95-035 (County of San Diego 1995c); Santa Fe Valley Specific Plan Resolution of Approval No. 95-464 (County of San Diego 1995d);Tentative Map 5073 Resolution of Approval (County of San Diego 1995e); Major Use Permit P95-009 (County of San Diego 1995f); Major Use Permit P95-010 (County of San Diego 1995g); Multiple Species Conservation Program (MSCP) County of San Diego Subarea Plan (County of San Diego 1997); Section 404 Permit from the U.S. Army Corps of Engineers; Section 1603 Streambed Alteration Agreement from the California Department of Fish and Game; and a Section 401 Water Quality Certification/Waiver from the San Diego Regional Water Quality Control Board.

The project site (and the entire SFVSP) is within the Lake Hodges Segment of the referenced County of San Diego Subarea of the MSCP. The MSCP is a comprehensive multi-agency planning effort, intended to create a regional habitat preserve and allow planning flexibility for development-related impacts and mitigation requirements. Specific goals identified for the MSCP and the County Subarea include conformance with the State and Federal Endangered Species Acts and the California Natural Community Conservation Planning (NCCP) Act.

The area to be preserved as Open Space I encompasses approximately 163 acres within the project site. The Open Space I designation is primarily intended to provide permanent protection for sensitive biological and cultural resources, although certain existing and proposed facilities and uses (other than open space) will be allowed in the Open Space I preserve, as outlined in the project approval documents and described below in this section. Within the project site, Open Space I areas are located mainly along the San Dieguito River Corridor and include the 100-year floodplain, high-quality riparian and upland

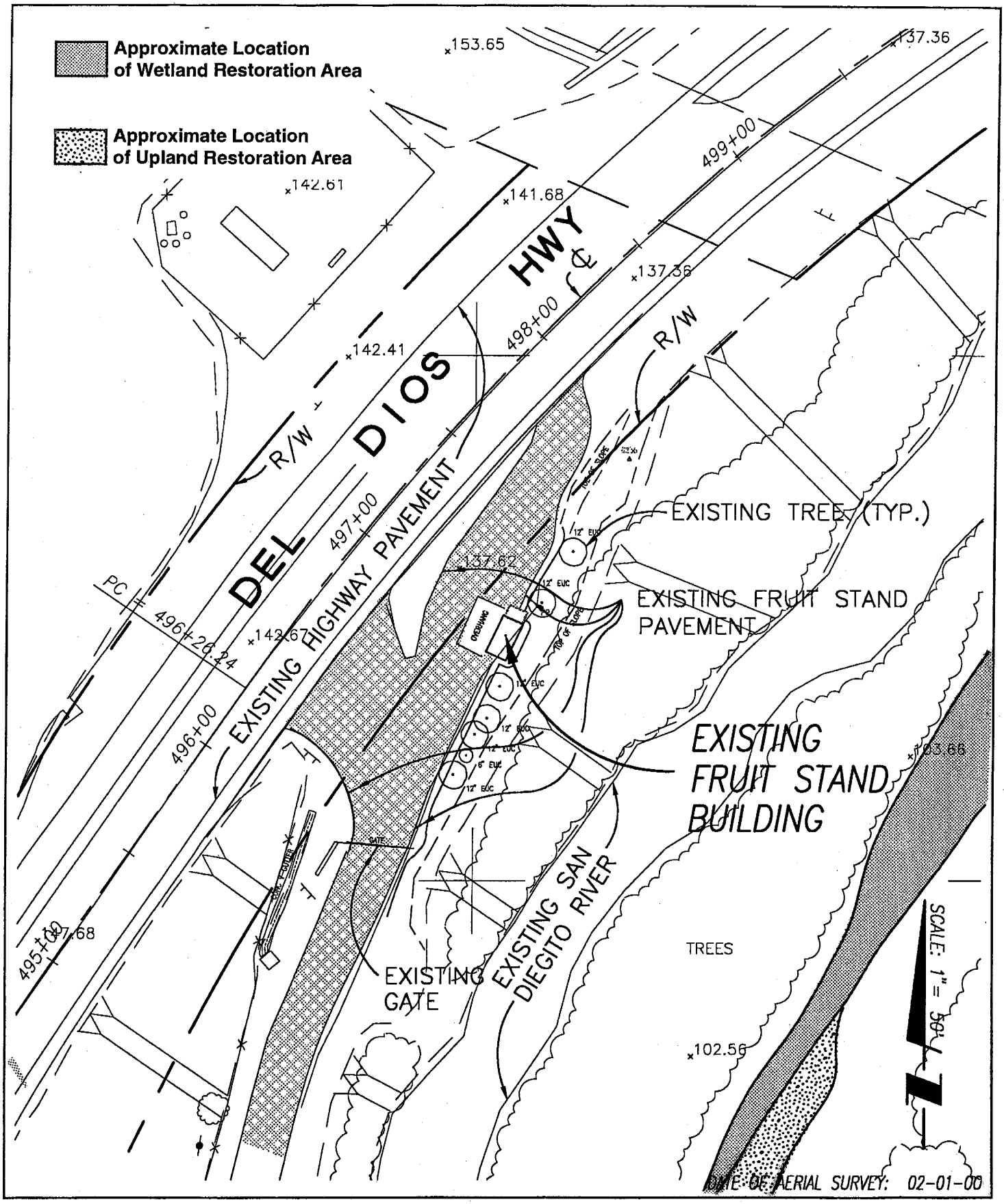
habitats, and important cultural resource sites. This area extends from the northeast to the southwest corner of the project site, encompassing much of the northern and western project boundaries. The San Dieguito River is a major regional wildlife corridor, and connects substantial areas of native habitat up- and downstream of the project site. Accordingly, inclusion of the on-site portion of the river and adjacent habitat as permanent open space will help ensure regional connectivity between important and diverse habitat blocks, including MSCP Core Biological Resource Areas (County of San Diego 1997). The proposed Open Space I preserve will be compatible with similar preserves in adjacent areas (including other planning areas and associated HMPs of the SFVSP), thereby providing a substantial contribution to subregional and regional open space systems outlined in the MSCP Plan.

Approximately 56 acres of the Open Space I area have been conveyed to the County of San Diego in fee title to ensure its preservation. The remainder of the Open Space I designation within planning Area II of the SFVSP (approximately 107 acres) will be similarly conveyed to the County prior to recordation of final subdivision maps. In this way, all lands within the boundaries of the project which have been designated for preservation by the MSCP, the County's Lake Hodges Segment of the MSCP, the SFVSP, and the project's subdivision map have or will be preserved.

As noted above, a number of existing and proposed facilities and uses other than natural open space are identified in the Open Space I preserve under this HMP. Specifically, these include the following facilities and uses (refer to Figures 1 through 3), subject to applicable discretionary actions from pertinent regulatory agencies (as described below):

- The existing fruit stand and parking area (and use thereof) located on the south side of and adjacent to Del Dios Highway between Calle Ambiente and Camino De Estrellas (Figure 1).

- The existing access road, Olivenhain Municipal Water District (OMWD) utility easement, Arizona crossing structure and proposed pavement and gate, as shown on Figure 2 (including maintenance of existing facilities and construction and maintenance of utilities expected to be built within the OMWD easement.) The OMWD easement is 80 feet wide for most of its length (with some variation in the northern section as shown in Figure 2), and extends approximately 1,500 feet through the OS I preserve.



Existing Fruit Stand and Related Facilities

STARWOOD-SANTA FE VALLEY HABITAT MANAGEMENT PLAN

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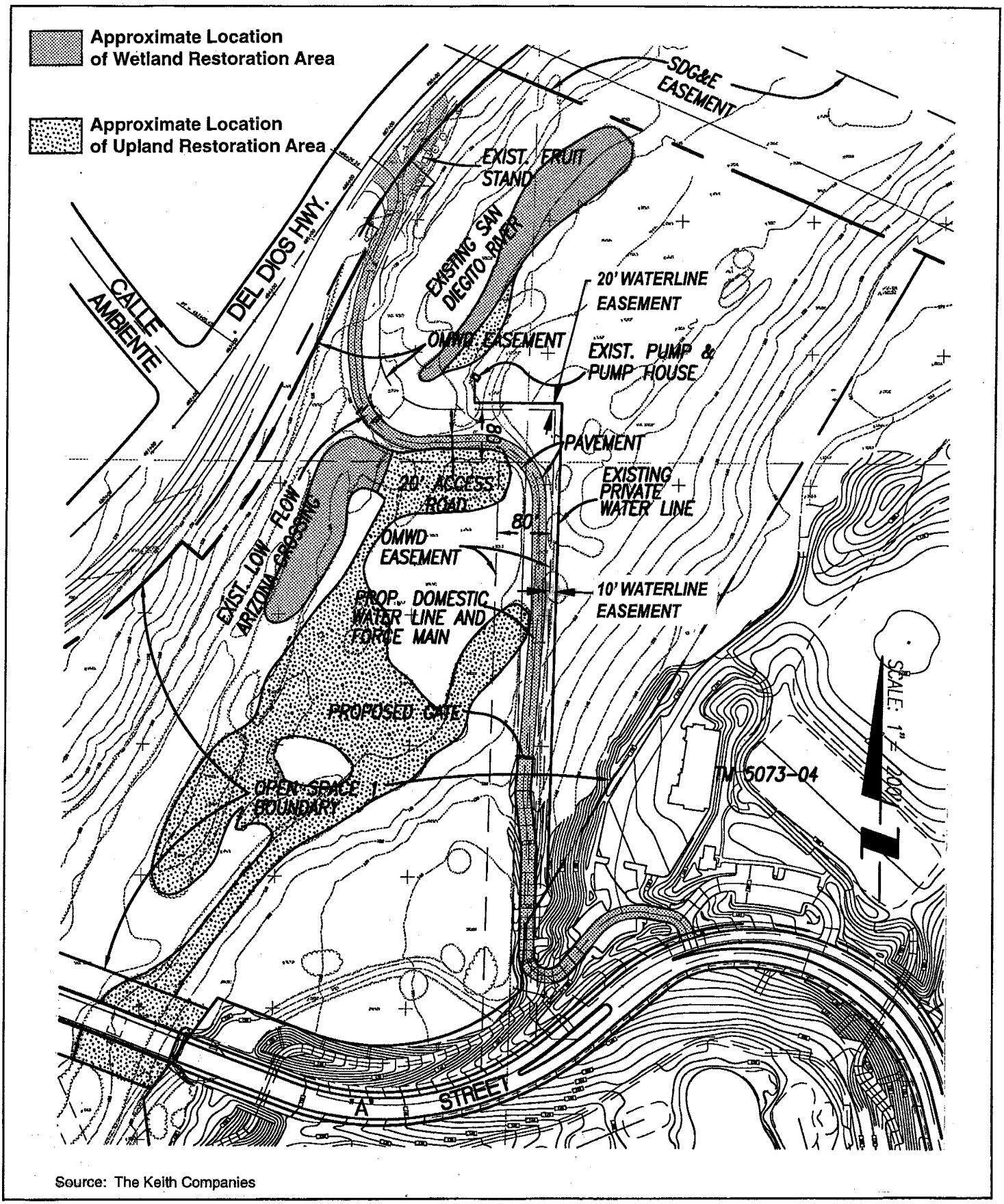
Figure 1



Source: The Keith Companies

Existing Access Road, Arizona Crossing and Utility Easement

STARWOOD-SANTA FE VALLEY HABITAT MANAGEMENT PLAN

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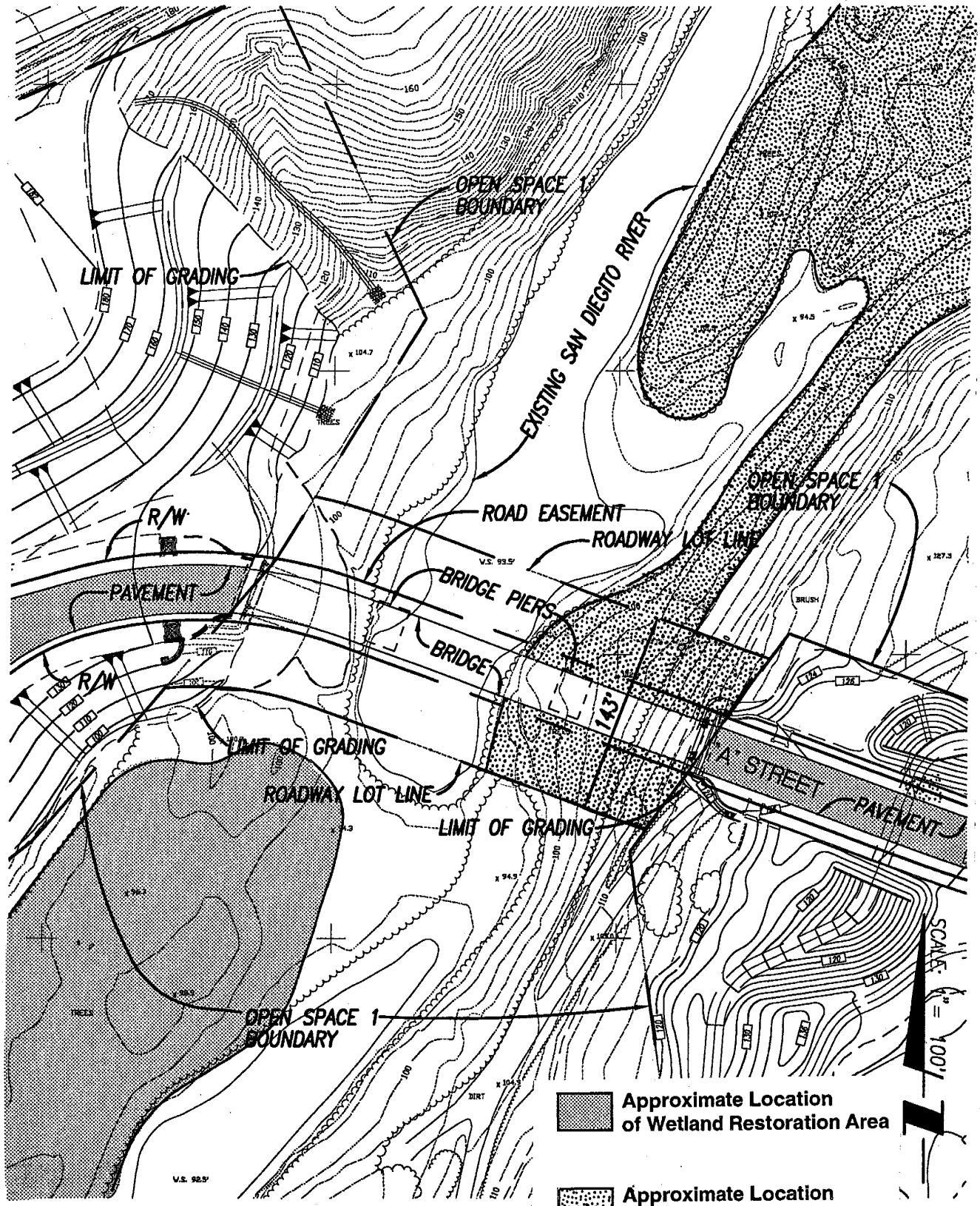
Figure 2



Source: The Keith Companies

"A" Street and San Dieguito River Bridge Crossing

STARWOOD-SANTA FE VALLEY HABITAT MANAGEMENT PLAN

HELIX

Figure 3

- Construction and maintenance of proposed Street A (including the associated easement width) as shown on Figure 3, as well as construction and maintenance of the associated bridge crossing and utilities expected to be built within this easement. The Street A easement is 143 feet wide and extends approximately 350 feet through the OS I preserve.

- The existing pump, pump house, water pipeline (and access thereto for authorized personnel), and private waterline easement operated by McCrink Ranch, and located approximately 500 feet south-southeast of the above described fruit stand and parking area (refer to Figure 2). The private waterline easement is parallel to the OMWD easement and varies from 10 to 20 feet in width, as shown in Figure 2.

- The implementation, monitoring and maintenance of habitat restoration activities as described in approved restoration plans (see Figures 1 through 3) and discretionary permits associated with the Starwood Development TM (TM 5073).

- The construction, maintenance and operation of recreational trails and associated trail heads/staging areas as required by the approved Starwood Development TM (TM 5073). Specific trails and related facilities identified in the SFVSP include an unpaved equestrian/hiking trail extending approximately 8.2 miles from the southwestern site corner to an existing access road/Arizona crossing structure (see Figure 2), a paved multi-use trail extending approximately 5 miles from the noted access/road Arizona crossing structure to the northeast corner of the site, and a parking/staging/trail head area located in the immediate vicinity of the Arizona crossing structure. Access to the parking/staging/trail head area would be provided via the existing access road (within the OMWD easement) shown in Figure 2. All trails and related facilities will be located within the OS I area, with general trail locations depicted on the Starwood Tentative Map (map pocket).

- Authorized management/monitoring activities and associated access within the Open Space I preserve, as described in this HMP.

The above noted uses may be subject to additional discretionary approval by applicable agencies prior to implementation. Specifically, such approvals may include (but are not limited to) acquisition of a Section 404 permit from the U.S. Army Corps of Engineers (ACOE), a Section 401 Water Quality Certification/Waiver from the California Regional Water Quality Control Board (RWQCB), and a Section 1601/1603 permit from the California Department of Fish and Game (CDFG).

2.0 PURPOSE

The purpose of this HMP is to maximize and maintain the habitat qualities of the preserved Open Space I within the project area. The HMP provides a framework for the management of the preserve and identifies parties responsible for carrying out its required tasks. The Habitat Manager is identified as the person/entity responsible for overseeing all aspects of the management program. The Habitat Manager is in turn responsible to the County, which has final authority over the preserve area.

3.0 PROJECT DESCRIPTION

The project site (Area II of the SFVSP) includes nearly 686 acres and is located approximately 5 miles east of Interstate 5 (I-5) and 3.5 miles west of Interstate 15 (I-15) in west-central San Diego County (Figure 4). The site encompasses the San Dieguito River along much of its northern and western boundaries, and is approximately 2.5 miles southwest (downstream) of Lake Hodges at its closest point (Figure 5). Site topography is characterized by rolling hills incised by drainages in the central and southern portions of the site, the San Dieguito River Valley along the western and northern site boundaries, and relatively level mesa tops in the northern and southeastern portions of the site.

The proposed project incorporates two TM areas evaluated in the SFVSP EIR (County of San Diego 1995) (Figure 6 and map pocket). Specifically, this includes approximately 646 acres within the previously approved Balcor Subdivision TM (TM 5073) and 40 acres within the previously approved Seaton Subdivision TM (TPM 20196). The Balcor TM area includes approximately 40 acres formerly owned by the U.S. Bureau of Land Management (BLM), with this area having been acquired by the applicant (through a land exchange) as part of the project action. The Seaton TM parcel has been acquired by the project applicant (through purchase) as part of the proposed project, with the entire project site to be developed as the Starwood - Santa Fe Valley project.

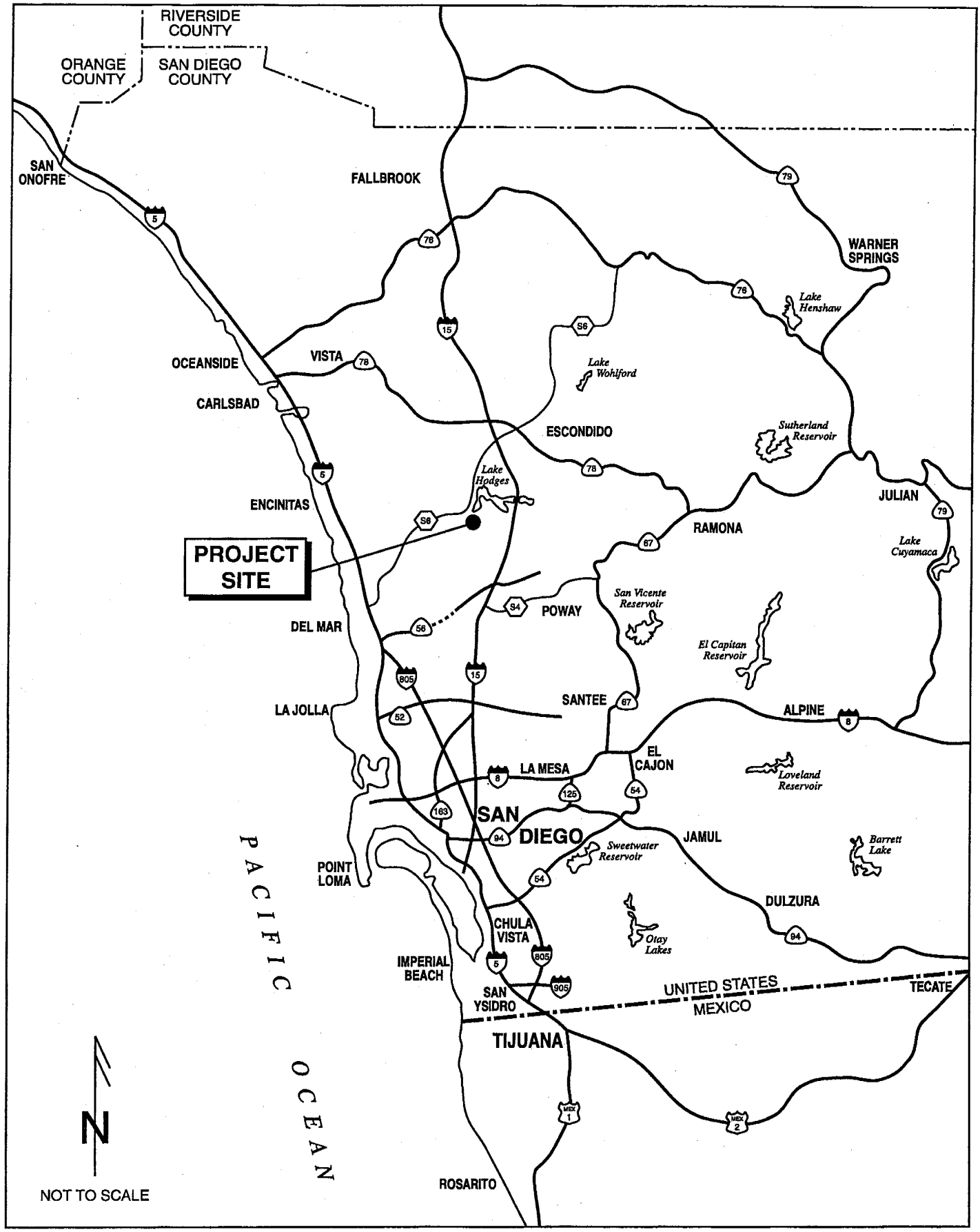
Approximately 163 acres of the site would be preserved in the Open Space I area along the San Dieguito River corridor (which extends along most of the northern and western site boundaries), with this area comprising the focus of the HMP. The Open Space I area includes riparian and other wetland habitats associated with the San Dieguito River, as well as adjacent native (e.g., Diegan coastal sage scrub) and non-native (e.g., eucalyptus woodland) habitats. As described above in Section 1.0, this HMP also identifies a number of existing and proposed facilities and uses other than open space in the Open Space I preserve, subject to applicable discretionary approvals.

Proposed development within the Starwood - Santa Fe Valley property would ultimately include 452 residential units on 272 acres, as well as an 18-hole golf course and related amenities (i.e., a driving range, clubhouse and resort complex) on 251 acres. Grading associated with proposed development would total approximately 3.25 million yards of balanced cut and fill, with no significant material import or export anticipated. Proposed residential development is concentrated primarily in the eastern and southern portions of the property, with multi-family housing limited to two lots in the south-central and east-central portions of the site. The residential lots range in size from approximately 0.2 to 5.4 acres, with the majority oriented to face the golf course or other open space areas.

Site access would be provided from two principal points: West Loop Road via Camino Del Norte on the south, and Del Dios Highway on the north. Additional access to developed portions of the site would be provided through a number of secondary internal streets, all of which would be private. The onsite main access road from Del Dios Highway (Street A) would encompass a bridge crossing of the San Dieguito River near the project site entry point (Figure 6 and map pocket). Preliminary bridge design elements include two standard vehicle lanes with an adjacent golf cart path, two vertical piers located outside of the main stream channel, a main span length of approximately 150 feet, and a total structure length of approximately 350 feet. The proposed bridge and the adjacent roadway leading onto the bridge would be fenced to direct wildlife movements into the San Dieguito River open space corridor.

The proposed golf course and related development occur along much of the western boundary of the residential areas, with portions of the golf course also extending within adjacent residential development. The golf course is within the Specific Plan Open Space II designation, which is intended to serve primarily as a buffer between developed areas and the Open Space I designation to the west and north. The noted interface between golf course and residential development would also provide open space buffers between a number of individual residential areas. In addition to the proposed golf course, the Open Space II designation incorporates several areas of steeper slopes adjacent to proposed residential and/or golf course development. Portions of these areas encompass native upland habitat that would be preserved as part of the proposed project. The golf course design also includes several large water features, a resort complex and driving range in the central and northern portions of the site (respectively), and a clubhouse in the northwestern site corner.

An approved exterior lighting plan would be prepared prior to project construction or approval of building permits. The implementation of this plan will ensure that project exterior lighting will be properly placed and shielded to avoid conflicts with adjacent residential activities and wildlife movements. Specifically, exterior lighting of the proposed clubhouse and bridge would be minimized, while lighting would be prohibited on the golf course and associated facilities (including parking areas, storage/maintenance facilities and the driving range).



Regional Location Map

STARWOOD-SANTA FE VALLEY HABITAT MANAGEMENT PLAN

Figure 4

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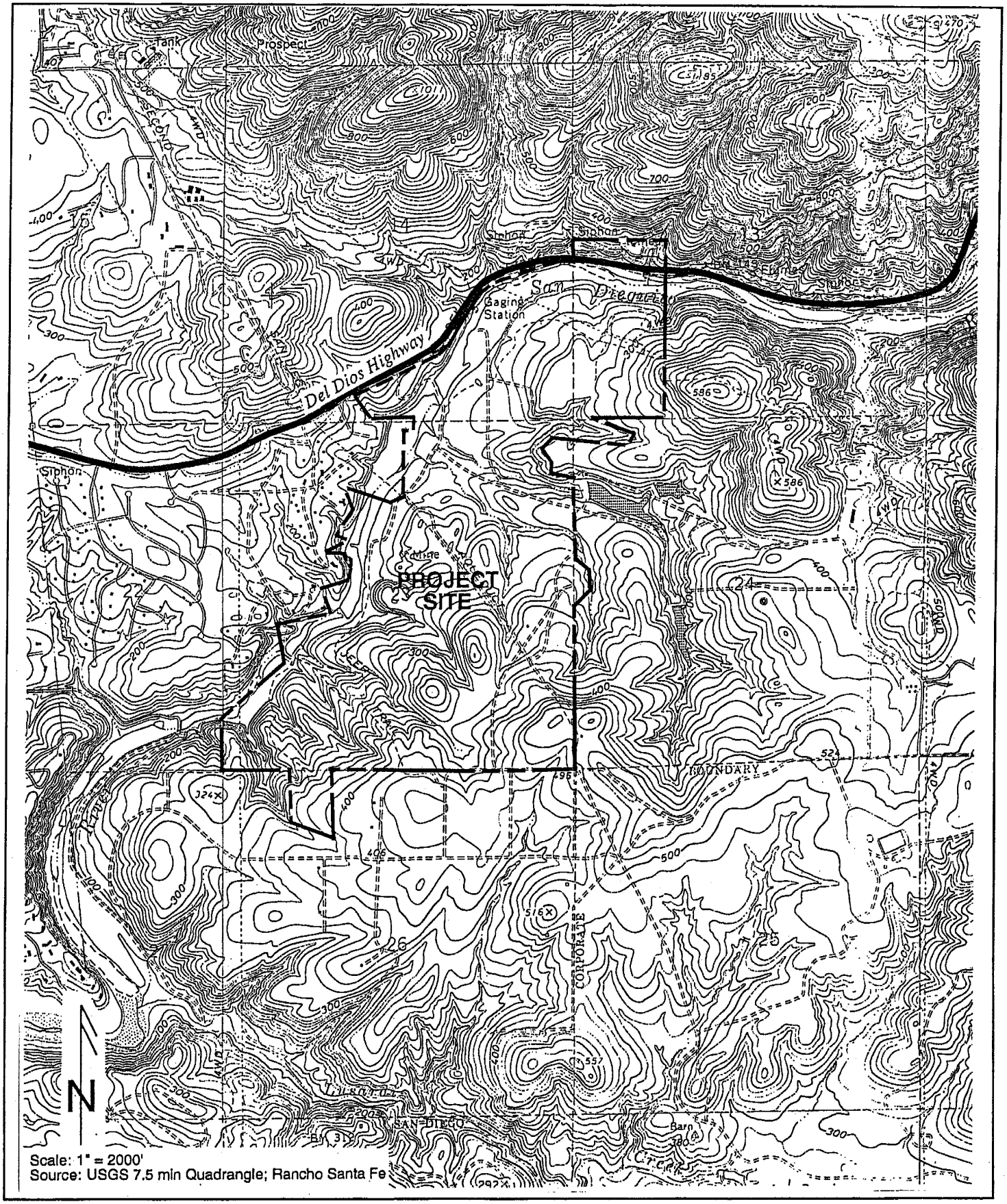

Vicinity Map

STARWOOD-SANTA FE VALLEY HABITAT MANAGEMENT PLAN

Figure 5

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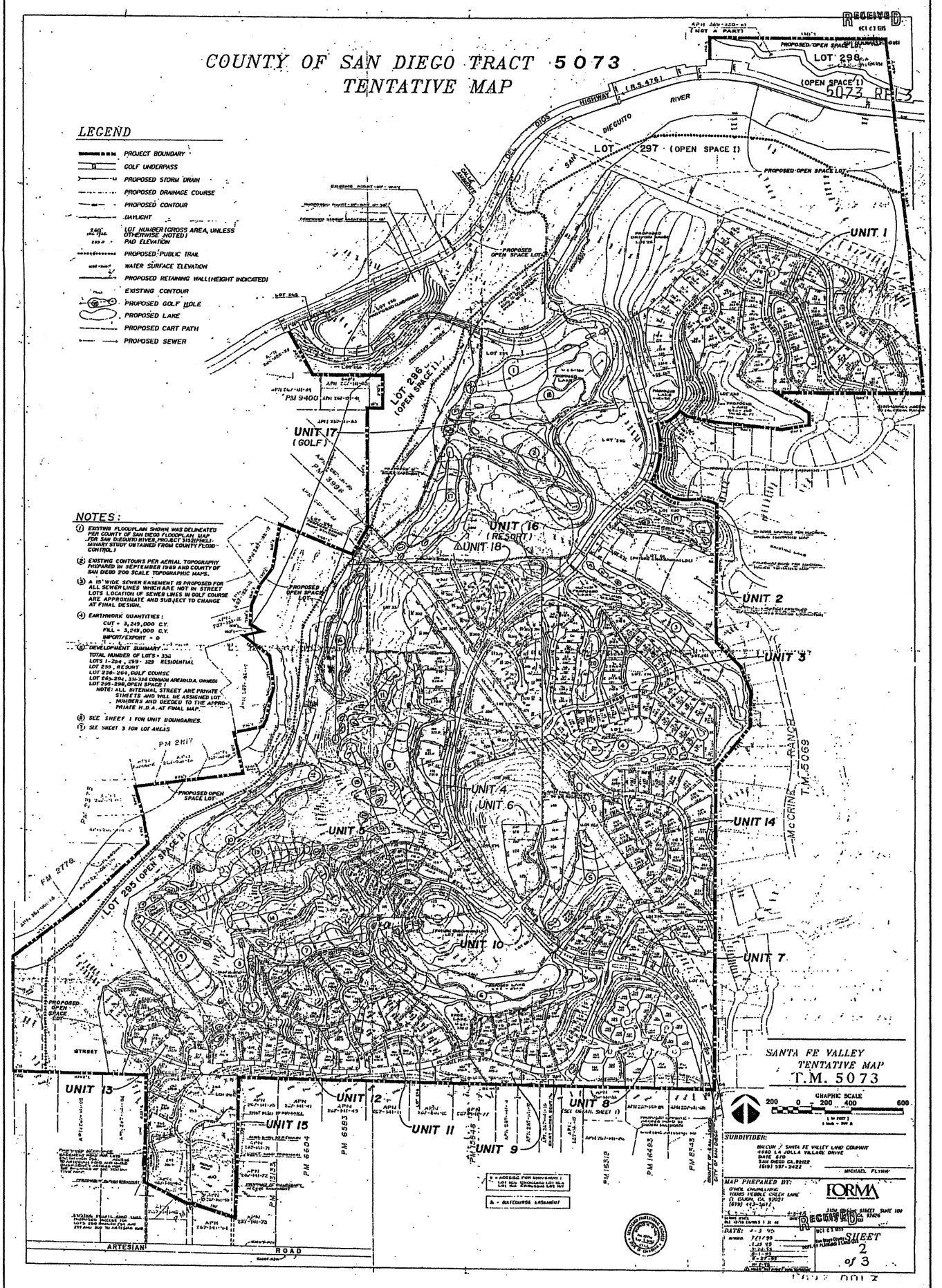
Tentative Map

STARWOOD-SANTA FE VALLEY HABITAT MANAGEMENT PLAN

Figure 6



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4.0 RESOURCE DESCRIPTION

The project site is largely undeveloped, with existing onsite land uses consisting of disturbed and undisturbed open space, agriculture, livestock grazing, minor residential development and a number of unpaved roads and trails. Surrounding areas are also primarily undeveloped and include the adjacent San Dieguito River corridor to the west and north; disturbed and undisturbed open space to the west, north and south; low density residential development and agriculture to the west, north (i.e., beyond the river corridor) and south; and agriculture to the east.

On-site elevations range from approximately 70 feet above mean sea level (amsl) along the San Dieguito River at the western site boundary, to 520 feet amsl in the southeastern portion of the site. Site topography is generally characterized by the San Dieguito River Valley along the western and northern site boundaries, a series of rolling hills incised by smaller drainages in the southwestern and central portions of the site, and relatively level mesa tops in the northern and southeastern portions of the site.

Vegetation communities and developed/disturbed areas within the Open Space I Area are quantified by acreage in Table 1 (see also the Vegetation/Open Space I map pocket). These acreage totals are based primarily on data provided in the Santa Fe Valley SPA EIR and technical appendices (County of San Diego 1995, Ogden 1995), although minor adjustments have been made to reflect MSCP nomenclature.

Sensitive vegetation communities are those which are: (1) considered rare within the region; (2) are considered sensitive by the CDFG (Holland 1986) and the County of San Diego MSCP Subarea Plan; or (3) support sensitive plant or animal species. The sensitive vegetation communities which occur on the project site include coastal and valley freshwater marsh, southern willow scrub, mule fat scrub, southern arroyo willow riparian forest, natural floodchannel/streambed, swale/wetland ecotone, disturbed wetland, vernal pool, coastal sage scrub, coastal sage scrub/chaparral, southern maritime chaparral, native grassland, chaparral, and non-native grassland.

Table 1 HABITAT TYPES WITHIN THE STARWOOD - SANTA FE VALLEY SITE	
HABITAT TYPES	**ACREAGE PRESERVED IN OPEN SPACE I**
Southern Arroyo Willow Riparian Forest	13
Southern Willow Scrub	3.7
Mule Fat Scrub	2.4
Coastal and Valley Freshwater Marsh	0.0
Freshwater Marsh	6.9
Freshwater Marsh - Disturbed	0.9
Freshwater Marsh/Open Water	1.8
Southern Maritime Chaparral	7.1
Native Grassland	0.7
Coastal Sage Scrub	52.0
Coastal Sage Scrub - Disturbed	35.3
Coastal Sage Scrub/Chaparral	3.3
Chaparral	0.5
Non-Native Grassland	1.1
Eucalyptus Woodland	13.5
Open Water	4.8
Agricultural Land	8.5
Disturbed Habitat	6.7
Developed	0.6
TOTAL	**162.8**

Ten sensitive plant species have been observed on site (Ogden 1995). One of these species, Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*), is federally listed as endangered. The other sensitive species are spreading navarretia (*Navarretia fossalis*), California adolphia (*Adolphia californica*), southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*), San Diego marsh-elder (*Iva hayesiana*), white coast ceanothus (*Ceanothus verrucosus*), summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*), San Diego barrel cactus (*Ferocactus viridescens*), Nuttall's scrub oak (*Quercus dumosa*), and San Diego sagewort (*Artemesia palmeri*). None of these species is listed or proposed for listing by the CDFG or U.S. Fish and Wildlife Service (USFWS).

Twelve sensitive animal species (one reptile species, nine bird species, one invertebrate species and one mammal species) have been observed onsite (Ogden 1995). One of the bird species, coastal California gnatcatcher (*Polioptila californica californica*), is federally listed as threatened. In addition, the on-site invertebrate, San Diego fairy shrimp (*Branchinecta sandiegonensis*) is federally listed as endangered. The other sensitive species are orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), great blue heron (*Ardea herodias*),

northern harrier (*Circus cyaneus*), white-tailed kite (*Elanus leucurus*), California horned lark (*Eremophila alpestris actia*), Cooper's hawk (*Accipiter cooperii*), Bell's sage sparrow (*Amphispiza belli belli*), loggerhead shrike (*Lanius ludovicianus*), and San Diego black-tailed jackrabbit (*Lepus californicus bennettii*). None of these species is listed or proposed for listing by the CDFG or USFWS.

5.0 ADMINISTRATIVE STRUCTURE

5.1 ADMINISTRATION

The project applicant shall hire an individual or organization acceptable to the County DPLU and/or Department of Parks and Recreation to serve as Habitat Manager. If the entity hired is an organization, the person(s) actively managing the open space must satisfy the criteria for a Habitat Manager (as described below), and a Project Manager must be designated.

The County shall designate one of its staff members as the HMP Administrator. The Habitat Manager (or Project Manager, if applicable) shall report directly to the HMP Administrator on all issues, concerns, and questions, including all billing, unless otherwise directed in writing by the HMP Administrator.

The following organizations and individuals will be involved in the fulfillment of this HMP:

- The County of San Diego, through the Department of Planning and Land Use (DPLU), has the ultimate responsibility for the Plan. The County may transfer responsibility to a different department, such as the Department of Parks and Recreation, if deemed necessary.

- The CDFG and the U.S. Fish & Wildlife Service (USFWS) will serve in an advisory capacity to the County.

- The Habitat Manager will be responsible for the implementation of the HMP, and will carry out the HMP's requirements and objectives. The County may serve as the Habitat Manager or it may elect to transfer this responsibility to another entity acceptable to both the County and the project applicant (Starwood Development).

- The project applicant will be responsible for the installation, maintenance, and monitoring of revegetation within the Open Space I areas associated with the project and initial implementation of the Brush Management Plan.

- The HOA will ultimately take over the funding of the HMP from the project applicant.

- The Habitat Manager will work in conjunction with the Fire Marshal on issues such as controlled burns, brush management and emergency vehicle access.

5.2 QUALIFICATIONS FOR THE HABITAT MANAGER

The DPLU and project applicant shall jointly approve the selection of a Habitat Manager. The qualifications of the Habitat Manager must meet the following criteria:

- Possession of a B.S. or B.A. degree in wildlife management, natural resources, ecology, zoology, botany, biology or similar degree.

- A minimum of two years experience in field biology in southern California (preferably San Diego County).

- Demonstrated experience in similar projects, or in projects requiring similar skills.

- Experience in working with community groups.

6.0 RESPONSIBILITY

6.1 LAND CONVEYANCE

The project applicant has conveyed approximately 56 acres of 163 in fee to the County of San Diego. Prior to Final Map recordation, the project applicant will convey the remaining 107 acres to the County in a conservation easement, and will provide a Subdivision Improvement Agreement secured by a performance bond. The conservation easement shall provide for full implementation of this HMP, while the Subdivision Improvement Agreement and associated bond will ensure implementation of the project Revegetation Plan by the project developer. The easement may be transferred by the County to the Habitat Manager or another entity selected by the County.

6.2 MANAGEMENT

The project applicant shall complete the following project requirements under the direction of the Habitat Manager:

- Implement the Wetland and Upland Restoration Plans (Appendices A and B).
- Maintain and monitor all restored habitat for up to a period of five years, to the satisfaction of DPLU.
- Contract with a Habitat Manager approved by DPLU.
- Supply the Habitat Manager with copies of all reports prepared for the project area, as appropriate (i.e., reports containing data regarding sensitive resource locations).
- Perform all open space conveyances (as noted above) at the designated times.

The Habitat Manager's primary responsibility will be to maintain the integrity of the preserved and restored habitats. In order to fulfill that responsibility, the Habitat Manager shall:

- Be an advocate of the preserved open space and its protection.
- Be familiar with this HMP, its appendices, and supporting documentation.

- Be responsible for all points noted in this HMP as being within his/her responsibility or judgment, as discussed below in Open Space Enhancement (Section 9.0) and elsewhere.

- Maintain all documents transferred by the project applicant (as noted above), and be knowledgeable of the resources and their locations addressed in these reports.

- Educate the surrounding community about the presence and need for the open space; be responsive to any community concerns or problems regarding the open space.

- Provide direction to the Homeowners Association (HOA) and golf course operators on the importance and maintenance of open space.

- Document all field visits, and notify the HMP Administrator in a timely manner of all concerns, problems and suggested solutions.

- Coordinate with the HMP Habitat Managers of adjacent properties on management practices and tasks related to preservation and maintenance of the subregional open space system. Specifically, this will include activities such as the removal of exotic and pest species, and ensuring compatibility with the overall open space management plan to be prepared for the County as part of the MSCP County Subarea Plan.

7.0 FUNDING MECHANISM

The project applicant shall be responsible for funding the implementation of this HMP from recordation of any Final Maps until the HOA is fully funded (i.e., at site buildout), at which time the HOA will be responsible for funding implementation of the HMP. In the interim period, HMP funding will be conducted on a sliding scale, whereby (for example) if the project site is 25 percent built out, the HOA will provide 25 percent of the HMP funding and the applicant will provide the remaining 75 percent. The project applicant shall not be responsible for the costs of managing any other open space areas outside of Planning Area II and within the Specific Plan area. Upon incorporation of the HOA, a final budget for the HMP shall be prepared, and the HOA shall become responsible for funding the implementation of this HMP. However, in order to comply with California Department of Real Estate requirements, the project applicant shall fund an adequate reserve and its "fair share" contribution to HMP implementation until project buildout. Determination of adequate reserve and "fair share" funding amounts will be based on negotiations between the project applicant and the County. The current estimated fee per home for implementing the HMP during the first year after project completion is approximately $10.00 per month (see Appendix C, Estimated Yearly Budget for HMP Implementation). These fees will be subject to yearly adjustments as actual management costs are incurred.

8.0 OPEN SPACE ENHANCEMENT

8.1 HABITAT RESTORATION/REVEGETATION

An Upland Restoration Plan and a Wetland Restoration Plan have been prepared for the project and are included as Appendices A and B to this HMP. These plans provide details for the mitigation of Diegan coastal sage scrub, native grassland and riparian impacts as required by the SFVSP EIR (County of San Diego 1995). The goal of the restoration plans is to restore and enhance habitat values along the San Dieguito River to mitigate for habitat that is being disturbed by construction within Santa Fe Valley. Approximately 11.1 acres of Diegan coastal sage scrub, 2.5 acres of native grassland (Figure 7) and 6.1 acres of riparian habitat (Figure 8) would be restored. Areas to be restored include previously disturbed areas and proposed manufactured slopes. The restored habitat will enhance the overall habitat values of Santa Fe Valley as well as its ability to function as a wildlife corridor.

The project applicant (Starwood Development) is responsible for installation, maintenance and monitoring of all restoration within the preserve (Open Space I). Funding to ensure implementation of the restoration plans will be secured by cash deposits and bonds submitted to and approved by the DPLU prior to issuance of any grading and/or clearing permits. Funding for restoration efforts (including five years of monitoring/maintenance, as described below) will be provided by the project applicant and is not included in the yearly budget estimate shown in Appendix C. After completion of the 5-year restoration monitoring/maintenance efforts, the restoration sites will be monitored and maintained as part of the HMP process.

8.2 RESTORATION MONITORING

The restoration plans include a monitoring and maintenance program for the restored Open Space I areas. The monitoring will be conducted by a County-approved biologist for a period of up to five years. Monitoring will take place two times per week during grading, site preparation and installation. Upon completion of the restoration effort, the monitor will prepare a letter report indicating that the installation is finished and that the five-year monitoring period has begun. During this period, monitoring will take place monthly during the first year, bi-monthly for the second year, and quarterly for years three through five. The restoration monitor will provide a written maintenance memo to the Habitat Manager after completing each inspection. Each of these memos will identify maintenance concerns including mortality, vandalism, and weed-related issues. Monitoring reports will be submitted by the Habitat Manager to the DPLU semi-annually for the first three years, and annually for years four and five. These

monitoring reports will include botanical observations, remedial recommendations and a summary of the restoration effort's success to date.

The restoration plans include success criteria to evaluate the progress of restoration efforts. The criteria use measurements of species diversity and recruitment, exotic species cover, and target species cover. These measured parameters will be compared with existing reference sites to determine revegetation success. The reference sites should be located within 500 feet, be of the same habitat types, and have a similar slope and aspect to the restoration areas. It will be the responsibility of the Habitat Manager to take any remedial measures necessary to keep restoration efforts on track with the annual success goals presented in the restoration plans.

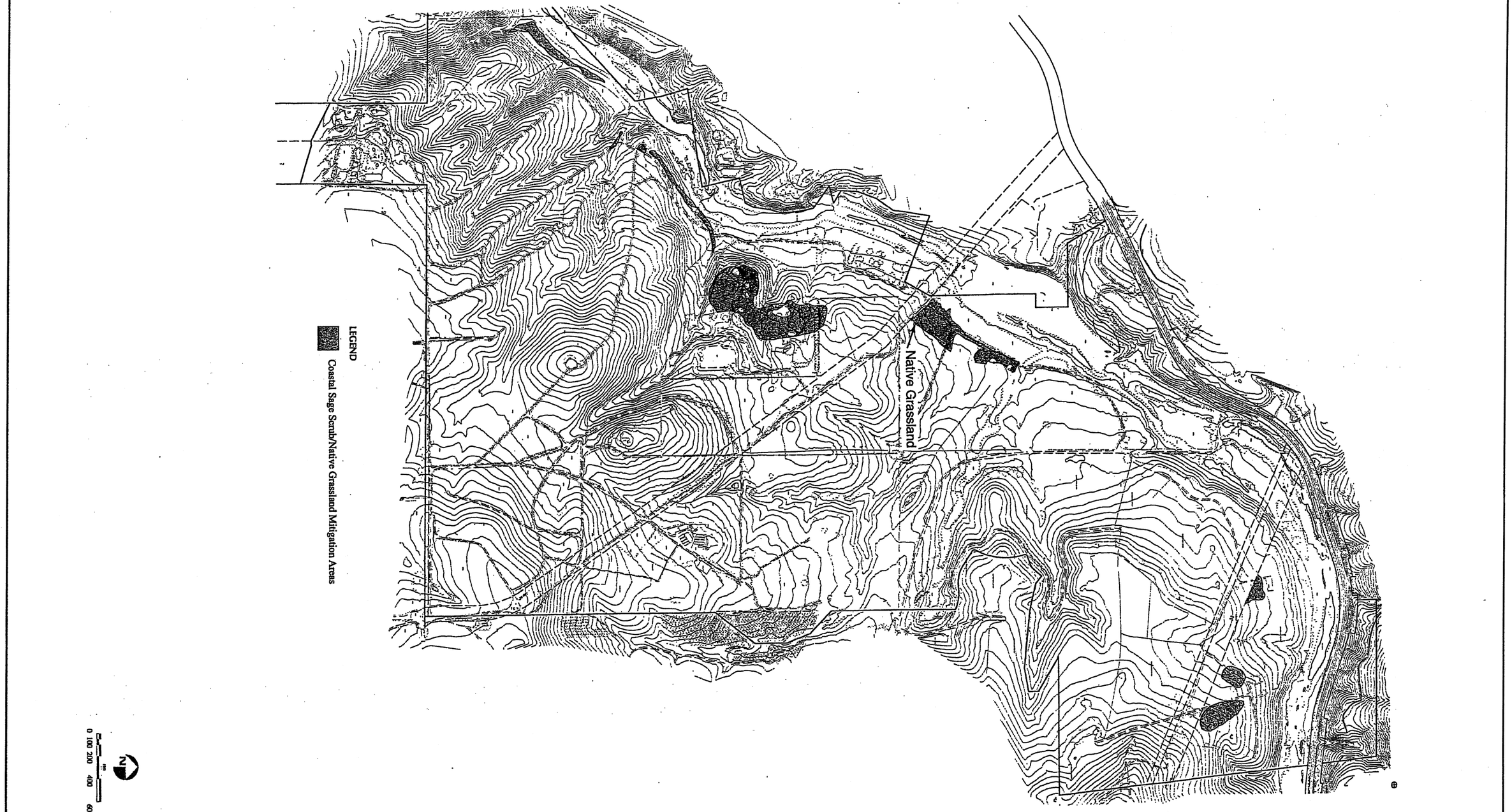
The County may terminate monitoring earlier than five years if it is recommended first by the Habitat Manager in a year-end report. Likewise, if at the end of five years, any of the restored areas fail to meet the year-five criteria, then the monitoring and maintenance period will be extended one full year, and a specific set of remedial measures (approved by the County) will be implemented. Only areas which fail to meet the success criteria will require additional work, that is, not all of the areas originally restored. This process will continue until all year-five standards are met or the County determines that no additional action is required.

8.3 NATIVE SPECIES REINTRODUCTION

The restoration plans involve the reintroduction of native plant species associated with coastal sage scrub, native grassland and riparian areas. Species lists for each habitat type are included in the plans. No species should be substituted without approval of the Habitat Manager. All approved substitutions will be documented by the installation contractor in the final set of "as-built" plans. No additional native species reintroduction is planned within the restoration areas.

8.4 HERBICIDES/PESTICIDES

The use of herbicides is to be discouraged in the restoration areas. In general, weed removal will be accomplished by hand or mechanical means. No weed whips will be permitted after installation of the container stock and seed mixes. The Habitat Manager will determine if/when herbicides are required to control weed species. Permitting and compliance with all applicable federal and state laws and regulations will be the responsibility of the Habitat Manager. If herbicide application is deemed necessary it should be kept to an absolute minimum and follow the following general guidelines:



Upland Mitigation Areas

STARWOOD-SANTA FE VALLEY HABITAT MANAGEMENT PLAN

Figure 7

HELIX

Wetland Mitigation Areas

STARWOOD-SANTA FE VALLEY HABITAT MANAGEMENT PLAN

Figure 8

HELIX

- All herbicide use will involve chemicals which have a short duration period and are biodegradable.

- The application should be minimized to the extent possible.

- All herbicide applications should take place during the appropriate time of year for the specific restoration activity to maximize success.

- Applications should be focussed on target species. Backpack sprayers should be used.

- Signs should be posted in the application areas warning of the presence of herbicides.

In general, a high tolerance of insects and vertebrate pests will be permitted before pesticide use is considered. If the Habitat Manager determines that pest eradication measures are required he/she will consult with a licensed pest control advisor. The guidelines above for herbicides shall also apply to the use of pesticides. The Habitat Manager will be responsible for compliance with all applicable local, state and federal regulations.

8.5 PREVENTION OF DEGRADATION

The planned Open Space I area is intended to serve as a habitat preserve and as such is not compatible with many activities. Activities which will be specifically prohibited include grazing, hunting, fishing, off-road vehicle use, dumping, construction, vegetation clearing and gravel/soil removal. Exceptions to this prohibition include selective clearing of vegetation by hand to the extent required by written order of the fire authorities for the express purpose of reducing an identified fire hazard; construction of trails as approved by the SFVSP; and uses and activities expressly permitted pursuant to this HMP, its Revegetation Plans and the Fire Management Plan (Appendix D). In addition, activities associated with required maintenance of the on-site utilities are excepted from the above prohibitions.

Irrigation for restoration efforts within the Open Space I area will be limited primarily to the first growing season in an attempt to develop deep root systems. The overall goal will be to obtain adequate germination and growth with the least amount of irrigation, and ultimately to cease irrigation and remove all "above ground" irrigation system hardware. Restoration efforts within the Open Space I area will generally preclude the use of chemical fertilizers, herbicides and pesticides. Principal weed control will be conducted through hand removal, although herbicides may be used in extraordinary

circumstances if deemed necessary by the restoration specialist. Similar practices will be employed for the use of chemical fertilizers and pesticides, with restored areas carefully monitored and the use of such substances limited to specific applicable instances as identified by the project restoration specialist.

The Open Space II areas adjacent to the Open Space I preserve evaluated in this HMP will involve long-term irrigation and the use of chemical fertilizers, herbicides and pesticides in association with the proposed golf course. Golf course operations will include a number of design and operation measures to avoid or mitigate potential impacts to the Open Space I area from these operations. Specifically, these measures include implementation of a Storm Water Pollution Prevention Plan (SWPPP) during project construction; incorporation of local vegetated buffer zones between the golf course and Open Space I areas; appropriate grading, irrigation design (e.g., appropriate timing and delivery systems to reduce watering) and use of retention/detention facilities (i.e., golf course water features) to minimize offsite runoff; and limiting chemical applications through measures such as retention of native vegetation where feasible, use of native or drought-tolerant species in landscaped areas, non-chemical weed and pest control (e.g., hand removal of weeds and pest containment rather than eradication), use of organic supplements (e.g., compost-based fertilizer), and incorporating pest-resistant turf varieties. Chemical applications, when required (i.e., if significant problems persist after implementation of non-chemical methods), will be strictly controlled and monitored to prevent improper use and storage, excess runoff or accidental discharge. This will be conducted through measures such as conformance with applicable manufacturer specifications and regulatory requirements; proper training, certification and supervision of maintenance personnel; and appropriate application techniques and timing (e.g., avoidance of inclement weather).

The introduction of exotic plant and animal species through urban edge effects can result in degradation of both native habitats and associated wildlife. The Habitat Manager will implement measures to control the introduction of exotic plants and animals in the preserve. For plants, this will include the three principal steps outlined below, with a list of exotic plant pest species of local concern given in Table 2. As noted in Section 6.2 (Management), these efforts will include coordination with the Habitat Managers in adjacent open space preserves to ensure the most efficient program implementation.

1) Removal of Existing Exotic Plants - Removal of the exotic plant species listed in Table 2 (as well as other applicable species identified by the Habitat Manager) will be included in the requirements of the project Revegetation Plan. In addition, implementation of the project Wetland and Upland Restoration Plans (Appendices A and B) will involve the removal of existing eucalyptus trees (*Eucalyptus* spp.) in areas to be restored to native habitat.

2) Prevention/Reduction of Exotic Plant Introduction - A prohibition against using any of the species listed in Table 2 (and other applicable species as noted above in item no. 1) for landscaping within the Starwood - Santa Fe site will be included in the CC & R documents for all on-site developments. The Habitat Manager will provide copies of Table 2 to all HOAs within the site, and the HOAs will provide copies of the table to their landscape contractors.

3) Removal of Introduced Exotic Plants - The Habitat Manager will be responsible for removing populations of all species listed in Table 2 from the preserve as soon as feasible after their discovery.

Table 2
EXOTIC PLANT PEST SPECIES

SCIENTIFIC NAME	COMMON NAME	HABITAT MOST AFFECTED
Atriplex semibaccata	Australian salt bush	Coastal Sage
Arundo donax	Giant reed	Riparian
Brassica nigra	Black mustard	Coastal Sage
Carpobrotus sp.*	Ice plant/sea fig	All
Centaurea sp.*	Star thistle	Coastal Sage
Chrysanthemum sp.*	Chrysanthemum	All
Conium maculatum	Poison hemlock	Riparian
Cortaderia sp.*	Pampas grass	Riparian
Cynara cardunculus	Artichoke thistle	All
Eichornia crassipe	Water hyacinth	Riparian
Erodium botrys	Filaree	Coastal Sage
Foeniculum vulgare	Fennel	All
Hydrilla verticillata	Hydrilla	Riparian
Lolium perenne	Italian ryegrass	Riparian
Marrubium vulgare	Horehound	All
Nicotiana glauca	Tree tobacco	All
Pennisetum sp.*	Fountain grass	Coastal Sage
Phoenix sp.*	Date Palm	Riparian
Ricinus communis	Castor bean	Riparian
Rumex crispus	Curly dock	Riparian
Delaireia odorata	Cape ivy	Riparian
Schinus terebinthifolius	Brazilian pepper tree	All
Spartium junceum	Spanish broom	All
Tamarix sp.*	Salt cedar	Riparian
Xanthium sp.*	Cocklebur	Riparian

*All species of this genus should be treated as a pest species.

While there are no known occurrences of exotic animals within the preserve area, several species may potentially be present now or in the future (either in the preserve or adjacent areas), including the brown-headed cowbird, bullfrog and Argentinean ant. Cowbirds are non-native nest predators which prey on both California gnatcatchers and least Bell's vireos, while bullfrogs may prey on native amphibians and their food source, and Argentinean ant displace native ants which comprise the principal food source for horned lizards. The following measures will be implemented to control these and other potential exotic animal populations within the preserve:

- The Habitat Manager will implement a trapping program for the brown-headed cowbird within the golf course (and other areas if deemed appropriate), as required in the Santa Fe Valley Specific Plan. Trapping efforts will be coordinated with similar efforts (if undertaken) on adjacent properties.

- The Habitat Manager will reconnoiter the Open Space I and II areas for bullfrogs on a regular basis, including night surveys for calling males and daytime surveys to identify basking sites. If bullfrogs are observed, the Habitat Manager will implement appropriate control measures such as culling frogs with a rifle (using steel ammunition rather than lead), pellet gun or speargun.

- All trash receptacles associated with on-site trails, golf course activities or other applicable uses will be adequately contained and emptied on a weekly basis to discourage the establishment of Argentinean ants.

In addition, the Habitat manager will implement the following steps to control the effects of domestic pets on wildlife within the Open Space I preserve:

- The Habitat manager will promote education of local residents regarding the impacts of uncontrolled pets on wildlife, through measures such as signage and periodic newsletters.

- The Habitat Manager will report persistent and chronic problems related to uncontrolled pets in the preserve area to the County Animal Control Officer.

All exotic species control/eradication programs conducted within the open Space I and/or II areas will be coordinated with similar efforts on adjacent properties. Control and eradication efforts will be implemented at the most appropriate time of year, and will reflect current field conditions and observations regarding the target species.

8.6 PUBLIC AWARENESS

It is important that the open space preserve be accepted by the community as a valuable amenity and important resource. To that end, steps will be taken to encourage participation by local residents and members of the community in the stewardship of the open space area. It is also a goal of this plan that members of the community take pride in the maintenance and protection of the open space. The community can help police the open space area and assist the Habitat Manager, who cannot be present 24 hours a day, in preventing vandalism and unauthorized activities from occurring.

The following measures will be taken to maximize public awareness and acceptance of the open space:

- The Habitat Manager will attend meetings of the local community and homeowners group to inform them of the status of the habitat management program and to enlist their cooperation and support.

- Interpretive signage will be installed at a minimum of two strategic locations that will help educate users of the open space about the ecology of the area, purpose of the open space preserve, common and/or sensitive species present, and need for preservation of the area. Other important information will be included, such as timing of herbicide treatments, rattlesnake warnings, what to do in the case of an emergency, and a number to call with any suspected violations of open space rules.

- A newsletter will be prepared by the Habitat Manager to inform interested community members of important items such as ongoing events in the open space area, volunteer work parties, and guided nature hikes. The newsletter can also be used to recognize organizations and individuals that contribute toward the stewardship of the open space. The newsletter can be posted and made available at the interpretive sign areas and mailed to interested parties on a mailing list. The homeowners association can be enlisted to help with distribution of newsletters to local residents.

- The Habitat Manager will provide bulletins of important activities or events that occur in the open space preserve to local newspapers and local organizations.

8.7 FIRE

Fire is an important component in the ecology of Southern California. Fire also presents a potential hazard to buildings located adjacent to open habitat areas. A Fire Management Plan (Appendix C) has been prepared to address the issue of fire in the preserve area and develop a means of protecting adjacent

homes and buildings. The Fire Management Plan calls for Brush Management Zones extending 100 feet from homes or other flammable structures. The portion of this zone which lies on private property will contain irrigated landscaping, with private landowners responsible for vegetation management to prevent fires on their property.

The Habitat Manager is responsible for the Brush Management Zones which extend beyond privately owned lands into the preserve (if applicable). The Habitat Manager will revegetate these areas with native grassland species and institute an irrigation plan to ensure the continued survival of the grassland. Irrigation will be minimized to preclude excess runoff into adjacent open space areas. Additional measures which may be employed to prevent such runoff include the use of native of drought-tolerant species, restricted or directed (e.g., drip) delivery systems, water bars or similar designs for creating topographic diversity (and disseminating runoff) on manufactured slopes, and the use of brow ditches to intercept runoff at the tops or toes of applicable slopes. The Habitat Manager will conduct periodic monitoring to ensure irrigation systems are functioning properly, and will also be responsible for slope stabilization activities (as appropriate) and periodic clearing and maintenance of all Brush Management Zones within the preserve.

At times the Habitat Manager may determine that a prescribed burn within the preserve area is warranted to reduce the fuel load and enhance the habitat. Small, controlled burns may be permitted within the preserve area with the approval of the Fire Marshall and the County. The Habitat Manager will be responsible for all required permitting as well as informing the surrounding communities of the planned burn.

The preferred method of habitat restoration in areas which have burned (prescribed or natural) is natural recovery. Burned areas will be allowed to regenerate on their own. The Habitat Manager may decide revegetation is necessary if the burned area fails to recover or is taken over by invasive weed species. The Habitat Manager may also install slope stabilization structures (e.g., hay bales, water bars) if erosion poses problems after a burn.

8.8 FLOODING/HYDROLOGY

The majority of the Open Space I area within the project site runs along the San Dieguito River. During times of heavy rainfall or dam releases this river area is subject to flooding. In the event of a flood, habitat in the area may become degraded or entirely destroyed. The preferred method of habitat restoration in these areas is natural recovery. Additional restoration efforts will be required if the natural

recovery is inadequate or the flood damage creates unstable or dangerous conditions (e.g., slope undercutting) which may endanger additional habitat and trail users. The Habitat Manager will revegetate habitat areas disturbed by flooding as needed. In addition, the Habitat Manager will survey for and remove exotic species introduced by flooding.

8.9 NON-HABITAT MANAGEMENT CONCERNS

Trash Removal

The Habitat Manager will be responsible for general removal of trash from the Open Space I area, including the stream bed and other non-trail areas. Trash bins and recycling bins will be placed at the trail heads and at the intersection of the paved and unpaved trails in the northern portion of the site, although maintenance of these facilities will be the responsibility of the JPA.

Squatting

Illegal squatting is often a problem within open space areas in the County. The Habitat Manager will regularly survey the site for encampments and report them to the Sheriff's Department and the County.

Hunting/Firearms

The purpose of the Open Space I area is to create a habitat preserve. Hunting, fishing and use of firearms will not be permitted within the preserve as they are counter productive to the goals of the preserve. The Habitat Manager will post signage advising visitors of this policy and warning them of the potential legal consequences. The Habitat Manager shall inform, in a non-confrontational manner, anyone hunting, fishing or shooting within the preserve that these activities are illegal. The Habitat Manager should maintain a log of all incidences of hunting within the preserve. Should a situation turn confrontational or if requests to discontinue illegal activities are ignored the Habitat Manager shall report the offender(s) to the Sheriff's Office, CDFG and the USFWS.

Problem Species

Legal culling of exotic or overpopulated species shall be conducted by the Habitat Manager with the approval of the County, CDFG and the USFWS. Species which may be targeted by culling efforts include bullfrogs, cowbirds, and European starlings. The Habitat Manager will be responsible for obtaining all

required permits prior to initiating culling activities. Additional discussion of exotic or pest species removal is provided in Section 8.5, Prevention of Degradation.

Poaching/Collecting

Removal of any plants, animals, rocks, minerals or other natural resources will be prohibited within the preserve. The Habitat Manager will post signage advising visitors of this policy and warning them of the potential legal consequences. Anyone found removing plants or animals will be informed, in a non-confrontational manner, that these activities are illegal. The Habitat Manager should maintain a log of all incidences of collecting within the preserve. Should a situation turn confrontational or if requests to discontinue illegal activities are ignored the Habitat Manager shall report the offender(s) to the Sheriff's Office, CDFG and the USFWS.

The Habitat Manager may, at his/her discretion, allow seed collection and plant cuttings to be used as part of revegetation efforts within the preserve. Any such activities will take place under the direct supervision of the Habitat Manager. The amount of collected plant materials will be limited to provide only what is absolutely necessary to ensure successful revegetation.

Utilities

Occasional maintenance of existing utilities will be required within the preserve area. Prior to any such activity, the Habitat Manager will be consulted to formulate a means of completing necessary maintenance with a minimum of disturbance to the preserve.

Lighting

Lighting from the developed portions of the project area shall not be directed toward any Open Space I areas. The project applicant will be responsible for developing a lighting plan which directs lighting away from the preserve areas. The lighting plan will conform with the lighting guidelines presented in the County's MSCP Subarea Plan.

Fencing

The project applicant will install temporary fencing along the portion of the unpaved trail which passes through the wetland restoration area. The fencing shall be maintained until the Habitat Manager determines it is no longer necessary to protect the adjacent restoration area.

Fencing can also be used as a short- or long-term tool to protect habitat if encroachment becomes a problem and other means to deter off-trail activity (e.g., signing and notices to local residents) are not effective. Such fencing would not be intended as an obtrusive barrier, but rather would serve as a visual reminder to open space users that off-trail activity is not permitted, Fencing may also be required for purposes such as protection of revegetated or restored habitat areas, prevention of unauthorized vehicle access on trails, protection of open space boundaries, and discouraging the formation of alternative trails within the preserve. The use of fencing should be limited to instances where the protection of open space values is an issue. All fencing (except for use in protecting revegetated or restored areas) will require consultation with the County prior to installation, and should be restricted to areas within the trail easement.

9.0 SENSITIVE SPECIES

Ten sensitive plant species and 12 sensitive animal species have been observed onsite, as described in Section 4.0 of this report. Two of these species are federally listed, including Del Mar manzanita, which is federally listed as endangered, and coastal California gnatcatcher, which is federally listed as threatened.

The EIR prepared for the project (County of San Diego 1995) found that none of the impacts to these species would be significant based on their generally low level of sensitivity and the amount of habitat being preserved in the Open Space I area. Therefore, no species specific mitigation requirements were recommended for these species. It is the responsibility of the Habitat Manager to evaluate the status of the preserved species on site and to institute protective measures if any individual species becomes threatened. The following text provides a brief description of each observed species and its status in the Open Space I preserve area. Eight of the following listed animal species also exhibit special management requirements in the MSCP (City of San Diego 1996), including Del Mar manzanita, San Diego barrel cactus, white coast ceanothus, coastal California gnatcatcher, Cooper' hawk, orange-throated whiptail, northern harrier and rufous crowned sparrow. These requirements and related project design/HMP items are outlined below for the appropriate species.

Appendix E presents a compilation of listed or sensitive animal species with the potential to occur within the Open Space I preserve area. Appendix F provides a description of the status codes for the species listed below and in Appendix E.

Plants

California adolphia (*Adolphia californica*)
Status: CNPS List 2; R-E-D 1-2-1
Distribution: Below 1,000 feet in elevation in western San Diego County and northwestern Baja California, Mexico.
Habitat(s): Clay soils in dry canyons and washes in coastal sage scrub and chaparral.
Status on site: Approximately 309 individuals of this species will be preserved in the Open Space I area of the site.

Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*)
Status: USFWS FE/CNPS List 1B; R-E-D 3-3-2
Distribution: Coastal San Diego County.
Habitat(s): Southern maritime chaparral on sandy mesas and bluffs.
Status on site: Approximately 7 acres of southern maritime chaparral will be preserved in the Open Space I area. The Del Mar manzanita has not been reported from the preserved habitat although it may be present.
MSCP Management Requirements: Address species autecology and natural history, and reduce the risk of catastrophic fire. The project design and HMP address these requirements through measures including preservation of this species and the associated habitat (southern maritime chaparral), redesign of Open Space II facilities (i.e., golf course development) to minimize impacts to individual manzanita plants, and the potential use of controlled burns within the preserve to reduce fuel load and enhance the habitat (see Section 8.7, Fire).

Nuttall's scrub oak (*Quercus dumosa*)
Status: Regionally Sensitive/CNPS List 1B; R-E-D 2-3-2
Distribution: Baja California, Mexico and San Diego, Orange, and Santa Barbara counties in California.
Habitat(s): Chaparral, coastal scrub with sandy or clay loam soils.
Status on site: Several individuals of this species will be preserved in the Open Space I area of the site.

San Diego barrel cactus (*Ferocactus viridescens*)
Status: Regionally Sensitive/CNPS List 2; R-E-D 1-3-1
Distribution: San Diego County and Baja California, Mexico.
Habitat(s): Dry slopes in coastal sage scrub.
Status on site: Scattered individuals of this species have been observed in the preserved coastal sage scrub habitat.
MSCP Management Requirements: Protect this species from edge effects and unauthorized collection, and implement appropriate fire management/control practices to protect against over frequency of fire cycles. The project design and HMP address these requirements through measures including use of Open Space II (and other) buffer zones to minimize edge effects within the preserve, habitat monitoring, public awareness efforts, signing and fire management techniques (see Section 8.7, Fire).

San Diego marsh-elder (*Iva hayesiana*)
Status: Regionally Sensitive/CNPS List 2; R-E-D 2-2-1
Distribution: San Diego County and Baja California, Mexico.
Habitat(s): Low-lying, moist or alkaline places along the coast. Has been reported along intermittent streams.
Status on site: Individuals of this species have been observed along the San Dieguito River.

San Diego sagewort (*Artemesia palmeri*)
Status: CNPS List 2; R-E-D 2-2-1
Distribution: San Diego County and Baja California, Mexico.
Habitat(s): Stream courses, often within coastal sage scrub and southern mixed chaparral.
Status on site: This species has been observed in the riparian area along the San Dieguito River.

Southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*)
Status: CNPS List 4; R-E-D 1-2-1
Distribution: Los Angeles, San Bernardino, San Luis Obispo, Ventura and San Diego counties, as well as Baja California, Mexico.
Habitat(s): Moist, saline, or alkaline soils.
Status on site: This species has been observed in the riparian area along the San Dieguito River and along some of its tributaries on site.

Summer holly (*Comarostaphylis diversifolia* ssp. *diversifolia*)
Status: Regionally Sensitive/CNPS List 1B; R-E-D 2-2-2
Distribution: Scattered locations below approximately 2,300 feet in elevation from the foothills to the coast in Orange and San Diego counties and south into Baja California, Mexico.
Habitat(s): North-facing slopes and drainages in chaparral.
Status on site: Individuals of this species have been observed scattered through the preserved chaparral on site.

White coast ceanothus (*Ceanothus verrucosus*)
Status: Regionally Sensitive/CNPS List 2; R-E-D 1-2-1
Distribution: Western San Diego County and adjacent Baja California, Mexico.
Habitat(s): Chaparral.
Status on site: Several individuals of this species have been observed within the Open Space I area of the site.
MSCP Management Requirements: Address species autecology and natural history, increase populations and reduce the risk of catastrophic fire. The project design and HMP address these requirements through measures including preservation of this species and associated habitats (e.g., chaparral), habitat monitoring, and the potential use of controlled burns within the preserve to reduce fuel load and enhance the habitat (see Section 8.7, Fire). In addition, any new populations of this species discovered on site will be evaluated for inclusion within the preserve strategy.

Animals

Bell's sage sparrow (*Amphispiza belli belli*)
Status: Regionally Sensitive/CDFG CSC
Distribution: Lower slopes of the California and northern Baja California, Mexico coast ranges; on the eastern slopes bordering the Central Valley from the San Francisco Bay Area to Trinity County; and on the western slopes of the Sierra Nevada from Calaveras to Madera counties.
Habitat(s): Sunny, dry stands of coastal sage scrub and chaparral. May occasionally be found in other arid habitats such as cismontane juniper woodland and alluvial fan scrub.
Status on site: Approximately 91 acres of potential habitat for this species is preserved in the Open Space I area of the site.

California horned lark (*Eremophila alpestris actia*)
Status: Regionally Sensitive/CDFG CSC
Distribution: Coastal slopes and lowlands from Sonoma County to northern Baja California, Mexico.
Habitat(s): Sandy beaches, agricultural fields, grasslands, and open areas.
Status on site: Approximately 17 acres of potential habitat for this species is preserved in the Open Space I area of the site.

Coastal California gnatcatcher (*Polioptila californica californica*)
Status: USFWS FT/CDFG CSC
Distribution: Southern Los Angeles, Orange, western Riverside, and San Diego counties south into Baja California, Mexico.
Habitat(s): Coastal sage scrub.
Status on site: Approximately 91 acres of potential habitat for this species is preserved in the Open Space I area of the site.
MSCP Management Requirements: Reduce edge effects, minimize nesting period disturbances, improve habitat quality, and implement fire protection measures to reduce potential habitat degradation from unplanned fires. The project design and HMP address these requirements through measures including preservation of this species and associated habitats (i.e., coastal sage scrub), habitat restoration and monitoring, and the potential use of controlled burns within the preserve to reduce fuel load and enhance the habitat (see Section 8.7, Fire).

Cooper's hawk (*Accipiter cooperii*)
Status: Nesting—CDFG CSC
Distribution: Throughout the continental U.S. excluding Alaska, parts of Montana, and parts of the Dakotas. Winters south to Mexico and Honduras.
Habitat(s): In San Diego County tends to inhabit lowland riparian areas and oak woodlands in proximity to suitable foraging areas such as scrublands or fields.
Status on site: Approximately 17 acres of potential foraging habitat for this species is preserved in the Open Space I area of the site.
MSCP Management Requirements: Avoidance of impacts within 300 feet of active nests, minimize impacts to oak woodland and oak riparian habitats. While nesting habitats for this species (i.e., oak woodland and oak riparian) are not present within the preserve area or the project site, the project design and HMP address requirements for this species through preservation of foraging habitats (as noted above).

Great blue heron (*Ardea herodias*)
Status: Rookery—CDFG Special Animal
Distribution: Breeds in North and Central America. Winters throughout the Americas to northern South America.
Habitat(s): Fresh and brackish marshes, swamps, lakes, rivers, and mangroves.
Status on site: The San Dieguito River and surrounding riparian area is preserved in the Open Space I area of the site.

Orange-throated whiptail (*Cnemidophorus hyperythrus beldingi*)
Status: Regionally Sensitive/CDFG CSC
Distribution: Southern Orange County and southern San Bernardino County (Colton), south to the cape of Baja California, Mexico.
Habitat(s): Coastal sage scrub, chaparral, edges of riparian woodlands, and washes. Also found in weedy, disturbed areas adjacent to these habitats. Important habitat requirements include open, sunny areas, shaded areas, and abundant invertebrate prey base, particularly termites (*Reticulitermes* sp.).
Status on site: Approximately 104 acres of potential habitat for this species is preserved in the Open Space I area of the site.
MSCP Management Requirements: Address edge effects to insure maintenance of food species. The project design and HMP address these requirements through measures including preservation and restoration of appropriate habitats, and the use of Open Space II (and other) buffer zones to minimize edge effects within the preserve.

Loggerhead shrike (*Lanius ludovicianus*)
Status: CDFG CSC
Distribution: Widespread, but declining, throughout North America. Winters south to Central America.
Habitat: Open habitats including grasslands, scrublands, and ruderal areas with adequate perching locations.
Status on site: Approximately 17 acres of potential foraging habitat for this species is preserved in the Open Space I area of the site.

Northern harrier (*Circus cyaneus*)
Status: Nesting—CDFG CSC
Distribution: Widespread throughout the temperate regions of North America and Eurasia. Winters and migrates throughout California from below sea level in Death Valley to an elevation of 9,800 feet. Known breeding areas in San Diego County include Torrey Pines, the Tijuana River Valley, and Camp Pendleton.
Habitat(s): Coastal, salt, and freshwater marshlands; grasslands; and prairies.
Status on site: Approximately 17 acres of potential foraging habitat for this species is preserved in the Open Space I area of the site.
MSCP Management Requirements: Management of agricultural and disturbed areas (which may provide foraging) within the preserve that are within four miles of nesting habitat, avoidance of impacts within 900 feet of active nests, and maintain winter foraging habitat in preserve areas near Lake Hodges. While active nest sites for this species are not present within the preserve area or the project site, the project design and HMP address requirements for this species through preservation of foraging habitats (as noted above).

San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)
Status: Regionally Sensitive/CDFG CSC
Distribution: Southern Santa Barbara County, south on the coastal slope to the vicinity of San Quintin, Baja California, Mexico. Localities on the eastern edge of its range include Jacumba and San Felipe Valley in San Diego County.
Habitat(s): Occurs primarily in open habitats including coastal sage scrub, chaparral, grasslands, croplands, and open, disturbed areas if there is at least some scrub cover present.
Status on site: Approximately 123 acres of potential habitat for this species is preserved in the Open Space I area of the site.

Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)
Status: Regionally Sensitive/CDFG CSC
Distribution: Ventura County southeast through Los Angeles, Orange, Riverside and San Diego counties to northwestern Baja California, Mexico.
Habitat(s): Coastal sage scrub where it occurs on rocky hillsides and in canyons but also may be found in open sage scrub/grassy areas of successional growth for example, after a fire.
Status on site: Approximately 108 acres of potential habitat for this species is preserved in the Open Space I area of the site.
MSCP Management Requirements: Maintenance of dynamic processes, such as fire, perpetuate some open phases of coastal sage scrub with herbaceous components. The project design and HMP address requirements for this species through the potential use of controlled burns within the preserve (see Section 8.7, Fire).

White-tailed kite (*Elanus leucurus*)
Status: Nesting—CDFG Special Animal
Distribution: Breeds in the Pacific U.S. Winters to South America as far south as Chile.
Habitat(s): Nesting typically occurs in riparian or oak woodlands adjacent to grasslands where small mammals are hunted.
Status on site: Approximately 17 acres of potential foraging habitat for this species is preserved in the Open Space I area of the site.

10.0 HABITAT MAPPING

Base habitat mapping for the Starwood - Santa Fe Valley project was conducted as part of the SFVSP EIR (County of San Diego 1995). Minor changes were made to reflect current conditions and maintain consistency with MSCP habitat nomenclature. The revised habitat map is included in this HMP as a map pocket.

11.0 TRAIL CONSTRUCTION AND MAINTENANCE

The SFVSP includes a system of paved and unpaved trails throughout the open space areas. Two of these trails pass through the Open Space I area on the Starwood - Santa Fe Valley project site, as described in Section 1.0 (Figure 6). The first trail would run east-west for approximately 5 miles through the northern portion of the site. This trail would be a paved multi-use trail with an approximate width of 8 feet within a 12-foot easement.

The second trail would be an unpaved pedestrian/equestrian trail. This trail would extend approximately 8.2 miles from the southwest corner of the site and generally follow along the riparian area in a northeasterly direction to connect with the paved multi-purpose trail in the north. The trail would be approximately 4 feet wide within a 12-foot wide easement, with the trail surface composed of crushed gravel or similar material.

Trail construction will be the responsibility of the project applicant (Starwood Development). A portion of the unpaved pedestrian/equestrian trail would pass through an area planned for habitat restoration. This area is located in the western portion of the site and is identified on the Wetland Restoration Area map (Figure 8). Upon completion of the trail, restoration may take place up to the edge of the trail.

The San Dieguito JPA has agreed to provide long-term maintenance of the trails. The Habitat Manager will coordinate with the JPA on a regular schedule of trail monitoring, although trail maintenance and removal of trash from receptacles will be conducted solely by the JPA. No vehicles will be allowed on the trails, other than those authorized by the Habitat Manager for maintenance activities. Posting of signs and checking for unauthorized trails will also be part of the long-term HMP maintenance/monitoring program.

No additional trails are proposed in this HMP. If the JPA, Habitat Manager, HOA or the County determine that an additional trail is necessary, a written proposal may be prepared. The proposal must indicate the need for the new trail and provide a description of the habitats and sensitive species which would be impacted. No trail may be created without first receiving the approval of the JPA and the County, as well as input from the ACOE, USFWS and the CDFG, if applicable.

12.0 DISPERSAL STUDIES

The Habitat Manager will verify the Open Space I habitat types and sensitive species locations and conditions on an annual basis. Surveys for the sensitive species previously identified on site will be conducted at the appropriate time of year for each species. At the end of each year the Habitat Manager will submit a report to the County providing the results of the annual surveys. This report will also compare the most recent data with that collected in previous years, and will evaluate wildlife corridor use pursuant to MSCP guidelines. The report should provide an analysis of the changes in habitat and species distribution to determine the status of the resources within the Open Space I area. If any habitat type or sensitive species is declining the report will outline a plan for their recovery.

Emigration studies for motile species may also be required by the County to determine movement of species between different project areas within the SFVSP area. If required, these studies would require coordination between the Habitat Manager and the habitat managers of each of the other parcels within the SFVSP area. The habitat managers will develop with the County a program to acquire the necessary species dispersal data. The Habitat Manager will be responsible for implementing the portions of the program in the Starwood - Santa Fe Valley project area.

13.0 LIST OF PREPARERS

The following individuals contributed to the field work and/or preparation of this report:

David Claycomb	B.S., Botany, University of New Hampshire, 1975. M.S., Natural Resources Management, Humboldt State University, 1982.
Dennis Marcin	B.S., Geology, Michigan State University, 1979.
Greg Mason	B.S., Natural Resources Planning and Interpretation, Humboldt State University, 1992.
W. Larry Sward	B.S., Biology, San Diego State University, 1975. M.S., Biology, San Diego State University, 1979.

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1995e Tentative Map No. 5073 Resolution of Approval. December 13.

1995f Balcor Santa Fe Land Company Major Use Permit No. P95-009. December 13.

1995 g Balcor/Santa Fe Land Company Major Use Permit No. P95-010. December 13.

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Appendix A

UPLAND RESTORATION PLAN

Starwood - Santa Fe Valley

UPLAND RESTORATION PLAN

July 6, 1998

Prepared for:

Starwood Development
380 Stevens Avenue, Suite 311
Solana Beach, California 92075

Prepared by:

HELIX Environmental Planning, Inc.
8100 La Mesa Boulevard, Suite 150
La Mesa, California 91941-6452

Starwood-Santa Fe Valley
Upland Restoration Plan

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1.0 PURPOSE AND GOALS OF THE RESTORATION PLAN

The purpose of this restoration plan is to provide details for the mitigation of Diegan coastal sage scrub and native grassland impacts within the Starwood portion (Area II) of the approved Santa Fe Valley Specific Plan area, as required by the project's certified Final Environmental Impact Report (EIR) (County of San Diego 1995). The goal is to restore and enhance habitat values along the San Dieguito River to mitigate for habitat that would be disturbed by construction of the proposed project. The restored habitat will enhance the overall habitat values of Santa Fe Valley and the San Dieguito River corridor, as well as their ability to function as a wildlife corridor. The restored areas are expected to approach the function and value of their pre-disturbed states within five years.

2.0 PROJECT SUMMARY

A. PROJECT LOCATION

The proposed project is located in north-central San Diego County, south of Del Dios Highway and east of Rancho Santa Fe in the San Dieguito Community Planning Area (Figures 1 and 2). The restoration areas include previously disturbed areas and manufactured slopes to be created near the San Dieguito River. The project proponent is Starwood Development, 380 Stevens Avenue, Suite 311, Solana Beach, California 92075.

B. ENVIRONMENTAL SETTING

The proposed project supports a variety of vegetation communities, and portions of the site have been previously grazed, cleared, or disturbed. On-site vegetation communities include coastal sage scrub, chaparral, coastal sage scrub/chaparral, native and non-native grassland, coast live oak woodland, southern mixed chaparral/coast live oak woodland ecotone, southern willow riparian forest, vernal pools, freshwater marsh, riparian scrub, eucalyptus woodland, and agriculture.

The intent of this report is to provide a restoration plan for Diegan coastal sage scrub and native grassland that is impacted by construction of the proposed project. Coastal sage scrub is being restored because it is a sensitive habitat that supports state and federally listed endangered, threatened and rare vascular plant and animal species. Native grassland is being restored because it is a sensitive habitat type. This habitat on site is of moderate-to-good quality. The areas designated for restoration were

previously disturbed or will be disturbed by project implementation, and are adjacent to extant coastal sage scrub, grassland or the San Dieguito River.

The dominant plant species in the Diegan coastal sage scrub is typically California sagebrush (*Artemisia californica*) or black sage (*Salvia mellifera*). There are also smaller areas of coastal sage scrub dominated by California buckwheat (*Eriogonum fasciculatum*), lemonadeberry (*Rhus integrifolia)* or laurel sumac (*Malosma laurina*). Coastal sage scrub also exists on-site as an ecotone with chaparral.

The dominant plant species in the native grassland are foothill (*Nassella lepida*) and purple needlegrass (*Nassella pulchra*). Other native species present in the grasslands include blue-eyed grass (*Sisirenchium bellum*) and blue dicks (*Dichelostema capitatum*).

C. PROJECT IMPACTS

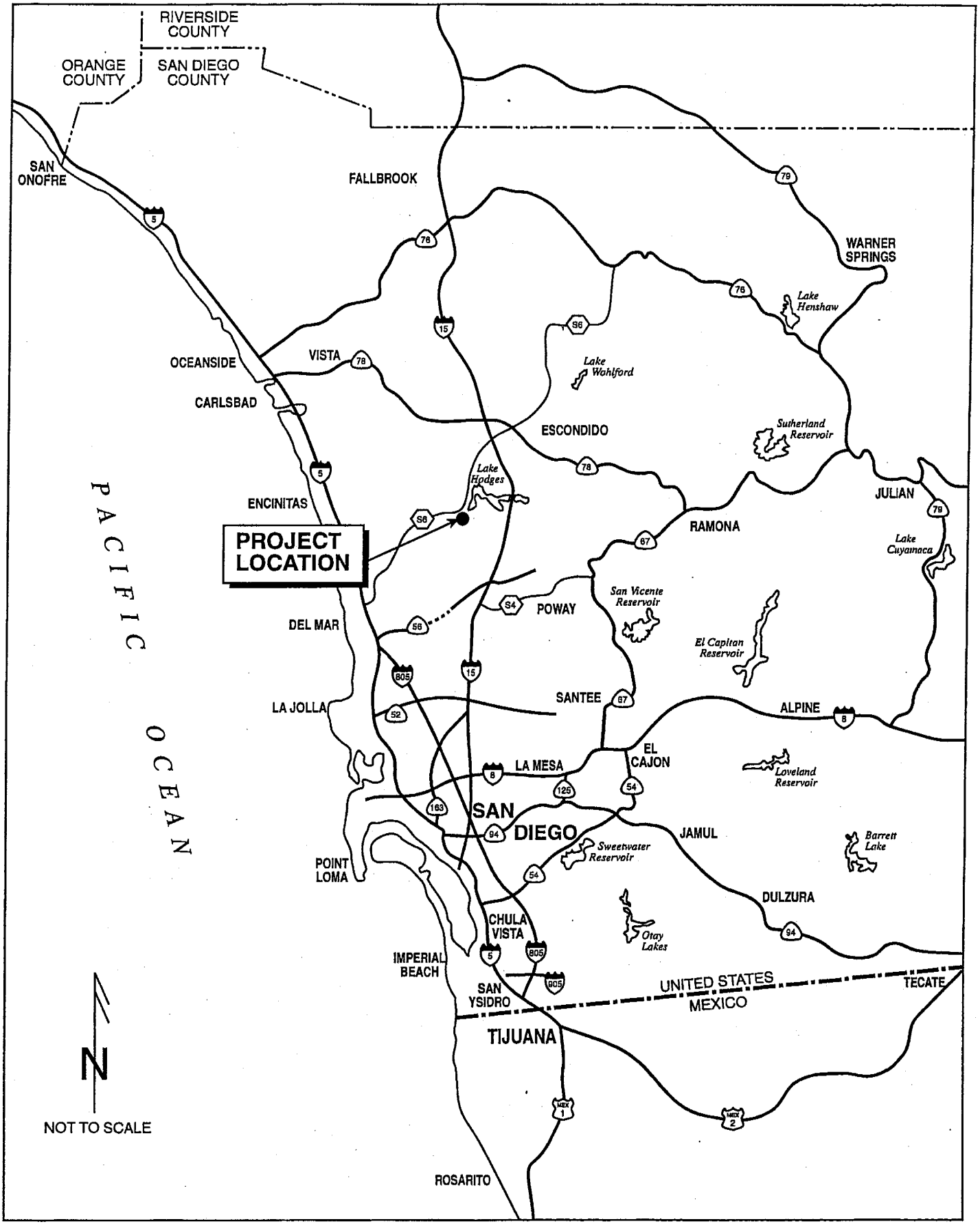
Project impacts by the Starwood portion (Area II) of the Santa Fe Valley SPA include 162 acres of coastal sage scrub (undisturbed and disturbed), 6.9 acres of coastal sage scrub/chaparral and 1.6 acres of native grassland. This is more fully described in the Specific Plan's certified Final EIR (County of San Diego 1995).

D. MITIGATION NEEDS

This project is part of the Santa Fe Valley Specific Plan. The EIR for the Specific Plan (County of San Diego 1995) does not specify a mitigation ratio or area. In place of this approach, it states that impacts have been mitigated by a combination of avoidance, dedication of extant habitat, and restoration of disturbed lands, which will be preserved as natural open space over the entire Specific Plan area. These areas are identified as Open Space I areas in the Specific Plan. This analysis identifies areas suitable for coastal sage scrub and native grassland restoration within the Starwood portion (Area II) of the Specific Plan (Figure 3). The total area to be restored is approximately 13.75 acres, including 11.25 acres of coastal sage scrub and 2.5 acres of native grassland.

3.0 AGENCY REQUIREMENTS

The proposed project is located within the County of San Diego Lake Hodges Subarea Plan of the approved Multiple Species Conservation Program (MSCP). Coastal sage scrub and native grassland are



Regional Location Map

STARWOOD-SANTA FE VALLEY UPLAND RESTORATION PLAN

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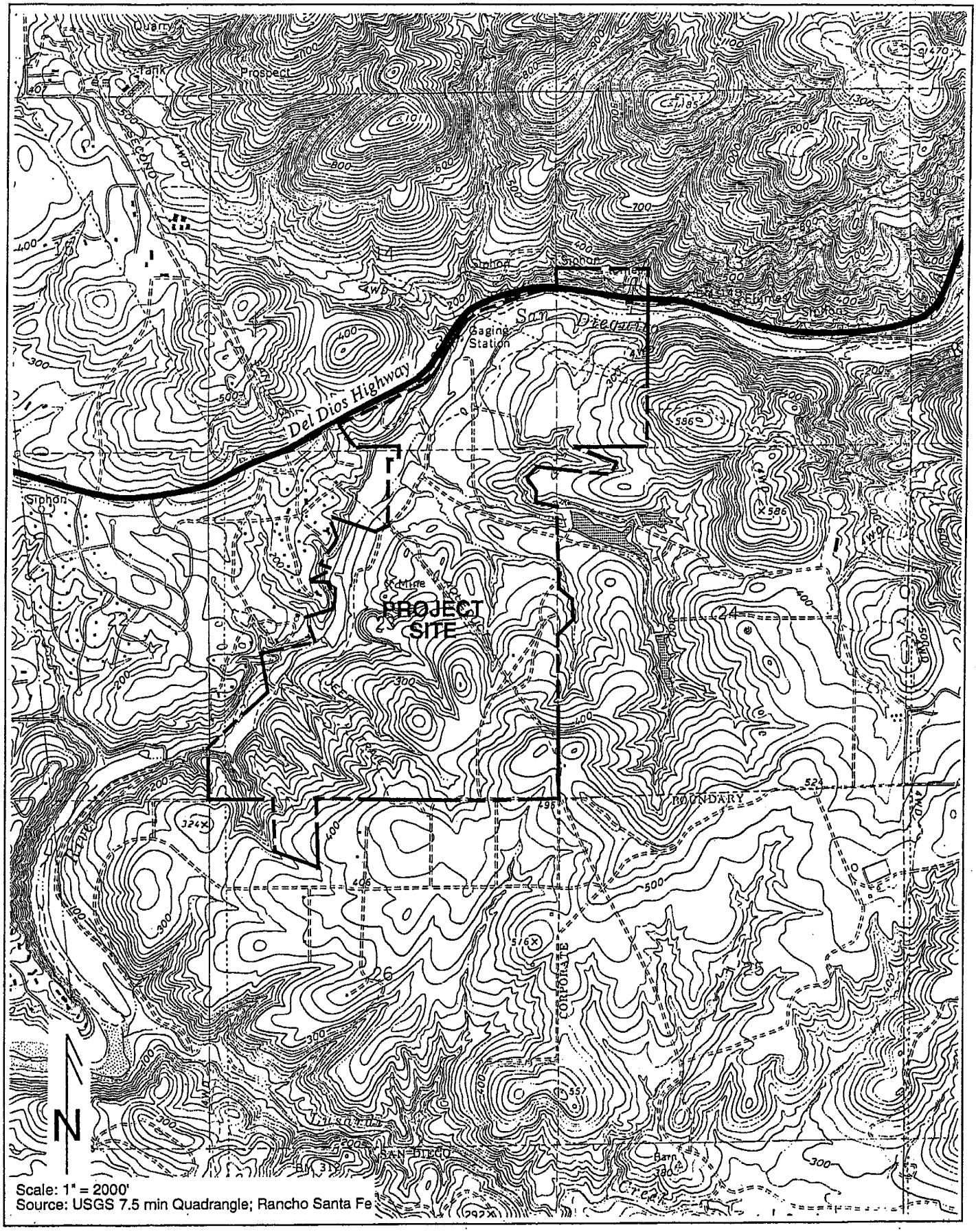
Figure 1



Vicinity Map

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STARWOOD-SANTA FE VALLEY UPLAND RESTORATION PLAN

Figure 2

HELIX

Upland Mitigation Areas

STARWOOD-SANTA FE VALLEY UPLAND RESTORATION PLAN

Figure 3

covered vegetation communities in the MSCP. Accordingly, project implementation will not require a Habitat Loss Permit for coastal sage scrub, assuming participation in and conformance with applicable MSCP requirements.

A. ESSENTIAL PARTICIPANTS

1. Project Proponent

The project proponent, Starwood Development Company, will be responsible for financing the installation and monitoring of the mitigation sites. The contact at Starwood Development Company is Mr. Kerry Garza. He can be reached by telephone at (619) 793-2343, or at the address given on the title page of this document.

2. Landscape Architect

A licensed landscape architect will prepare the construction documents to implement this plan. The construction documents will be reviewed and approved by a restoration specialist and the County Department of Planning and Land Use (DPLU). A landscape architect will also be responsible for inspecting certain parts of the installation, and for participating in the final installation inspection.

3. Restoration Specialist

Overall supervision of the installation and maintenance contractors and monitoring in the mitigation area will be the responsibility of a restoration specialist or a biologist familiar with native habitat restoration. The restoration specialist will educate all contractors with regard to mitigation goals and requirements. This education will be initiated at a pre-construction meeting. After each monitoring event, the restoration specialist will provide the project proponent and installation contractors with a written list of items in need of attention. All requests for work which go beyond the contractor's scope of work will first be approved by the project proponent.

4. Installation Contractor

The installation contractor is responsible for pre-planting weed control, topsoil salvage, and imprinting and seeding. Imprinting is described in section 6.F. (Planting Timing and Methods) and in Appendix A. Once the restoration specialist has verified the completion of the landscape installation, a 180-day establishment period will begin. At the end of this period, the restoration specialist will certify

completion of the installation contract, provided all installation and maintenance tasks have been finished. These items include, but are not limited to, weed control, dead plant replacement, and reseeding. The installation contractor will be educated as to the installation and maintenance of native plants. This will be done by the golf course contractor.

5. Maintenance Contractor

After the installation contract is completed, a maintenance contractor will be hired by the project proponent for the duration of the five-year monitoring period. The project proponent may change contractors at its discretion. The maintenance contractor will service the entire restoration area at least once a month. The maintenance contractor will meet the restoration specialist at the site, when requested, and will perform all checklist items in a timely manner. The maintenance contractor will be educated by the restoration specialist as to the maintenance of a native plant habitat and the difference between native plants and weeds.

4.0 RESTORATION DESIGN CONCEPTS

A. HABITAT DESIGN CRITERIA

The goal of this restoration plan is to establish Diegan coastal sage scrub and native grassland based on species composition from this vegetation community on the site. The total amount of restoration area encompasses 13.75 acres, including 11.25 acres of coastal sage scrub and 2.5 acres of native grassland. The 2.5-acre native grassland restoration area is based on 1.6 acres of disturbance, a 2:1 mitigation ratio (per MSCP requirements) and 0.7 acre of native grassland habitat to be preserved as part of the on-site Open Space I designation. The remainder of the upland restoration will be coastal sage scrub. Three different types of sites will be restored: cut slopes, fill slopes, and previously disturbed areas (Figure 3). All areas will be imprinted with a non-irrigated seed mix. If technically feasible, topsoil will first be reapplied on these areas (See Section 6.A. of this report).

5.0 RESTORATION PLAN IMPLEMENTATION GUIDELINES

A. TIMING FOR SEEDING

All imprinting and/or broadcasting of seeds will be done between November 15 and January 15.

B. PROTECTION OF HABITAT OUTSIDE THE RESTORATION AREAS DURING PROJECT CONSTRUCTION

Extant habitat to be preserved adjacent to restored habitat will be marked with stakes and flagging prior to construction. Construction crews will be advised to avoid impacts to preserved habitat. Unanticipated impacts to preserved habitat must be mitigated as recommended by the restoration specialist at the expense of the company or persons responsible.

C. PROTECTION OF ADJACENT HABITAT DURING RESTORATION

Specific staging areas will be established, and restoration areas will be delineated and marked as described above. All restoration activities and related disturbance will remain within the designated areas.

D. PROTECTION OF RESTORED AREAS

The interface between native habitats and restoration areas will be clearly marked as described above. Work will be monitored by the restoration specialist to ensure that construction does not exceed these limits. If unanticipated impacts do occur, the affected areas will be restored as recommended by the restoration specialist and to the satisfaction of the Director of Planning and Land Use.

6.0 RESTORATION PLAN DETAILS

A. REUSE OF TOPSOIL

Topsoil from areas that currently support Diegan coastal sage scrub and native grassland, and are being impacted, will be collected and reused. Topsoil contains a viable and valuable seed bank as well as site-specific soil microbes. The restoration specialist will flag the collection areas to avoid collecting weed

infested soil. The restoration specialist will also determine the depth of removal for topsoil salvage. It is expected to be approximately six inches.

The topsoil collection and reuse will occur during the months from July to December. Soil organisms are typically dormant at this time of year and are less likely to be damaged by the salvage.

Two types of topsoil will be collected: 1) areas of crytogramic crust and 2) areas of undisturbed shrublands and grasslands. The crytogramic vegetation and topsoil will be collected with hand tools and stored in burlap bags in a cool, dry, dark place. Restoration areas to receive this material will not be imprinted.

Prior to collection of topsoil from undisturbed shrublands, the contractor will drive over the collection site(s) to crush the vegetation. Grassland topsoil will be collected without crushing. Note: The collection sites will be flagged by the restoration specialist. The shrubland vegetation will be collected, mulched, and stockpiled. Then, the top six inches of soil will be removed and stockpiled separate from the mulched vegetation. The grassland vegetation and soil will be collected simultaneously. Both will be applied to the restoration areas, if technically feasible, within six months of initial removal. These materials can be stockpiled up to six feet deep for up to six months if they are kept dry. To that end, measures may be necessary to protect the stockpiled topsoil (e.g., covering), depending on direction by the restoration specialist.

B. SEED SPECIFICATIONS

It is preferred that all propagules used at the site be from within the site or from wild sources within San Diego County and as close to the site as possible. Adequate quantities of seeds for desired species will be ensured by collecting one to two seasons prior to the planting date. Seeds will be collected from a minimum of five different areas in the vicinity of the site in the summer and early fall at the direction of the restoration specialist. Using different collection sites will ensure natural genetic variability and protect donor habitats. The seed collector will attempt to obtain equal amounts of seed from each collection site in an environmentally sensitive manner. Donor plants will not be excessively degraded by the collection methods. Collection areas and approximate quantities obtained from each site will be noted and mapped by the seed collector. Each day's collections will be removed from the site and stored in a cool, dry place free of rodents.

Seed will be cleaned to a grade normally acceptable in the seed trade with all sticks and large plant parts removed. Storage costs and insurance will be included in the price per pound of seeds. Seeds will be tested for percent purity, percent germination, and the number of live seeds per pound. Testing costs will be included in the seed costs per pound and will be the responsibility of the seed supplier. Results of the seed tests should be made available to the restoration specialist prior to seed delivery. Seed collections, handling, and storage techniques will be observed by the restoration specialist. Tables 1 and 2 present lists of species to include in the seed mixes, subject to availability. Modifications to the list may be necessary and may include substitute species in the mix and/or modification of the pounds per acre of available seed. If adequate seed is not available from local sites, a commercial source may be used to supplement seed supply, based on direction by the restoration specialist.

Table 1
COASTAL SAGE SCRUB SEED MIX

Species	Min.% Purity/ Germination	Lbs/Acre
Artemisia californica, California sagebrush[1]	15/50	3
Calystegia macrostegia, Chaparral morning glory[2]	NA	2
Dichelostemma capitatum, Blue dicks	95/50	1.5
Encelia californica, California encelia	40/60	2
Eremocarpus setigerus, Dove weed	90/40	1
Eriogonum fasciculatum, California buckwheat[3]	10/65	5
Hemizonia fasciculata, Fascicled tarplant	10/25	2
Isocoma menziesii, Goldenbush	NA	1
Isomeris arborea, Bladderpod[2]	NA	1
Lotus scoparius, Deerweed	90/60	5
Malosma laurina, Laurel sumac	NA	3[4]
Mimulus aurantiacus ssp. *australis*, Yellow bush monkeyflower	5/70	1
Muhlenbergia microsperma, Littleseed muhly[2]	NA	0.5
Nassella pulchra, Purple needlegrass	70/60	3
Opuntia littoralis, Beaver-tail cactus	NA	1
Phacelia minor, California bluebells[2]	95/70	1
Plantago erecta, California plantain[4,5]	95/75	15
Rhus integrifolia, Lemonadeberry[6]	NA	2[4]
Salvia mellifera, Black sage[3]	70/50	3
Yucca schidizera, Spanish dagger	90/65	2
TOTAL		**55**

[1]Dominant
[2]Not available without a firm seed order
[3]Sub-dominant
[4]*Plantago insularis* may be substituted if *Plantago erecta* is unavailable
[5]Nurse crop
[6] Scarify before imprinting

Table 2
NATIVE GRASSLAND SEED MIX

Species	Min.% Purity/ Germination	Lbs/Acre
Camissonia bistorta, southern sun cup[1]	NA	1
Dichelostema capitatum, blue dicks	95/50	1
Eremocarpus setigerus, doveweed	50/40	2
Hemizonia fasciculata, fascicled tarweed[2]	10/25	3
Lupinus bicolor, dove lupine[2]	98/80	3
Mirabilis californica, coastal wishbone plant[1]	NA	1
Nassella lepida[3], foothill needlegrass	60/60	5
Nassella pulchra[3], purple needlegrass	70/60	5
Sanicula arguta, Sharp-tooth sanicle[1]	NA	1
Sisyrinchium bellum, blue-eyed grass	95/75	2
Zygadenus fremontii, star-lily[1]	NA	1
TOTAL		**25**

[1] Not available without a firm seed order
[2] Sub-dominant
[3] Dominant

Arrangements will be made by the installation contractor or the project proponent, at least nine months prior to construction, to acquire seed required for restoration. An additional 15 percent of the total amount of seed mix will be procured. A copy of this contract will be submitted to the restoration specialist by the owner or installation contractor as verification. Seed collection/acquisition will be conducted by an experienced native plant nursery or seed company such as, but not limited to, S&S Seeds of Carpinteria, California.

The contract grower will provide the restoration specialist with information on the sources of all plant and seed materials grown/collected for the project for final approval. If necessary, the restoration specialist will help the grower locate local sources for plant materials.

C. SUBSTITUTIONS

The installation contractor is expected to secure all plant materials well in advance of the expected planting date. No species should be substituted without approval of the restoration specialist. If the installation contractor is unable to obtain the proper species specified by the time of planting, commencement of the guarantee period will be delayed until all plants specified are planted for a particular project phase. Substitution of seed species at the time of imprinting depends upon the

discretion of the restoration specialist in consultation with the landscape architect. All approved substitutions will be documented by the installation contractor in the final set of "as-built" plans. Lack of planning (i.e., insufficient lead time for seed collection) will not be accepted as justification for substitutions.

D. WEED CONTROL

Perennial weeds within the restoration areas will be treated with systemic herbicide prior to soils and site preparation. Species such as artichoke (*Cynara cardunculus*) should receive a foliar application and species such as tree tobacco (*Nicotiana glauca*) should be cut and stump treated with herbicide. Two herbicide applications will be made with a minimum of three weeks between applications.

E. SOILS AND SITE PREPARATION

Most of the restoration areas consist of fallow agricultural land. Following perennial weed treatment, these areas shall be ripped to eight inches. These areas will then be covered with three inches of salvaged topsoil and this shall be ripped in to a depth of six inches. Lastly, a second three inches of salvaged topsoil will be placed over the top. Compaction of these soils will occur during imprinting.

Road cut slopes with a steepness ratio of 2:1 or steeper will be benched or terraced to promote water absorption and increase plant establishment (Figure 4). If it is determined that the road cut slopes are too rocky to bench or terrace, the slopes will be left in a rough condition (with rock outcroppings) with soil pockets to support seed planting. On fill slopes, the top three feet of soil will be compacted to less than 85 percent so that plants will be able to take root.

F. PLANTING TIMING AND METHODS

To take advantage of the rainy season and minimize seed predation, all seeding will occur between November 15 and January 15. Imprinting will be the primary method of seeding. Imprinting is a mechanical means of impressing and embossing smooth-walled V-shaped furrows in the soil surface and spreading the seed (Figure 5). Seeding and inoculating the soil with mycorrhizae are done simultaneously. Specifications of imprinting are presented in Appendix B.

G. IRRIGATION

No irrigation of coastal sage scrub is planned.

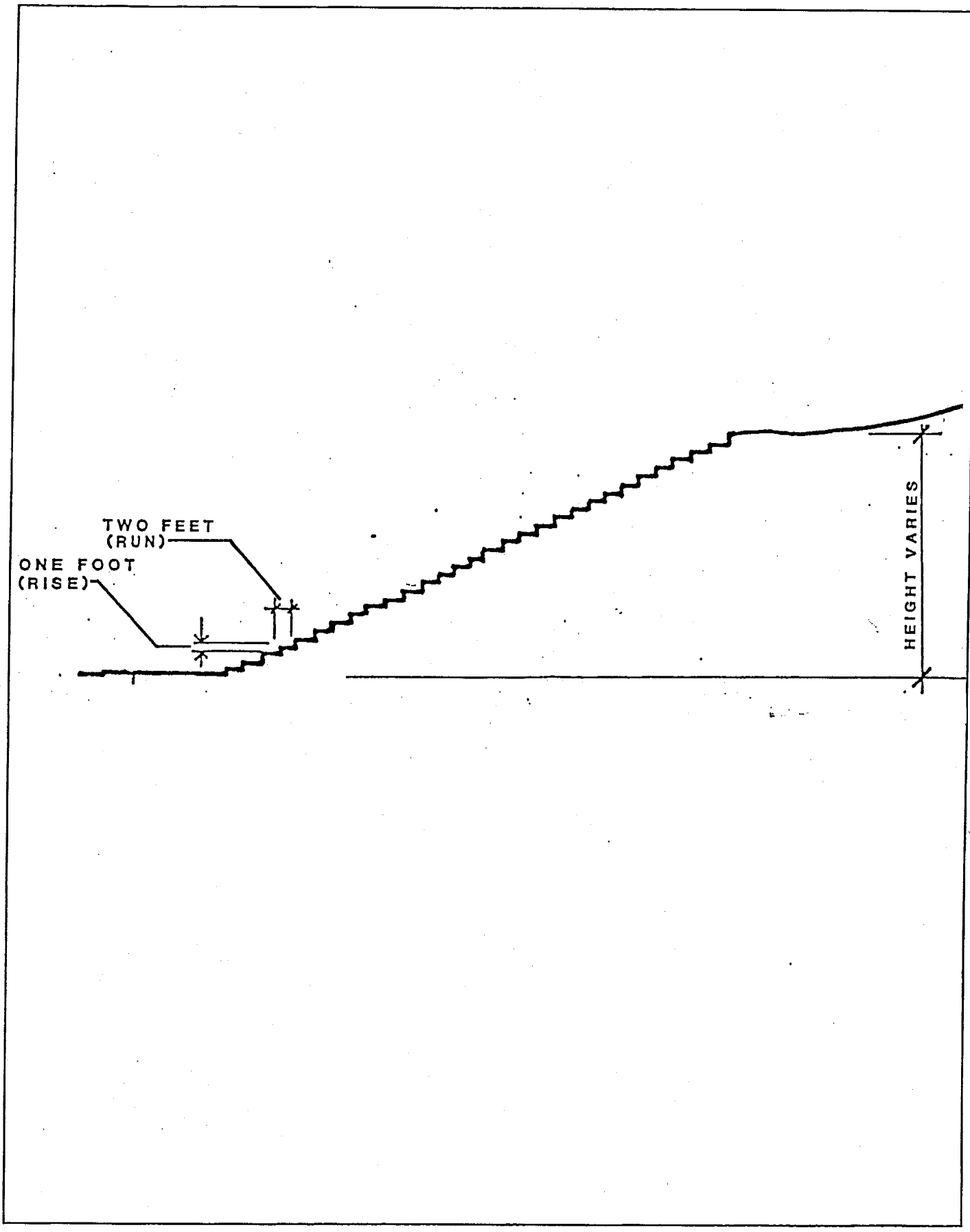
H. COST ESTIMATE

Table 3 presents a cost estimate for the restoration and a five-year monitoring program. Overall, the cost of this restoration project is projected to be approximately $200,000.00.

Table 3
COST ESTIMATE FOR RESTORATION AND A FIVE-YEAR MONITORING PROGRAM

Item	Cost ($)
Weed Control	2,000.00
Soil Salvage and Reuse	80,000.00
PLANTING- Soil Imprinting Seeding (Hydro/Hand)	40,000.00
ESTABLISHMENT PERIOD Reseeding (15 percent)	6,000.00
LONG-TERM MAINTENANCE* Year 1 Year 2 Year 3 Year 4 Year 5	 10,000.00 8,500.00 7,500.00 7,000.00 6,000.00
LONG-TERM MONITORING (5 years)*	30,000.00
TOTAL	**197,000.00**
COUNTY OF SAN DIEGO REVIEW OF MONITORING REPORTS AND MEETINGS NECESSARY TO ENSURE PROJECT SUCCESS. ALL UNUSED MONIES WILL BE RETURNED AT THE COMPLETION AND ACCEPTANCE OF THE RESTORATION EFFORT.	Cash deposit for 10% of total estimated cost of restoration project as approved by the County up to a total of $30,000.

*Includes 4% annual inflation



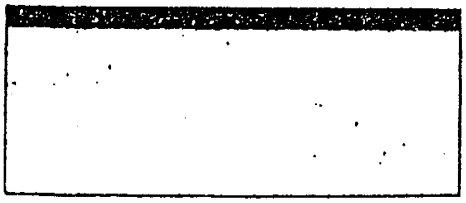
Benched Slope Design

STARWOOD-SANTA FE VALLEY UPLAND RESTORATION PLAN

HELIX

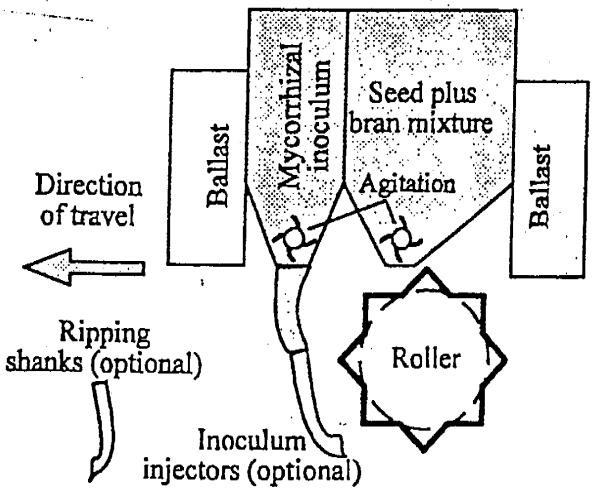
Figure 4

1



Side view of ground surface prior to imprinting.

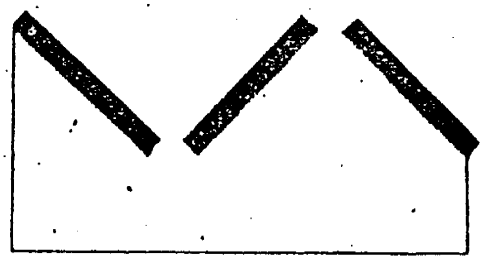
End view of a land imprinter



IMPRINTING

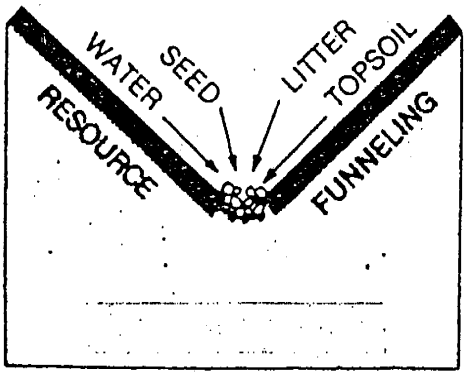
ROUGHENING AND OPENING

2



Side view of ground surface following imprinting.

3



Imprinting detail.

SOURCE: Ted St. John, Ph.D. and Bob Dixon, Ph.D.

Imprinting Diagram

STARWOOD-SANTA FE VALLEY UPLAND RESTORATION PLAN

HELIX

Figure 5

7.0 MAINTENANCE

A. GENERAL MAINTENANCE

Damage to the restoration areas occurring as a result of unusual weather or vandalism will be repaired as directed by the restoration specialist. The cost of such repairs will be paid for as extra work, although the contractor should provide the typical replacement costs as part of his/her contract.

Any damage caused by the maintenance contractor's inadequate maintenance, as determined by the restoration specialist, will be repaired by the contractor at his/her expense.

B. MONITORING/MAINTENANCE SCHEDULE

The restoration specialist will monitor the site preparation, seeding, subsequent establishment, and growth in an effort to detect any problems at an early stage (Table 4). Potential problems could arise from weed competition, erosion, vandalism, and unacceptable levels of disease and predation. In addition, the installation and monitoring contractors will inspect planted areas and perform maintenance activities as needed according to the schedule in Table 5.

The restoration specialist's maintenance monitoring program will begin with the construction process, and maintenance by the contractor will commence at the site preparation phase. The restoration specialist will file a written report to the DPLU Director after completing each inspection. Each of these reports will identify maintenance concerns including mortality, vandalism, and weed-related issues. These reports will facilitate communication and coordination with the installation contractor who will be responsible for implementing the maintenance program.

C. WEEDING

Weed eradication will be conducted as necessary to minimize competition that could prevent the establishment of native species. As weeds become evident, they should be removed by hand, mechanical means, or controlled with the proper herbicides. In general, weed removal will be accomplished by hand or hoe. No weed whips will be permitted after installation of the container stock and seed mixes. The restoration specialist will determine the need for weeding and will notify the project proponent and maintenance contractor of any required work. Maintenance personnel will be trained to distinguish weed species from desirable native vegetation. Examples of weeds to be controlled include, but are not

limited to, artichoke, tree tobacco, yellow star thistle (*Centaurea melitensis*), mustard (*Brassica* spp.), filaree (*Erodium* spp.), tumbleweed (*Salsola iberica*), and oats (*Avena* spp.).

Table 4
MAINTENANCE MONITORING SCHEDULE

Phase	Schedule
Grading/Site Preparation/Installation	2 times per week
Post Installation	
Year 1	Monthly
Year 2	Bi-Monthly
Years 3-5	Quarterly

Table 5
MAINTENANCE SCHEDULE

Phase	Schedule
Installation	Daily
Post Installation	
Year 1 February-May	Semi-Monthly
Year 1 June-January	Monthly
Year 2	Monthly
Years 3-5	Bi-Monthly

D. TRASH AND DEBRIS REMOVAL

Planted areas will be kept free of trash and debris and will be checked according to the maintenance schedule (Table 4) by the installation contractor.

E. PEST CONTROL

Insects, vertebrate pests, and diseases will be monitored. Generally speaking, a high threshold of tolerance will be permitted before control measures are considered. All specific recommendations will only be made by a licensed pest control adviser as required by law. All applicable federal and state laws

and regulations will be closely followed. The restoration specialist will be consulted on any pest control matters.

F. FERTILIZATION

Fertilizer will not be applied, except in extraordinary circumstances, and only at the written direction of the restoration specialist.

8.0 MONITORING

A. SCHEDULE

Upon completion of the restoration effort, the restoration specialist will prepare a letter report indicating that the installation is finished and that the five-year monitoring period has begun. Final acceptance of the installation will be verified during a site visit with the restoration specialist, landscape architect, and County staff. Monitoring reports will be submitted to the County DPLU semi-annually for the first 3 years, and annually for years 4 and 5.

B. CONTENT OF MONITORING REPORTS

The annual reports will include botanical observations. Any remedial recommendations will be made in the annual reports. A summary of whether the project is meeting the success criteria will be included. A draft Table of Contents for the annual monitoring report is provided in Appendix B.

C. SUCCESS CRITERIA AND POTENTIAL REMEDIAL ACTIONS

The purpose of this section is to define specific performance standards by which to evaluate project progress. The following parameters should be measured to compare the restored areas with a reference site or sites. The reference sites should be in Diegan coastal sage scrub and native grassland within 500 feet of the restoration areas. The reference sites should also have similar slope and aspect to the restoration areas.

Species Diversity and Recruitment. Species diversity and recruitment are closely linked, and diversity increases with recruitment. Species diversity is the number of species in a given area. The higher the

number of species, the higher the diversity. Recruitment is the successful, natural reproduction and/or establishment of plants in a given area. Recruitment should increase diversity to approach the number of species in the existing habitat on site (reference site[s]). Ultimately, the restored areas should reach 80 percent of the species diversity of the reference site[s].

Cover by Exotic Species (Weeds). Weeds are typically a problem with habitat restoration, particularly at the outset of the project. As the restoration takes hold, the problems with weeds should decrease. Many local weeds have become naturalized, and therefore the tolerance for weeds should reflect what is present at the existing habitats on site. The measure for tolerance should be total cover of weed species. Although weeds are expected to be a problem, it doesn't mean they are to be accepted. Weeds should be controlled as specified in the maintenance monitoring section.

Cover by Target and Other Native Species. Cover by native vegetation should increase over time and ultimately approach that of the existing habitats on site. Cover within the restoration area is often slow at first as the roots become established, but with sufficient rainfall it should approach 100 percent of the existing on-site habitats in five years. Cover should be measured and evaluated separately for tree, shrub and herbaceous life forms as compared to established reference sites (as described above). The annual milestones for these parameters are presented in Table 6. If the restoration area's criteria are measured to be 100 percent of the reference site, then the two sites are the same. For example, if the native species cover of the reference site is 60 percent and the native species cover of the restoration site is 42 percent, the restoration site has 70 percent of the reference site's native cover. Similarly, if weed cover at the reference site is 10 percent and weed cover at the restoration site is 12 percent, the restoration site has 120 percent of the reference site's weed cover.

Table 6
SUCCESS CRITERIA MILESTONES FOR SANTA FE VALLEY

Criteria	Year 1	2	3	4	5
Percent Species Diversity Relative to the Reference Site	40	50	60	70	80
Percent Cover by Native Species Relative to the Reference Site	20	35	55	70	100
Percent Cover by Weeds Relative to the Reference Site	140	130	120	110	100

The County DPLU may terminate monitoring earlier than five years if it is recommended first by the restoration specialist in a year-end report. Likewise, if at the end of five years, any of the restored areas fail to meet the year-five standards, then the monitoring and maintenance period will be extended one full year, and a specific set of remedial measures (approved by the County) will be implemented. Only areas which fail to meet the success standards will require additional work, that is, not all of the areas originally restored. This process will continue until all year-five standards are met, or as otherwise provided in this document, the County determines that other mitigation measures are appropriate.

9.0 LITERATURE CITED

County of San Diego

1995 Final Environmental Impact Report for the Santa Fe Valley Project, October 20.

APPENDIX A

IMPRINTING SPECIFICATIONS
(Modified from Draft Specifications Provided by Ted St. John, Ph.D.)

I. Design of Machine (or approved equivalent)

A. Dimensions of angles.
The angles shall be ten inches or less in length, with a gap of two inches or more between the end of one segment and the beginning of the next. The height of the angles shall be at least four inches.

B. Shape of angles.
Imprinting teeth shall be triangular in transverse section, and may be rectangular or triangular in longitudinal section.

C. Maximum length of roller.
No individual roller shall be more than eight feet in length. More than one roller may be attached to a single imprinting device as long as each roller swivels independently over surface obstructions.

D. Weight per square inch on angles.
Pressure on the soil surface shall be at least 25 pounds per square inch and less than 50 pounds per square inch while the machine is in use.

E. Tooth shape relative to slope angle and soil conditions.
The apical angle of the triangular cross section of the imprinting teeth shall be ninety degrees or less, with acute angles preferred for the steepest slopes. The two exposed sides of the triangular cross section need not meet the circumference of the roller at the same angle. If the angles are different, the larger angle shall face the forward direction of the implement.

II. Use of Machine

A. Contact with soil.
1. Pull imprinter at a velocity that roller remains on the ground and exerts at least 25 pounds per square inch.
2. Do not pull it so fast that the roller leaves the ground or exerts insufficient pressure.
3. Do not use the imprinter where boulders and other materials prevent proper contact with the soil.

B. Condition of soil.
1. Soil shall be soft enough to accept a pattern that conforms to performance specs.
2. Do not attempt to imprint soil that is not sufficiently cohesive to accept the imprinting pattern (example: loose sand or pulverized and loosened soil).

C. Direction relative to contour.
1. The long dimension of each imprint shall lie parallel to the contour of the slope, unless the imprinting pattern precludes significant downslope flow of runoff.

D. How close to edges of seeded area.
1. If the surface immediately outside the project boundary is susceptible to severe damage from the imprinter and tractor, a turn-around area within the project need not be fully imprinted.
2. The turn-around area on the project boundary shall be no wider than the smallest turning radius allows by the design of the imprinter.

E. Effects of tractor and type of tractor to be used.
1. The tracks or wheels of the moving tractor shall produce less pressure on the soil than the properly-weighted imprinter.
2. The imprinter may be pulled up and down a steep slope by means of a winch, if the resulting pattern conforms to the performance specifications.

III. Desired Pattern After Imprinting

A. Form of impressions.
Impressions shall be of triangular cross section and of eighteen inches or less in length. A pyramidal shape is acceptable as long as the requirement for spacing impressions is satisfied.

B. Compaction profile of finished impressions.
No portion of the post-imprinting soil profile shall exceed the bulk density indicated in Table A-1.

Table A-1
Maximum Allowable Bulk Densities After Imprinting

Soil	Maximum Bulk Density (Mg/m^3)
Loamy Sand	1.65
Sandy Loam	1.55
Loam	1.45
Silt Loam	1.35
Clay Loam	1.35
Clay	1.30

C. Spacing between impressions.
1. At least ninety percent of the soil surface shall bear impressions, apart from any peripheral turn-around area and areas rendered untreadable by rocks or other natural features.
2. The imprinting pattern shall provide a raised soil ridge that prevents continuous movement of drainage water between impressions.

IV. Seed distribution
A. The design of the seed dispensing mechanism shall prevent sorting of seed in the bin by size or weight.
B. Seed dispensed by the imprinting device shall be in firm contact with the soil.
C. No more than one half of the seed shall be buried to a depth greater than one-half inch.
D. The seed bin shall be free of weedy species, and shall contain no residual seed from previous uses.

V. Mycorrhizal Inoculation
A. The application mechanism shall grind or macerate not more than 5% of the particles or granules in the inoculum.
B. Root material shall be removed from the inoculum only if the material will not otherwise pass through the application mechanism.
C. Mycorrhizal inoculum shall be deposited in front of the imprinting roller beneath the soil surface, with seventy per cent or more of the inoculum deposited between one and six inches beneath the soil surface.
D. Inoculum shall be deposited to all areas of the project that do not receive approved and properly stored top soil from an area of native vegetation.
E. Inoculum shall be stored out of direct sunlight and in an ambient temperature that remains below 90 degrees F and above 32 degrees F.
F. At not time during storage or application shall inoculum be exposed to temperatures above 90 degrees F or below 32 degrees F.
G. The inoculum dispensing mechanism shall not be allowed to heat in the sun to temperatures above 90 degrees F.

VI. Substitutions
A. Alternate equipment for imprinting will be allowed as approved by the Revegetation Specialist.

APPENDIX B

DRAFT
SANTA FE VALLEY UPLAND RESTORATION
ANNUAL MONITORING REPORT

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Appendix B

WETLAND RESTORATION PLAN

Starwood - Santa Fe Valley Project

WETLAND RESTORATION PLAN

May 20, 1998

Prepared for:

STARWOOD DEVELOPMENT
380 Stevens Avenue, Suite 311
Solana Beach, California 92075

Prepared by:

HELIX ENVIRONMENTAL PLANNING, INC.
8100 La Mesa Boulevard, Suite 290
La Mesa, California 91941-6452

Starwood - Santa Fe Valley
Wetland Restoration Plan

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I. INTRODUCTION

This report provides background information, a conceptual restoration plan, and a monitoring program for wetland habitat on the Starwood - Santa Fe Valley project site. The form and content of this report follows the U.S. Army Corps of Engineers' (ACOE) Habitat Mitigation and Monitoring Proposal Guidelines (1993).

II. PROJECT DESCRIPTION

A. PROJECT LOCATION

The proposed project is located in central San Diego County, within the Santa Fe Valley Specific Plan (SFVSP) Area and south of the San Dieguito River (Figures 1 and 2). A portion of the project area is located within the City of San Diego's (1997) Multiple Habitat Planning Area (MHPA) preserve. The MHPA preserve is part of the adopted Multiple Species Conservation Program (MSCP). The project site is bounded by the San Dieguito River and Del Dios Highway on the north, the San Dieguito River and residential development to the west, residential development to the south, and land designated for future development to the east (McCrink Ranch). The San Dieguito River is recognized as a regional riparian and wildlife movement corridor. A small tributary that connects the San Dieguito River with some irrigation ponds on McCrink Ranch is considered a local corridor.

B. PROJECT SUMMARY

The proposed 686-acre Starwood - Santa Fe Valley project includes residential, resort and golf course development. The project (in concert with other proposed development within the SFVSP) will implement the goals of the MSCP by preserving considerable open space as part of the project.

C. RESPONSIBLE PARTY

Starwood Development
Contact: Mr. Kerry Garza
380 Stevens Avenue, Suite 310
Solana Beach, CA 92075
(619) 793-2343

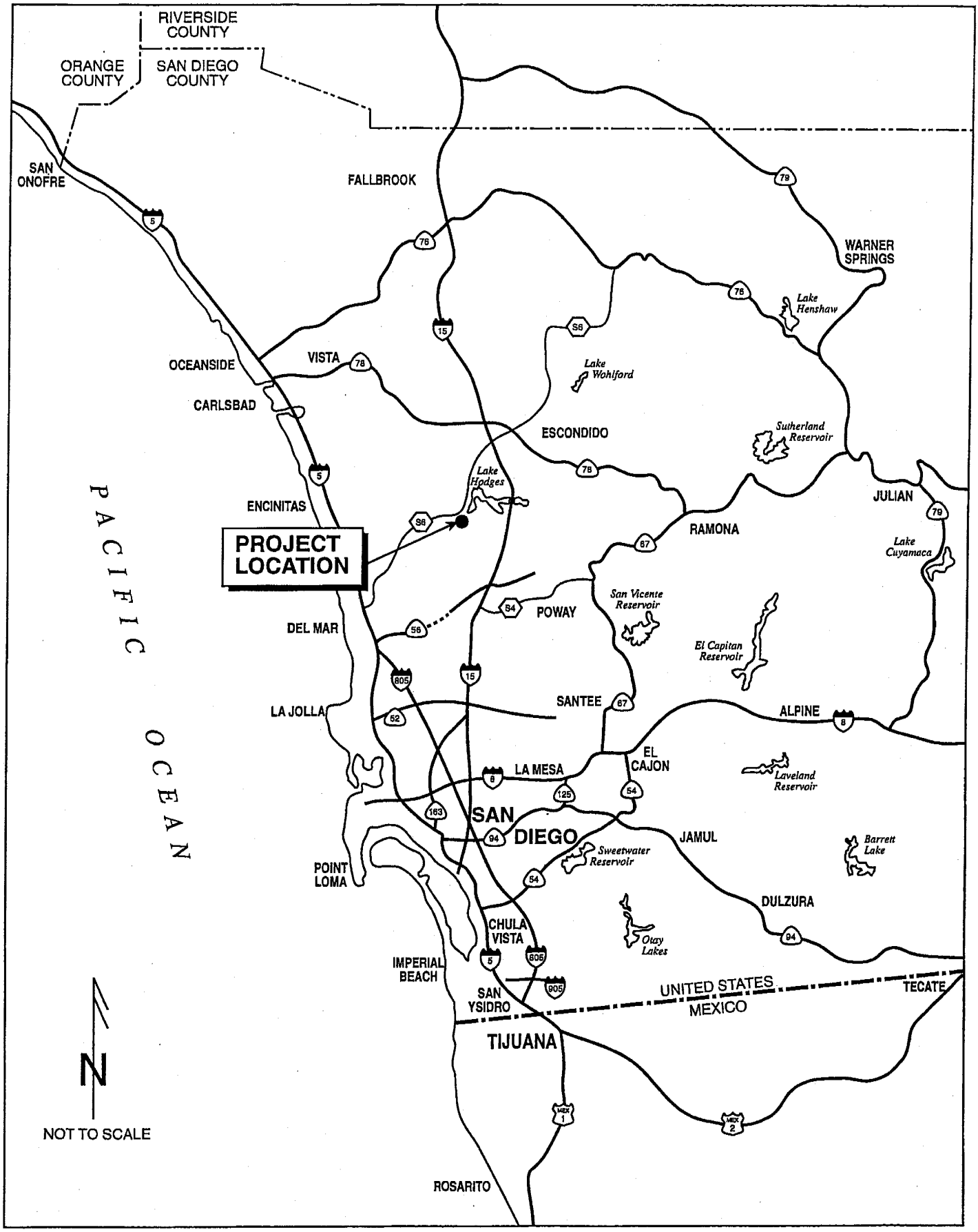
D. JURISDICTIONAL AREAS TO BE FILLED

Anticipated impacts from the project to federal jurisdictional areas are approximately 5.32 acres, which includes 5.03 acres of wetlands and 0.29 acre of non-vegetated Waters of the U.S. Anticipated impacts from the project to state jurisdictional areas include approximately 6.83 acres.

E. FUNCTION AND VALUE OF JURISDICTIONAL AREAS

Jurisdictional areas to be impacted by the proposed project are categorized as ephemeral (temporary) and permanent wetlands, and unvegetated Waters of the U.S. Ephemeral wetlands on site are further classified as vernal pools. Permanent wetlands are further classified as freshwater marsh, riparian scrub (southern willow scrub, mule fat scrub and tamarisk scrub), and riparian forest (southern arroyo willow riparian forest). These wetlands are considered sensitive by the City of San Diego (1990, 1994) and the California Department of Fish and Game (CDFG; Holland 1986). In addition, impacts for wetlands and Waters of the U.S. are regulated by the U.S. Army Corps of Engineers (ACOE) under Section 404 of the Clean Water Act.

Included in the federal wetland impacts are 0.20 acre of vernal pool habitat, 1.88 acres of freshwater marsh, 0.19 acre of disturbed riparian forest, 1.64 acres of southern willow scrub, 0.88 acre of mule fat scrub, 0.08 acre of tamarisk scrub, 0.16 acre of disturbed wetland habitat and 0.29 acre of Waters of the U.S. (Flood plain/streambed) (Table 1). Included in the state wetland impacts are 0.35 acre of riparian forest, 2.0 acres of southern willow scrub, 0.1 acre of mule fat scrub, 0.9 acre of swale/wetland ecotone, 0.7 acre of disturbed wetland, 0.1 acre of tamarisk scrub, 1.88 acres of freshwater marsh, and 0.8 acre of floodplain/streambed. This plan outlines the mitigation for ACOE and CDFG jurisdictional impacts.

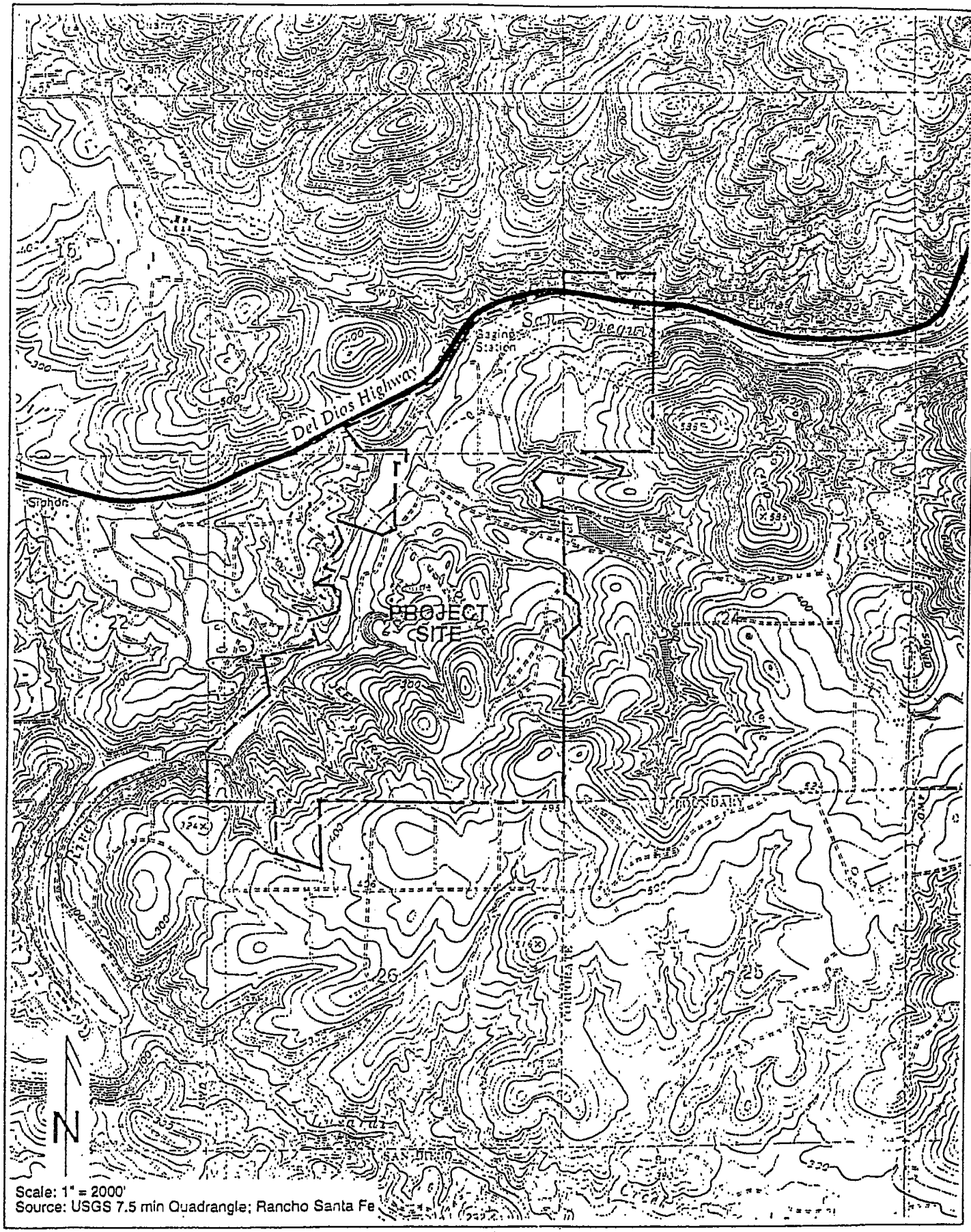


Regional Location Map

HELIX

STARWOOD-SANTA FE VALLEY WETLAND RESTORATION PLAN

Figure 1



Vicinity Map

HELIX

STARWOOD-SANTA FE VALLEY WETLAND RESTORATION PLAN

Figure 2

Table 1 WETLAND MITIGATION SUMMARY (in acres)					
	Jurisdictional Area Impacted[1]		Mitigation		Total Mitigation
Habitat Type	ACOE	CDFG	Preserved	Restored	
Riparian Forest	0.19	0.35	12.25	0.35	12.6
Southern Willow Scrub	1.64	2.0	6.9	2.0	8.9
Mule Fat Scrub	1.04[2]	1.7[3]	0.2	1.8[4]	2.0
Tamarisk Scrub	0.08	0.1	-0-	-0-[5]	-0-[5]
Freshwater Marsh	1.88[6]	1.88	7.39	2.51[7]	9.9
Vernal Pool	0.20	-0-	-0-	-0-	-0-[8]
Floodplain/ Streambed	0.29	0.8	6.7	-0-[9]	6.7
Total	5.32	6.83	33.44	6.66	40.1

[1]ACOE impacts were derived from mapping completed as part of a project specific wetland delineation. CDFG impacts were derived from a GIS habitat map prepared for the SFVSP.
[2]Includes 0.88 acre of mule fat scrub and 0.16 acre of disturbed wetland habitat.
[3]Includes 0.1 acre of mule fat scrub, 0.9 acre of swale/wetland ecotone, and 0.7 acre of disturbed wetland.
[4]Includes 1.7 acres for mule fat scrub and 0.1 acre for tamarisk scrub.
[5]Tamarisk scrub will be mitigated by mule fat scrub restoration.
[6]Includes 0.26 acre of disturbed freshwater marsh.
[7]Includes 1.88 acres for freshwater marsh and 0.8 acre for floodplain/streambed.
[8]Mitigation will consist of off site preservation, as specified in the SFVSP EIR.
[9]Floodplain/Streambed will be mitigated by freshwater marsh restoration.

Vernal Pools

Vernal pools are a highly specialized plant habitat that support a unique flora. Vernal pools are associated with two important physical conditions: a subsurface hardpan or claypan that inhibits the downward percolation of water and a topography characterized by a series of low hummocks (called mima mounds) and depressions (the vernal pools) which prevent above ground water runoff. As a result of these two physical conditions, water collects in the depressions during the rainy season. The water chemistry of vernal pools fluctuates with evaporation and rain events. After the rainy season, the water that has collected in these pools gradually evaporates, and a gradient of low soil water availability to high soil water availability is created from the periphery of the pool to the center. A temporal succession of plant species may occur at the receding pool margins, depending on the physical and chemical microenvironmental characteristics of the pools, diversity of vernal pool species, and level of past disturbance. In wet years, vernal pools may have a high proportion of native species that are endemic to this habitat. In years of rainfall that is insufficient to saturate the soil and create a surface pool, the native endemic flora will not germinate and the pool may be invaded by exotic species.

The vernal pools on site have been disturbed by farming; deep furrows have been cut through some of the pools and the others occur along dirt roads. Prostrate navarretia (*Navarretia fossalis*), a species proposed for federal listing as threatened, and San Diego fairy shrimp (*Branchinecta sandiegoensis*), a species listed as federally endangered, occupy some of the pools.

Off-site vernal pool habitat of acceptable size and quality to the applicable regulatory agencies will be acquired and preserved as mitigation for impacts to 0.20 acre of vernal pool habitat by this project. The vernal pool areas were determined in the Spring of 1998. Mitigation areas should also be evaluated on the basis of Spring 1998 survey results.

Long-term preservation of acquired vernal pool habitat will occur through dedication of a conservation easement in favor of a state or federal resource agency. Long-term management will be by the state or federal agency that holds the easement or a private land trust, if the agency is not willing to accept this responsibility.

Freshwater Marsh

Coastal and valley freshwater marsh is dominated by perennial, emergent monocots which reach a height of 12-15 feet. This vegetation type occurs along the coast, in coastal valleys near river mouths, and around the margins of lakes and springs. These areas are permanently flooded by fresh water but lack a significant current (Holland 1986). This wetland habitat is naturally limited, and the remaining acreage provides important habitat for migrant birds as well as performing many other functions such as floodwater conveyance and water quality control. Oberbauer (1991) reports a loss of 91 percent of freshwater marsh in San Diego County since the pre-European era. Coastal and valley freshwater marsh is considered sensitive by the City and County of San Diego and the CDFG, and is protected by the ACOE (Ogden 1993). The on-site freshwater marsh is relatively undisturbed and is located along the San Dieguito River and two of the tributary drainages.

Riparian Woodland, Forest and Scrub

Riparian woodlands, forests, and scrubs are communities that occur along stream courses. The forests and woodlands have a distinct tree stratum. Riparian woodlands and forests are composed of winter-deciduous trees that require water near the soil surface. Three types of riparian scrub occur on site: southern willow scrub, mule fat scrub and tamarisk scrub. Southern willow scrub consists of open-to-dense, broadleaved, winter-deciduous stands of trees dominated by willows (*Salix* sp.). Mule fat and

tamarisk scrub are dominated by their namesakes and are more shrubby or lower growing than southern willow scrub. These habitats occur on loose, sandy or fine gravelly alluvium deposited near stream channels during flood flows. The herbaceous understory present in these habitats may consist of curly dock (*Rumex crispus*), cocklebur (*Xanthium strumarium* var. *canadense*) and western ragweed (*Ambrosia psilostachya* var. *californica*).

Riparian forest occurs along the San Dieguito River and is of moderate value due to the presence of exotic species. The quality of the on-site southern willow scrub varies with the degree of disturbance and cover of non-native species, and is regarded as moderate overall. Southern willow scrub occurs on site in the largest of the drainages that is tributary to the San Dieguito River, in a second tributary to the river and along the river. Mule fat and tamarisk scrub occur in the smaller drainages.

Non-vegetated Waters of the U.S./Floodplain/Streambed

Non-vegetated Waters of the U.S. are drainages that are scoured or inundated by regular surface flow, but because of insufficient water or inappropriate subsurface geology do not support wetlands. Their function and value is related to flood control and ground water recharge. These jurisdictional categories occur in the minor drainages and along the San Dieguito River

III. GOALS OF MITIGATION

A. TYPE(S) OF HABITAT TO BE PRESERVED, CREATED OR ENHANCED

This mitigation plan includes the preservation of off-site vernal pool habitat and the enhancement and restoration of on-site freshwater marsh and southern willow scrub. Disturbed lands adjacent to the San Dieguito River will be restored as riparian scrub[1] and riparian forest. The mitigation ratio for impacts to these habitats is 2:1; with 1:1 habitat restoration and 1:1 preservation. A summary of wetland habitat impacts along with required mitigation acreage is provided in Table 1.

[1] Riparian scrub includes mule fat scrub and southern willow scrub.

B. TIME LAPSE

The wetland mitigation and monitoring program for Santa Fe Valley will take place over a five year period. The success criteria described below for this project must be met by the end of this period. These criteria represent an intermediate stage in the long-term recovery of the preserved and restored habitat.

C. ESTIMATED COSTS

The cost of site restoration implementation, maintenance, and monitoring tasks described in this document is expected to be approximately $350,000.00. This amount includes restoration implementation and five years of biological maintenance, monitoring and reports.

D. OTHER HABITATS

Coastal Sage Scrub will also be restored as part of this project. The details for restoration of this habitat are provided in a separate report.

IV. FINAL SUCCESS CRITERIA

The following sections provide standards to determine the successful completion of the mitigation plan. Attainment of these standards indicates the mitigation area is progressing toward, and has the habitat functions and values specified for this plan. Methods to be used to measure these success criteria are described in the following text.

A. TARGET FUNCTIONS AND VALUES

The restoration component of the mitigation program would restore approximately 2.68 acres of freshwater marsh, 1.8 acres of mule fat scrub, 2.0 acres of southern willow scrub, and 0.35 acre of riparian forest. The goal of this restoration effort would be to create viable wetland habitat.

B. TARGET HYDROLOGICAL REGIME

The hydrological regime would vary with the habitat type. The target hydrological regime for the freshwater marsh would provide permanently saturated soils. The hydrological regime for the riparian

forest, southern willow scrub, and mule fat scrub would provide ground water that is near the surface, and occasional flooding. The long term source of water will be natural runoff and the San Dieguito River, although irrigation will be used to add plant establishment and growth.

C. TARGET JURISDICTIONAL ACREAGE TO BE CREATED/ENHANCED

At the end of the five-year monitoring period, a minimum of 0.20 acre of existing vernal pool habitat will be preserved and other habitats will be restored as part of the proposed project's mitigation requirements. The marsh, forest and scrub habitats will meet the criteria for jurisdictional wetlands as defined in the ACOE delineation manual (1987).

V. PROPOSED MITIGATION SITE

A. LOCATION AND SIZE OF MITIGATION AREA

The mitigation sites will be located on site adjacent to the San Dieguito River and the golf course (Figure 3). These areas have been selected because they will enhance the existing wildlife corridor along the San Dieguito River, they have the potential to have the proper hydrology, and they are currently disturbed or support non-native vegetation.

B. OWNERSHIP STATUS

Starwood Development, Inc. currently owns the entire project area, including the mitigation areas, in fee title. Long-term ownership of the mitigation sites will reside with the golf course (for those areas in the golf course) and with the agency or private land trust to be designated later.

C. EXISTING FUNCTIONS AND VALUES OF MITIGATION AREA

Existing wetlands within the preserve area include freshwater marsh, riparian scrub and forest along the San Dieguito River. The overall habitat quality is moderate to high. Some areas support non-native species which detracts from the overall habitat value. The river, as a major corridor and permanent water source, however, also provides high wildlife value for the region. These will be preserved as part of the mitigation program. The areas selected for restoring wetlands occur directly adjacent to the existing

wetlands, and exhibit suitable topographic and soil conditions to sustain wetlands. The restoration effort will be in the form of enlarging wetland habitats.

D. PRESENT AND PROPOSED USES OF MITIGATION AREA

The mitigation sites are currently undeveloped, but have been degraded by grazing and exotic species (e.g., *Eucalyptus* sp.). The mitigation areas will remain undeveloped.

E. JURISDICTIONAL DELINEATION (IF APPLICABLE)

The mitigation presented here is based on the impacts identified in the jurisdictional delineation prepared for this project (HELIX 1998).

F. PRESENT AND PROPOSED USES OF ALL ADJACENT AREAS

Undeveloped land currently surrounds the mitigation sites. There are currently no structures on site, although residential/golf course development and open space is planned adjacent to these sites.

VI. IMPLEMENTATION PLAN

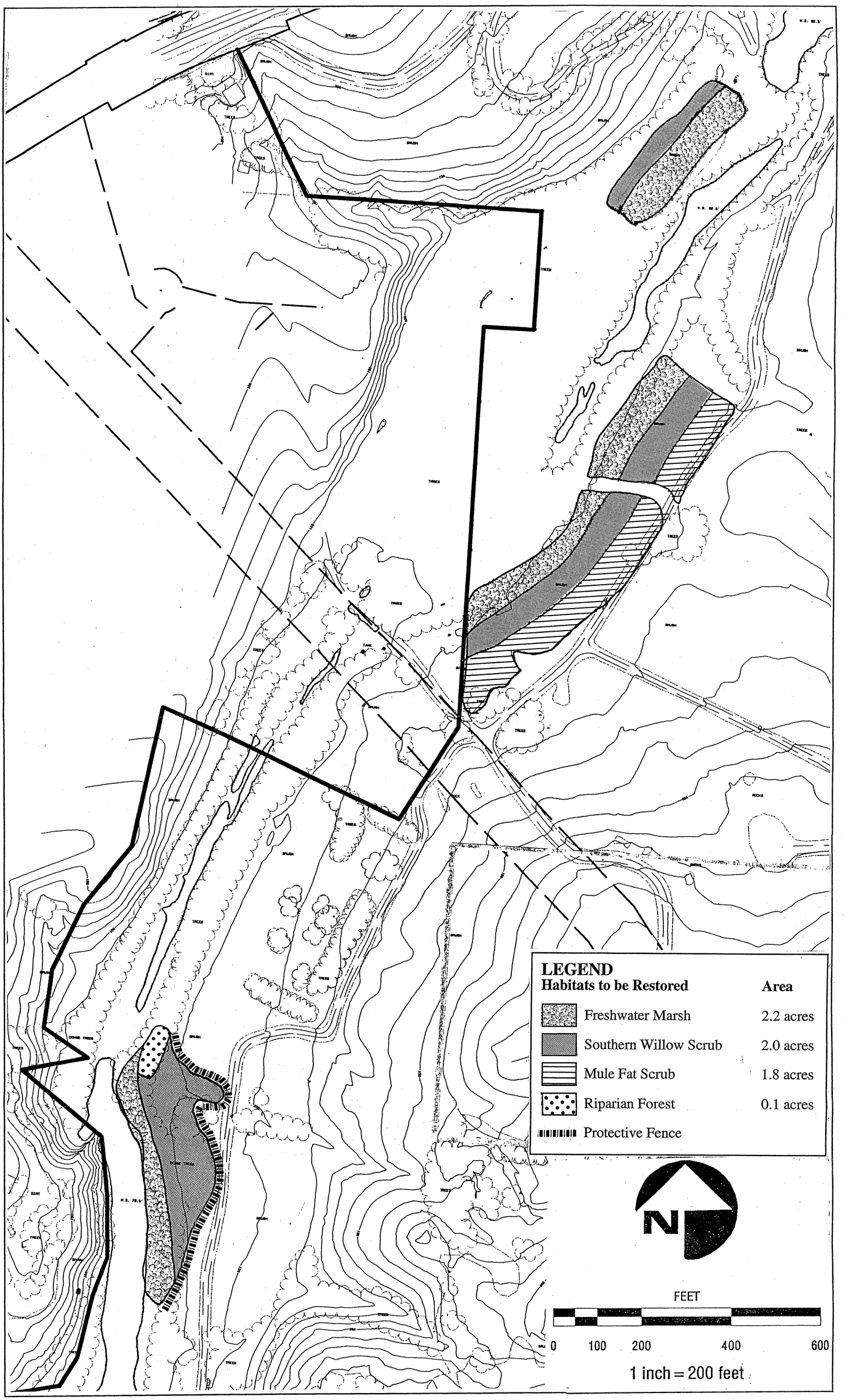
A. RATIONALE FOR EXPECTING IMPLEMENTATION SUCCESS

The sites selected for wetland restoration are in areas that, with topographic modification, will have the appropriate hydrology and soils to support wetlands. The scope of this wetland restoration is similar to other successful wetland restoration projects.

B. RESPONSIBLE PARTIES

Project Proponent

The project proponent and owner (Starwood Development, Inc.) will be responsible for financing the installation and monitoring of the mitigation measures (see section II-C above).



HELIX

Mitigation Areas

STARWOOD-SANTA FE VALLEY WETLAND RESTORATION PLAN

Figure 3

Revegetation Specialists

Overall supervision of the installation, maintenance and monitoring of this mitigation project will be the responsibility of the project restoration specialist, with this role to be filled by Mr. Larry Sward of HELIX Environmental Planning, Inc. The restoration specialist will: educate all participants with regard to mitigation goals and requirements; and oversee the grading, site preparation and planting. After each monitoring event, the restoration specialist will provide the project proponent and contractor with a brief report, including a punch list of items in need of attention. Mr. Sward can be reached at: HELIX Environmental Planning, Inc., 8100 La Mesa Blvd., Suite 290, La Mesa, CA 91941-6452, (619) 462-1515.

Installation Contractor

The installation and maintenance contractor will be under the direction of the restoration specialist and will be responsible for completion of grading, pre-planting weed control, planting, and seeding. The restoration specialist will educate the contractor on the installation and maintenance of vernal pool plant species.

The installation contractor will service the entire restoration area as specified in Section VII.D. Service will include, but not be limited to, weed control, dead plant replacement, and re-seeding. The contractor will meet the restoration specialist at the site when requested, and will perform all punch list items in a timely manner as directed by the project proponent. The restoration specialist will educate the contractor on the maintenance of native plant habitat and the difference between native plants and weeds.

Maintenance Contractor

After the installation contract is completed, a maintenance contractor will be hired by the project proponent for the duration of the five-year monitoring period. The project proponent may change contractors at its discretion. The maintenance contractor will service the entire restoration area as specified in Section VII.D. Service will include, but not be limited to, weed control, dead plant replacement and re-seeding. The maintenance contractor will meet the revegetation specialist at the site when requested, and will perform all punch list items in a timely manner as directed by the project proponent. The maintenance contractor will be educated as to the maintenance of native plant habitats and the difference between native plants and weeds.

The installation and maintenance contractors have not been selected.

C. SCHEDULE

Implementation of the mitigation program is expected to begin in the summer of 1998. Initial activities will include topsoil salvage from impacted areas, marking of all restoration areas and grading. Introduction of salvaged topsoil and seeding of restoration areas will start in late Fall (November or December), with initial monitoring of the restoration effort to begin in early December. Restoration activities are expected to be completed by February 1999, while monitoring will continue for a five-year period. Field surveys will be completed during the rainy season each year with an annual report being prepared and distributed by September. The results of the annual reports will be used to determine the success of the restoration effort and to determine any actions necessary. At the end of the five-year period a final report will be reproduced.

D. SITE PREPARATION

The intent of this plan is to enhance wetland hydrology in an area that has been impacted by grazing, erosion and sedimentation. Wetland restoration will occur adjacent to the river in what is now eucalyptus woodland. Any refuse, including eucalyptus (*Eucalyptus* spp.) trees, will be removed and disposed of in a legal manner. Grading of the proposed restoration areas will be conducted during the dry season (i.e., June/July) in 1998. All areas to be graded will be marked (e.g., stakes, flagging or gypsum) by the revegetation specialist. A grading plan will be developed based on soil tests to ensure the proper soil and hydrology are present or could be created.

An on site meeting will be held with the installation contractor and the restoration specialist to identify sensitive areas and devise a strategy for avoidance prior to initiation of restoration activities. Fencing or flagging will be placed where necessary to ensure that existing habitat to be preserved is not damaged during construction of this project or installation of the mitigation plans. Protection will remain in place until the end of the grading process or until the restoration specialist considers it no longer necessary. Additional protection may be required at any time if it is considered necessary by the restoration specialist to protect open space vegetation. Prior to any grading, the restoration specialist will inspect the site to ensure that all fencing or flagging has been installed correctly.

The restoration specialist will certify in writing to the ACOE that the limits of the open space areas have been properly marked before the contractor may proceed with work. If the installation contractor damages habitat outside the limits of work, they will bear the full cost of restoring that area, as well as

any additional area required by the resource agencies. This would include the cost of supplemental restoration plans and agency liaison, as well as the costs for installation and monitoring the success of the restoration according to the same standards as the original restoration.

Only construction equipment necessary to accomplish the landscape installation will be allowed in the restoration areas. Workers' vehicles will be parked outside the open space, and all equipment will be removed from the site as soon as the task is completed. No vehicular fluids will be added or changed on site. Staging areas will be established in areas outside of the restoration and preserve areas.

Fencing

Access to the preserve area will be restricted by a permanent 4 foot high, 2 strand wire fence. The fence will prevent vehicle encroachment and discourage pedestrian use, yet allow for wildlife movement in the preserve area. Other fence designs may be permitted, provided they meet the above criteria, pursuant to direction by the restoration specialist. Figure 3 shows the location of the fence around the preserve area. Steel signs attached to the fence at regular intervals will provide notice in both Spanish and English that the area is an ecological preserve and that trespassing is prohibited.

E. PLANTING PLAN

Wetland Restoration

Planting will be accomplished by installation of container stock and seeds, and salvaged material, if available (Tables 2, 3, 4 and 5). Species chosen for use are those that are native to the site and the surrounding area. Plants will be grouped to create a mosaic within each habitat type (Figures 4, 5 and 6).

Table 2
SOUTHERN ARROYO WILLOW RIPARIAN FOREST PLANT PALETTE

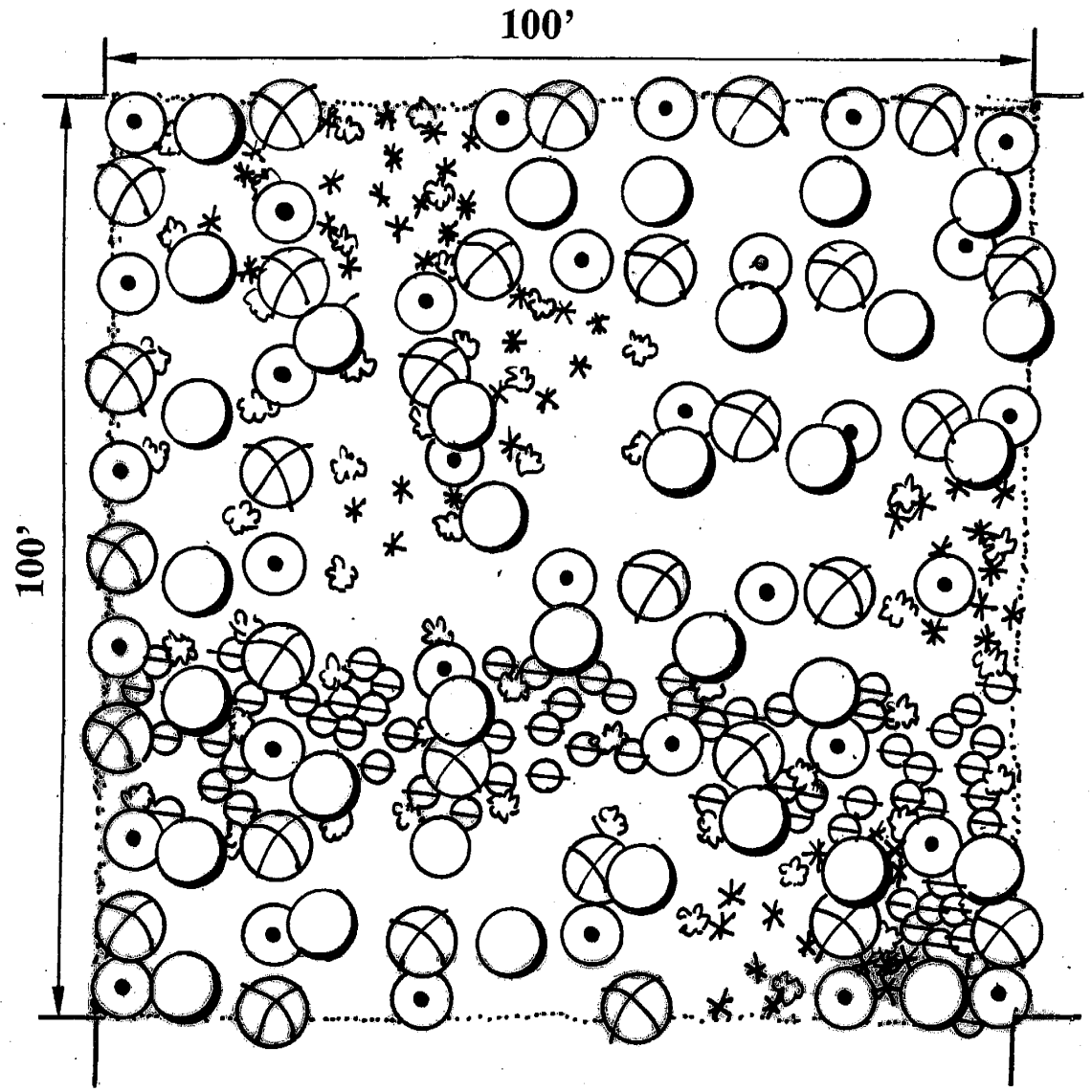
Species	Grouping Size	Spacing on Center	Container Size	Number/ Acre
Container Stock				
Overstory				
Salix gooddingii	15-17	10 ft.	4" pot	152
Salix lasiandra	10-12	10 ft.	4" pot	130
Salix lasiolepis	15-17	8 ft.	4" pot	140
TOTAL				**422**
Understory				
Baccharis salicifolia	25-30	6 ft.	liner	220
Isocoma veneta	20-25	4 ft.	liner	260
Iva hayesiana	10-25	4 ft.	liner	260
TOTAL				**740**

Seed Mixture	Application Rate
Ambrosia psilostachya var. *californica*	4 lbs/acre
Artemisia douglasiana	5 lbs/acre
Juncus bufonius	5 lbs/acre
TOTAL	**14 LBS/ACRE**

Table 3
SOUTHERN WILLOW SCRUB PLANT PALETTE

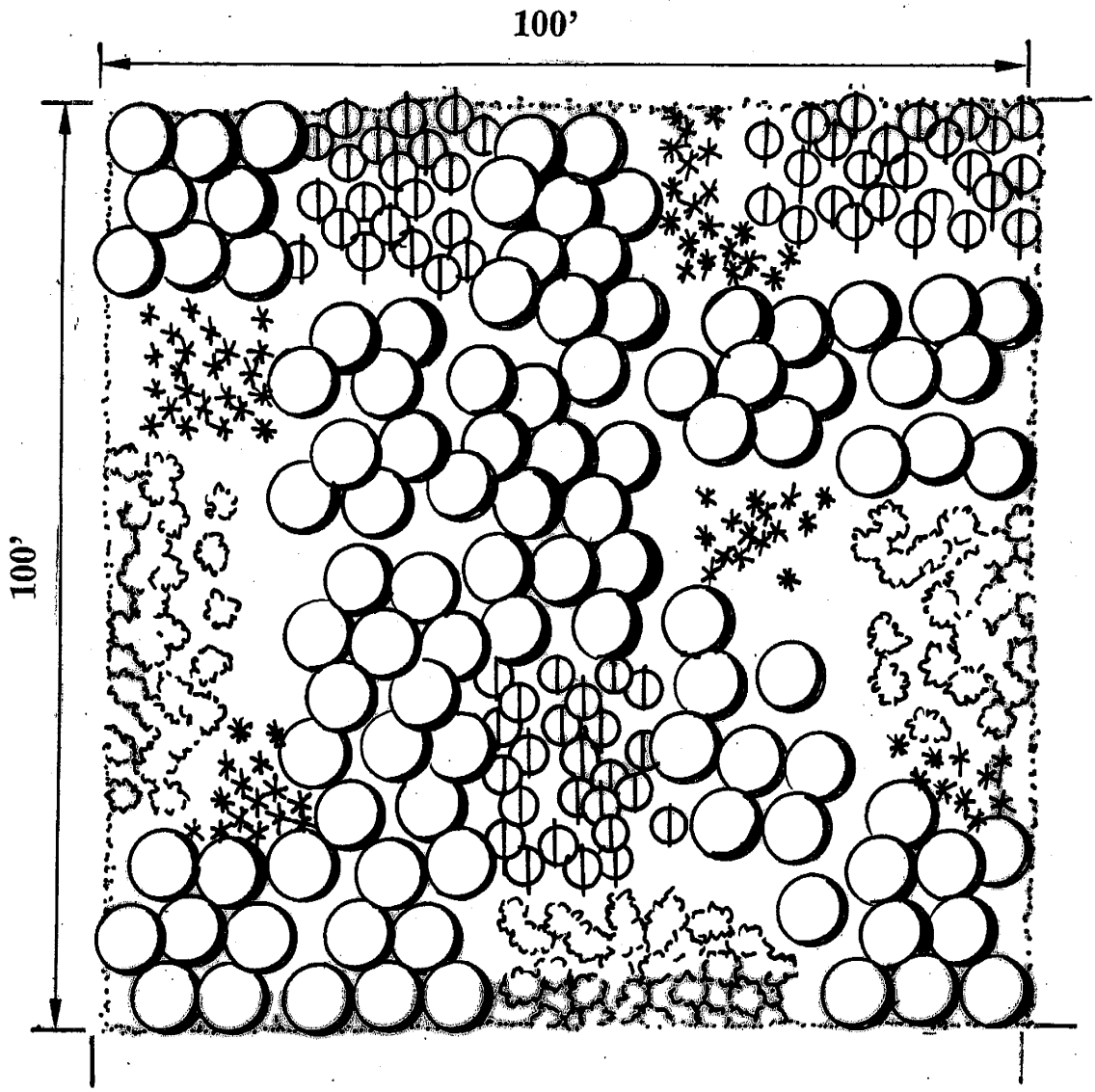
Species	Grouping Size	Spacing on Center	Container Size	Per Acre
Container Stock				
Overstory				
Baccharis salicifolia	20-25	6 ft.	liner	308
Iva hayesiana	15-20	4 ft.	liner	347
Salix exigua	20-25	6 ft.	4" pot	308
Salix lasiolepis	30-40	8 ft.	4" pot	435
TOTAL				**1,398**

Seed Mixture	Pounds Per Acre
Ambrosia psilostachya	6
Anemopsis californica	4
Artemisia douglasiana	3
Iva hayesiana	2
Juncus acutus	2
Typha latifolia	2
TOTAL	**19**



LEGEND Tree Species	On-Center Spacing	Shrub Species	On-Center Spacing
Salix gooddingii	10ft.	*Baccharis salicifolia*	6ft.
Salix lasiandra	10ft.	*Isocoma veneta*	4ft.
Salix lasiolepis	8ft.	*Iva hayesiana*	4ft.

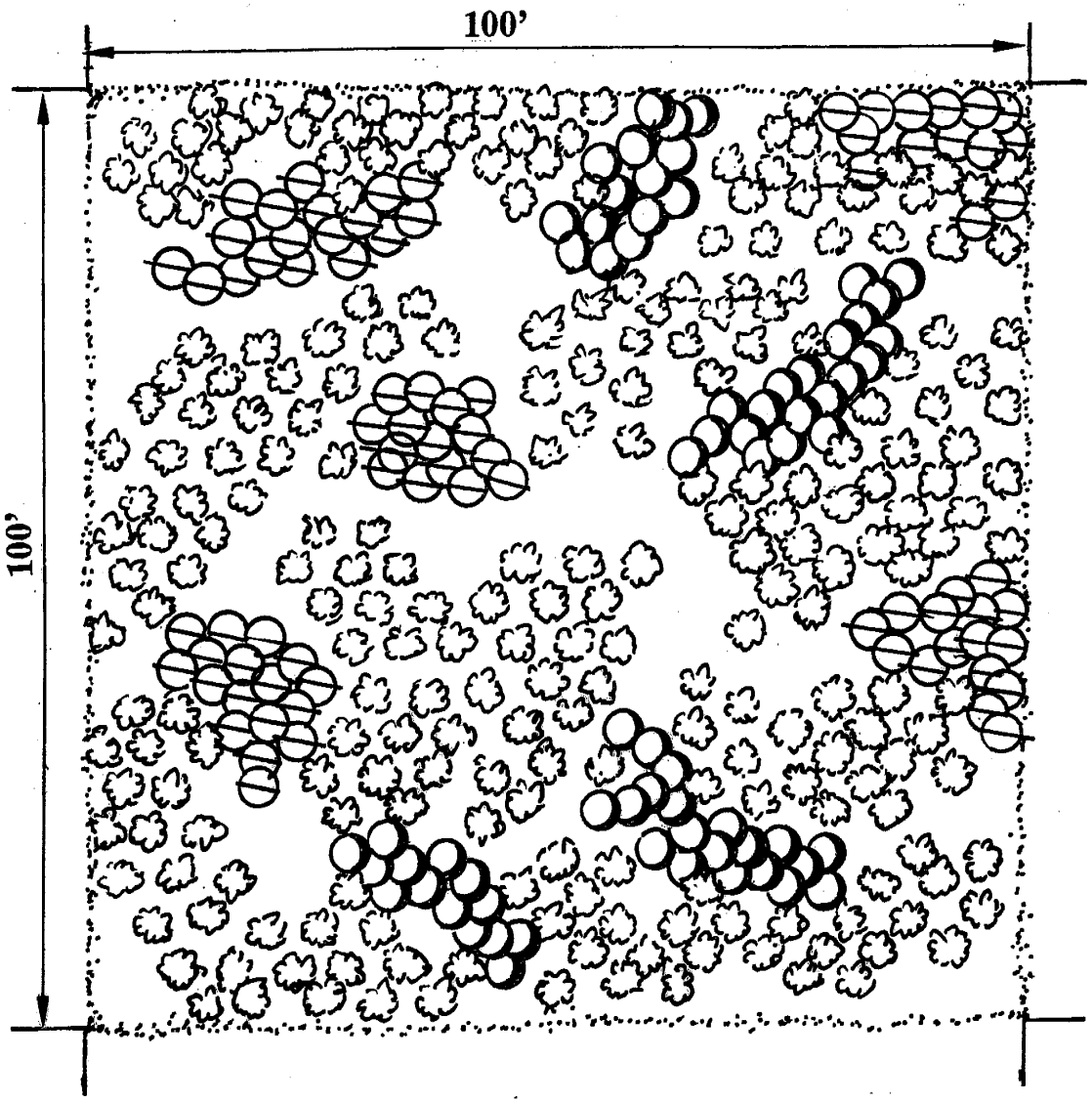
Typical Southern Arroyo Willow Riparian Forest Planting Plan



LEGEND

Species	On-Center Spacing
Baccharis salicifolia	6ft.
Iva hayesiana	4ft.
Salix exigua	6ft.
Salix lasiolepis	8ft.

Typical Southern Willow Scrub Planting Plan



LEGEND

Species	On-Center Spacing
Baccharis salicifolia	6ft.
Isocoma veneta	4ft.
Pluechea sericea	6ft.

Typical Mule Fat Scrub Planting Plan

Table 4
SEED MIX FOR COASTAL AND VALLEY FRESHWATER MARSH

Seed Mixture	Lbs./Acre
Anemopsis californica	5
Juncus acutus	3
Juncus mexicanus	2
Scirpus acutus var. *occidentalis*	4
Typha latifolia	3
TOTAL	**17**

Table 5
MULE FAT SCRUB PLANT PALETTE

Species	Grouping Size	Spacing on Center	Container Size	Number/ Acre
Container Stock				
Baccharis salicifolia	30-40	6 ft.	liner	1080
Isocoma veneta	15-20	4 ft.	liner	350
Pluechea sericea	15-20	6 ft.	liner	305
TOTAL				**1735**
Seed Mixture			Pounds Per Acre	
Ambrosia psilostachya			6	
Artemisia douglasiana			3	
Baccharis sarothroides			2	
Iva hayesiana			2	
Juncus bufonius			5	
TOTAL			**18**	

F. IRRIGATION PLAN

All wetland areas will be temporarily irrigated to aid in the establishment and growth of the mitigation areas. After the first growing season, water will be applied infrequently and only as needed to prevent the mortality of plants and seedlings. The irrigation schedule will attempt to develop deep-root systems, where appropriate, through infrequent, deep applications of water. To obtain deep penetration of water, irrigation may be required several times in one 24-hour period.

Once the plant material is established and does not require supplemental irrigation, the "above ground" portions of the system will be removed. The restoration specialist will determine how and when the system will be removed.

The goal is to obtain germination and growth with the least amount of irrigation. Frequent irrigation encourages weed invasion and leaches nutrients from the soil. Native plantings that are infrequently irrigated may grow slower initially, but will ultimately develop better as habitat.

G. AS BUILT CONDITIONS

The restoration specialist shall submit a report describing the as-built status of the mitigation project to the ACOE and CDFG within six weeks of completing site preparation and planting. The report will include a topographic map showing as-built conditions of the mitigation area, as well as areas of grading, salvaged soil placement, and planting and seeding.

VII. MAINTENANCE DURING MONITORING PERIOD

A. MAINTENANCE ACTIVITIES

The purpose of this subsection is to outline the maintenance monitoring procedures to be followed and to identify the parties responsible for implementing and conducting these procedures as part of the maintenance monitoring program. The primary goal of maintenance monitoring is to provide quality assurance to the maintenance of the newly created habitat. The restoration specialist will monitor the grading, site preparation, planting, subsequent establishment, and growth in an effort to detect any problems at an early stage. Potential problems could arise from competition from weeds, irrigation failure, erosion, vandalism, and unacceptable levels of disease and predation. The restoration specialist will file a written memo with the project proponent, landscape contractor, and ACOE after completing each inspection. Each of these reports will identify maintenance concerns including mortality, vandalism, and weed-related issues. These reports will facilitate communication and coordination with the installation contractor who is responsible for implementing the maintenance monitoring program.

A five-year maintenance program is provided to ensure the successful establishment and persistence of wetland habitats. The maintenance program will involve removal of trash, weed control, hydrological/topographical modification, fence repair, and any remedial measures deemed necessary for

the success of the restoration program (e.g., re-seeding). Weeds would be removed by hand whenever possible, although certain weeds may only be effectively controlled through local treatment with herbicides (e.g., Roundup) or weed-whips. Species that will be targeted for control on site include, but are not limited to: giant reed (*Arando donax*), pampas grass (*Cortaderia jubata*), tamarisk (*Tamarix* spp.) and eucalyptus (*Eucalyptus* spp.).

Weed control will be conducted as necessary to minimize competition that could prevent the establishment of native species. As weeds become evident, they should be removed by hand or controlled with the proper herbicides. The restoration specialist will determine the need for weeding and will contact the maintenance contractor for any required work. Maintenance personnel will be trained to distinguish weed species from desirable, native vegetation.

A cleared space, 12 inches (shrubs) to 24 inches (trees) in diameter from the base of the container plants will be free of weeds to minimize competition during the establishment period. A mulch of chipped plant materials will be used to help maintain this weed-free area.

Insects, vertebrate pests, and diseases will be monitored. Generally speaking, a high threshold of tolerance will be permitted before control measures are considered. A licensed pest control adviser, as required by law, will make all specific recommendations and all applicable federal and state requirements will be closely followed. The restoration specialist will be consulted on any pest control matters.

Plants will be replaced at the direction of the restoration specialist. The installation contractor will be responsible for replacing any dead or terminally diseased plants at least one month prior to turning the project over to the maintenance contractor. The maintenance contractor will replace dead or diseased plants at the written direction by the restoration specialist.

Fertilizer will not be applied, except in extraordinary circumstances, and only at the written direction of the restoration specialist. No post-installation pruning will be conducted unless deemed necessary by the restoration specialist.

Maintenance monitoring by the restoration specialist will begin with the construction process and continue through final project sign-off (Table 6).

Damage to plants, irrigation systems, and other facilities occurring as a result of unusual weather or vandalism will be repaired as directed by the restoration specialist. The cost of such repairs will be paid for as extra work, although the contractor should provide typical replacement costs as part of his/her contract. Erosion damage caused by the contractor's inadequate maintenance or operation of irrigation facilities, as determined by the restoration specialist, will be repaired at contractor expense.

Table 6
RESTORATION SPECIALIST
MAINTENANCE MONITORING SCHEDULE

Phase	Schedule
Grading/Site Preparation/Installation	Daily
Post Installation	
First three months following installation	Semi-monthly
Remainder of first two years	
January-April	Monthly
May-December	Bi-Monthly
Years three, four, and five	
January-April	Monthly
May-December	Quarterly

Other duties may be required as directed by the restoration specialist. Irrigation maintenance may only be required for four years, if that long. Irrigation may be discontinued earlier at the direction of the restoration specialist.

B. RESPONSIBLE PARTIES

The project proponent will be responsible for financing the maintenance program. The project proponent may also choose to legally transfer the property in fee title (subject to agency approval) to a public or private entity specializing in long-term management of open space. If such a transfer occurs, this entity would become the responsible party for implementing the maintenance program.

C. SAMPLING METHODS

Data collection will focus on the vegetation, with methodology conforming to the California Native Plant Society (CNPS) Field Sampling Protocol (CNPS 1997). Data will be collected and analyzed separately for each vegetation type but will employ the same methods as described below.

The sampling method is based on a 50-meter long point-transect centered in a 50-meter by 5-meter plot which is randomly located in a subjectively chosen homogeneous patch of vegetation. At each 0.5-meter interval along the transect, a point is projected vertically down into the vegetation and up into the canopy. Each species intercepted by a point is recorded within designated vegetation layers (bare ground, herb, shrub, and/or tree) with the layers determined by height. Percent cover for each species according to vegetation layer is calculated from these data. A list of all species within the plot will be collected, and photo documentation will be conducted for each annual monitoring event.

D. SCHEDULE

Planted areas will be maintained by the installation and monitoring contractors according to the schedule in Table 7. Specific items evaluated during maintenance activities will include the presence of trash, vandalism, irrigation function and scheduling, plant material condition and health, and weeds.

Table 7

MAINTENANCE SCHEDULE

Phase	Schedule
First three months following installation	Semi-monthly
Remainder of first two years	
January-April	Semi-Monthly
May-December	Monthly
Years three, four, and five	
January-April	Monthly
May-December	Bi-monthly

VIII. MONITORING PLAN

A. PERFORMANCE CRITERIA

The purpose of this section is to define specific performance standards by which to evaluate project progress. The following parameters should be measured to compare the restored areas with reference sites. The reference sites should be in extant riparian forest, southern willow scrub, mule fat scrub, or

freshwater marsh within 500 feet of the restoration areas. The reference sites should also have similar slope and aspect to the restoration areas.

Species Diversity and Recruitment. Species diversity and recruitment are closely linked, and diversity increases with recruitment. Species diversity is the number of species in a given area. The higher the number of species, the higher the diversity. Recruitment is the successful, natural reproduction and/or establishment of plants in a given area. Recruitment should increase diversity to approach the number of species in the existing habitat on site (i.e., the reference site[s]). Ultimately, the restored areas should reach 80 percent of the species diversity of the corresponding reference site(s).

Cover by Exotic Species (Weeds). Weeds are typically a problem with habitat restoration, particularly at the outset of the project. As the restoration takes hold, the problems with weeds should decrease. Many weeds have become locally naturalized, and the tolerance for weeds should therefore reflect what is present at the existing habitats on site. The measure for tolerance should be total cover of weed species. Although weeds are expected to be a problem, it doesn't mean they are to be accepted. Weeds should be controlled as specified in the maintenance monitoring section.

Cover by Target and Other Native Species. Cover by native vegetation should increase over time and ultimately approach that of the existing habitats on site. Cover within the restoration area is often slow at first as the roots become established, but with sufficient rainfall it should approach 100 percent of the existing habitats on site in five years. Cover should be measured and evaluated separately for tree, shrub and herbaceous life forms as compared to reference sites established on site. The annual milestones for these parameters are presented in Table 8. If the restoration criteria are measured to be 100 percent of the reference site, then the two sites are the same. For example, if the native species cover of the reference site is 60 percent and the native species cover of the restoration site is 42 percent, the restoration site has 70 percent of the reference site's native cover. Similarly, if weed cover on the reference site is 10 percent and weed cover at the restoration site is 12 percent, the restoration site has 120 percent of the reference site's weed cover.

Table 8
WETLAND SUCCESS CRITERIA MILESTONES FOR SANTA FE VALLEY

Criteria	Year 1	2	3	4	5
Percent Species Diversity Relative to the Reference Site	40	50	60	70	80
Percent Cover by Native Species Relative to the Reference Site	20	35	55	70	100
Percent Cover by Weeds Relative to the Reference Site	140	130	120	110	100

B. ANNUAL REPORTS

As part of the monitoring program, annual reports prepared by the restoration specialist will be submitted to the ACOE and CDFG evaluating the success of the mitigation effort to date, along with any recommendations for future work that may be deemed necessary. Annual reports will include both botanical and horticultural observations, as well as any wildlife use of the restoration area. Any remedial recommendations will also be made in the annual reports, along with a summary of whether the project is meeting the established success standards. A preliminary table of contents for this report is included as Appendix A.

C. SCHEDULE

The first annual monitoring event will occur in the summer of 1999. The reports will be prepared and submitted by September of each year to ensure that there is adequate time remaining in the dry season to make any necessary alterations to the preserve area.

IX. COMPLETION OF MITIGATION

A. NOTIFICATION OF COMPLETION

The project proponent shall notify the ACOE upon completion of the mitigation effort through the submittal of the final monitoring report. The final monitoring report will include a jurisdictional delineation of the mitigation areas. This delineation must show that the goals of the mitigation program (as described above in Section III) have been met.

B. AGENCY CONFIRMATION

After receipt of the final monitoring report, the ACOE and CDFG may inspect the mitigation site to determine the accuracy of the delineation.

X. CONTINGENCY MEASURES

A. INITIATING PROCEDURES

If the ACOE and CDFG determine upon receipt of any of the annual monitoring reports that the restoration effort is not meeting success standards for the project, the ACOE shall notify the project proponent in writing that the restoration effort may require augmentation for successful implementation. The project proponent shall have 30 days to respond to the ACOE correspondence, confirming their agreement that contingency measures will be required.

B. ALTERNATIVE LOCATIONS FOR CONTINGENCY MITIGATION

No alternative locations are proposed for this project. If the success criteria are not being met on site, the ACOE and the project proponent will work towards a mutual solution on site.

C. FUNDING MECHANISM

The project proponent shall be responsible for all costs associated with any remedial measures.

D. RESPONSIBLE PARTIES

The project proponent shall be the responsible party for any remedial measures (see section II-C above).

XI. REFERENCES CITED

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Appendix A

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APPENDIX A

DRAFT
SANTA FE VALLEY WETLAND RESTORATION
ANNUAL MONITORING REPORT

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Appendix C

ESTIMATED YEARLY BUDGET FOR HMP IMPLEMENTATION

Appendix C
STARWOOD-SANTA FE VALLEY HMP
IMPLEMENTATION COST ESTIMATE

I. Start-up Tasks

1.	Install Signage	$ 2,500.00
2.	Initial Newsletter	3,600.00
3.	Install Trash Recepticles	2,500.00
4.	Baseline GIS Set-up	1,900.00
5.	Construct Cowbird Traps	4,000.00
	Cost Estimate:	$ 14,500.00*

II. Annual Tasks

1.	Vegetation Mapping	$ 1,400.00
2.	Sensitive Species Surveys	4,800.00
3.	Cowbird Trap Monitoring	14,100.00
4.	Bullfrog Removal	4,500.00
5.	Exotics Removal	10,000.00
6.	Trash Removal	2,200.00
7.	Regular Surveys	4,320.00
8.	Community Education/Meetings	2,200.00
9.	Annual Report	5,400.00
10.	County Review of Annual Reports and Related Materials	3,000.00
	Cost Estimate:	$ 51,920.00
	Contingency (10%):	5,192.00**
	Annual Cost:	$ 57,112.00***

*To be paid by project applicant.

**May include costs such as additional field survey time; monitoring needs; exotics removal; trash removal (e.g., from large group activities or unauthorized dumping); coordination with County, JPA or HOA; and community meetings.

***To be paid by the project applicant until the HOA is fully funded (i.e., at site buildout), at which time the HOA will be responsible for these costs. In the interim period, HMP funding will be conducted on a sliding scale, whereby (for example) if the project site is 25 percent built out, the HOA will provide 25 percent of the HMP funding and the applicant will provide the remaining 75 percent.

NOTES SUPPORTING HMP COST ESTIMATE

I. Start-up Tasks

1. Includes purchase and installation of two signs.
2. Includes preparation, printings (200 copies) and distribution of initial newsletter.
3. Includes purchase and installation of two trash recipticles.
4. Includes establishment of baseline GIS files including vegetation and cultural resources data layers.
5. Includes construction of two cowbird traps.

II. Annual Tasks

1. Includes 16 hours of field time, 4 hours of office time, senior review and mileage
2. Includes Senior Biologist (10 hours), Biologist II (30 hours), Assistant Biologist (30 hours), and mileage.
3. Includes 270 hours of trap monitoring over a four-month period (April/May – daily, June/July – every other day). Does not include costs due to vandalism.
4. Includes Biologist II (32 hours), Assistant Biologist (32 hours) and mileage.
5. Exotics removal includes a budget of $5,000/year for this activity.
6. Includes regular trash removal in the OS I area as a whole. That is, while trash removal from receptacles will be the responsibility of the JPA, it is anticipated that regular trash removal will be required in other areas of the OS I preserve from sources such as littering or unauthorized dumping.
7. Includes bi-weekly general surveys; MSCP corridor monitoring (e.g., for evidence of wildlife movements and activity); and observation of HMP area regarding trash dumping, squatters, exotics, vandalism, etc.
8. Includes monthly meeting with HOA, community, agencies and County.
9. Includes preparation of yearly report addressing all HMP-related activities.
10. Includes County review of annual monitoring reports and related materials such as survey records and meeting minutes.

Appendix D

FIRE MANAGEMENT PLAN

Appendix D
FIRE MANAGEMENT PLAN

1.0 INTRODUCTION

This Fire Management Plan (FMP) has been prepared for the Starwood - Santa Fe project in accordance with the Fire Protection Standards for the Santa Fe Valley Specific Plan (SFVSP, Hunt 1995) and the Wildland/Urban Interface Development Standards (County of San Diego 1997) . This FMP also follows the framework established by the FMP for the Bernardo Lakes Project (RBF 1998), which is shown as Planning Area IV of the SFVSP. The Bernardo Lakes FMP was the first such plan to be adopted within the SFVSP area (as part of the Bernardo Lakes Habitat Management Plan [HMP]) and is intended to serve as a model for subsequent FMPs in the SFVSP.

2.0 SITE DESCRIPTION

The project site (Planning Area II of the SFVSP) includes nearly 686 acres and is located approximately 5 miles east of Interstate 5 (I-5) and 3.5 miles west of Interstate 15 (I-15) in west-central San Diego County (Figure 1). The site encompasses the San Dieguito River along much of its northern and western boundaries, and is approximately 2.5 miles southwest (downstream) of Lake Hodges at its closest point (Figure 2). Site topography is characterized by rolling hills incised by drainages in the central and southern portions of the site, the San Dieguito River Valley along the western and northern site boundaries, and relatively level mesa tops in the northern and southeastern portions of the site.

3.0 PROJECT DESCRIPTION

Proposed development within the Starwood - Santa Fe Valley property would ultimately include 452 residential units on 272 acres, as well as an 18-hole golf course and related amenities (i.e., a driving range, clubhouse and resort complex) on 251 acres. Grading associated with proposed development would total approximately 3.25 million yards of balanced cut and fill, with no significant material import or export anticipated. Proposed residential development is concentrated primarily in the eastern and southern portions of the property, with multi-family housing limited to two lots in the south-central and east-central portions of the site. The residential lots range in size from approximately 0.2 to 5.4 acres, with the majority oriented to face the golf course or other open space areas.

Approximately 163 acres of the site would be preserved in the Open Space I area along the San Dieguito River corridor (which extends along most of the northern and western site boundaries). The Open Space I area includes riparian and other wetland habitats associated with the San Dieguito River, as well as adjacent native (e.g., Diegan coastal sage scrub) and non-native (e.g., eucalyptus woodland) habitats.

The proposed golf course and related development occur along much of the western boundary of the residential areas, with portions of the golf course also extending within adjacent residential development. The golf course is within the Specific Plan Open Space II designation, which is intended to serve primarily as a buffer between developed areas and the Open Space I designation to the west and north. The noted interface between golf course and residential development would also provide open space buffers between a number of individual residential areas.

Site access would be provided from two principal points: West Loop Road via Camino Del Norte on the south, and Del Dios Highway on the north. Additional access to developed portions of the site would be provided through a number of secondary internal streets, all of which would be private. The main onsite

access road from Del Dios Highway (Street A) would encompass a bridge crossing of the San Dieguito River near the project site entry point (refer to Figure 3 and map pocket 1 in the Starwood - Santa Fe HMP). Preliminary bridge design elements include two standard vehicle lanes with an adjacent golf cart path, two vertical piers located outside of the main stream channel, a main span length of approximately 150 feet, and a total structure length of approximately 350 feet. The proposed bridge and the adjacent roadway leading onto the bridge would be fenced to direct wildlife movements into the San Dieguito River open space corridor.

4.0 BRUSH MANAGEMENT ZONES

State law requires the implementation of a Fire Management Plan for the protection of all structures abutting wildland and open spaces, regardless of occupancy or use. The brush management zones are intended to modify fire behavior, and thereby reduce flame heights, lower heat generation and slow the spread of fire to or from structures. A minimum 100-foot brush management zone is required between all structures and existing vegetation with the potential for wildfire, based on current County of San Diego brush management standards. Fire management activities within the 100-foot brush management zone would include clearing and/or thinning of existing vegetation, and landscaping with irrigated ornamental and fire-resistant plants. A conceptual plant palette for brush management zones within the project site is provided below in Table 1.

Table 1
CONCEPTUAL PLANT PALETTE FOR THE STARWOOD-SANTA FE PROJECT BRUSH MANAGEMENT ZONES

Scientific Name	Common Name
Cercis occidentalis	western redbud
Encelia californica	California encelia
Heteromeles arbutifolia	toyon
Mimulus aurantiacus	red monkeyflower
Pinus torreyana	Torrey gum
Quercus agrifolia	coast live oak
Rhus integrifolia	lemonade berry
Rosa californica	California rose
Sambuccus mexicana	Mexican elderberry
Yucca whipplei schidigere	yucca
Nassella pulchra	purple needle grass
Sisyrinchium bellum	blue-eyed grass
Opuntia littoralis	beaver tail cactus
Opuntia proliferia	cholla cactus
Eriophyllum confertiflorum	yarrow
Lupinus succulentus	arroyo lupine
Isocoma menziesii	goldenbush
Iva hayesiana	San Diego marsh elder
Helianthemum scoparium	sun rose
Eucalyptus cladocalyx	sugar gum
Eucalyptus sideroxylon "rosea"	red ironbark
Platanus acerifolia	London plane tree

The above palette includes a mix of ornamental varieties and native species exhibiting low to moderate fuel potential. The general sequence of brush management zone plantings will include a higher proportion of irrigated, ornamental and/or fire resistant varieties in the zone adjacent to residential structures, and will transition to a higher proportion of native habitat species in the areas adjacent to existing or restored habitat.

4.1 OPEN SPACE I

As described above in Section 3.0, the proposed golf course and Open Space II area is intended to serve as a buffer between residential development and the Open Space I preserve. This buffer would separate the majority of the proposed development from the Open Space I designation, significantly reducing the threat of wildfire damage to associated structures. Approximately eight lots in the northern portion of the project site, however, are located in close proximity to the Open Space I boundary (refer to Figure 3 of the Starwood - Santa Fe HMP). The required 100-foot brush management zone beginning at the boundary of these lots would extend into the Open Space I designation. Because brush management is not permitted within the Open Space I area (City of San Diego 1996), such activities would be required to encompass applicable portions of the lots to provide a 100-foot brush management zone. Specifically, this would require that all structures within applicable lots be situated such that the distance between the structures and the Open Space I boundary is a minimum of 100 feet. This requirement may limit the buildable portion of the noted lots to variable degrees, depending on the exact location of individual lots with respect to the Open Space I boundary.

4.2 OPEN SPACE II

In addition to the Open Space I preserve area, there are several smaller areas within the Open Space II designation that are proposed to be preserved as native upland habitat. Structures near these areas must also maintain a 100-foot buffer from the preserved habitat, although this buffer may extend into the Open Space II area if approved by the County of San Diego. Brush management beyond the property boundary (i.e., within the Open Space II area) will include clearing of existing vegetation and landscaping with irrigated native grasses. Existing mulefat scrub (if irrigated) and riparian/wetland habitats may be retained in these areas without clearing and landscaping. In addition, existing native species in other habitats which do not constitute significant fuel for combustion (e.g., San Diego Marsh Elder [*Iva hayestana*], Spiny Rush [*Juncus acutus*] and San Diego Barrel Cactus [*Ferocactus viridescens*]) may also be retained, if approved by the County and the Rancho Santa Fe Fire Protection District (FPD). Portions of the 100-foot brush management zone located within lot boundaries will be cleared and landscaped with irrigated ornamentals and fire-resistant plants.

4.3 SIGNAGE

Prior to the issuance of a Grading Permit, the project applicant shall place signs at a maximum interval of 200 feet to assure visibility in identifying the maximum perimeter of the brush management zones. After grading, the maximum exterior perimeter of the brush management zones shall be clearly and permanently identified on the project site. Maintenance of these signs will be the responsibility of the Home Owners Association (HOA).

5.0 FIRE PROTECTION STANDARDS

The following standards are summarized primarily from the Fire Protection Standards for the SFVSP (Hunt 1998).

5.1 ROADS

- No roadway shall have a curvature radius of less than 100 feet measured at the centerline. The minimum turning radius for a turnaround shall be 40 feet from the centerline of the road.
- Vertical curves and dips shall be passable by a 20-ton fire truck and have a radius of 50 feet or greater.
- A minimum 15-foot vertical clearance shall be maintained to permit passage of tall fire vehicles.
- There shall be a minimum 10-foot fuel management zone on each side of roads adjacent to vegetated areas. A minimum of 20 feet of selective vegetation clearance is required along Del Dios Highway.
- Cul-de-sacs should not exceed 600 feet in length in high fire hazard areas.
- Driveways exceeding 150 feet in length from a public way leading to residences shall be paved and have a minimum 12-foot width to allow fire vehicle access.
- Bridges shall be constructed of non-combustible materials, designed to support a minimum load of 80,000 pounds, and be seismically engineered.

5.2 BUILDINGS

Standards for new building structures shall comply with applicable guidelines set forth in the "Wildlife/Urban Interface Planning and Construction Standards," as modified by the San Diego County Wildland/Urban Interface Task Force (County of San Diego 1997). Specifically, this will include elements such as setbacks, roof coverings, construction materials, window glazing, spark arresters, automatic fire sprinkler systems and site access requirements.

Prior to issuance of building permits for residential structures, recreational facilities and all other structures, construction plans shall be reviewed and approved by the County of San Diego and the FPD.

6.0 COMPLIANCE

- The proposed project shall comply with the requirements of this FMP, the Fire Protection Standards for the Santa Fe Valley Specific Plan (Hunt 1995), and the Planning Construction Standards of the Wildland/Urban Interface Development Standards (County of San Diego 1997).
- Prior to the issuance of building permits, the project developer(s) shall submit landscape and other appropriate plans to the County and the FPD for review and approval. The limits of the brush management zone shall be identified in the field to the satisfaction of the FPD (as described above in Section 5.3).
- Prior to construction, the project developer(s) shall implement a minimum 100-foot brush management zone for all structures to the satisfaction of the County and FPD. As described

above in Sections 4.1 and 4.2, the brush management zone may encompass portions of individual residential lots in areas adjacent to Open Space I and applicable Open Space II designations.

- Prior to occupancy, landscaping shall be completed within the brush management zone in compliance with this plan, and to the satisfaction of the County of San Diego and FPD.

- Revisions to the approved FMP shall be reviewed for comments by the U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG).

7.0 MAINTENANCE

Maintenance of the portion of the brush management zones located on residential lots will be the responsibility of the individual lot owners. The FPD may inspect all brush management zones on an annual basis to ensure compliance with all applicable fire protection regulations.

If the County of San Diego authorizes brush management activities within the Open Space II area, a person or entity approved by the County shall be assigned the responsibility of maintaining the brush management zones. The County may wish to assign this responsibility to the Habitat Manager or transfer it to the HOA. These decisions shall be made prior to the issuance of any grading plans.

8.0 LIST OF PREPARERS

The following individuals contributed to the field work and/or preparation of this report:

David Claycomb	B.S., Botany, University of New Hampshire, 1975. M.S., Natural Resources Management, Humboldt State University, 1982.
Dennis Marcin	B.S., Geology, Michigan State University, 1979.
Greg Mason	B.S., Natural Resources Planning and Interpretation, Humboldt State University, 1992.

9.0 LITERATURE CITED

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Appendix E

LISTED OR SENSITIVE ANIMAL SPECIES WITH POTENTIAL TO OCCUR WITHIN THE PRESERVE AREA

Appendix E
LISTED OR SENSITIVE ANIMAL SPECIES
WITH POTENTIAL TO OCCUR WITHIN THE PRESERVE AREA

SPECIES	LISTING OR SENSITIVITY*	POTENTIAL TO OCCUR
INVERTEBRATES		
Insects		
Hermes copper butterfly (*Lycaena hermes*)	RS	Low potential to occur, as the host plant, redberry (*Rhamnus crocea*), does not occur on the site.
Harbison's dun skipper (*Euphyes vestris harbisoni*)	RS	Low potential to occur on site.
Quino checkerspot butterfly (*Euphydryas editha quino*)	USFWS FE	Low potential to occur on site.
Crustaceans		
San Diego fairy shrimp (*Branchinecta sandiegoensis*)	USFWS FE	High potential. Observed in vernal pools within the SFVSP.
Riverside fairy shrimp (*Streptocephalus woottoni*)	USFWS FE	Low potential to occur on site.
VERTEBRATES		
Reptiles and Amphibians		
San Diego horned lizard (*Phrynosoma coronatum blainvillei*)	RS/CSC	High potential to occur on site in chaparral. Observed in the SFVSP.
Silvery legless lizard (*Anniella pulchra pulchra*)	CSC	Moderate potential to occur.
Western spadefoot (*Spea hammondi*)	RS/CDFG CSC	High potential to occur on site. Observed in the SFVSP.
Arroyo toad (*Bufo microscaphus californicus*)	USFWS FE/CDFG CSC	Low potential to occur on site.
Southwestern pond turtle (*Clemmys marmorata pallida*)	RS/CDFG CSC	High potential to occur on site. Observed in the San Dieguito River within the SFVSP.
San Diego banded gecko (*Coleonyx variegatus abbotti*)	RS	Moderate potential to occur on site.
Coastal whiptail (*Cnemidophorus tigris multiscutatus*)	RS	High potential to occur on site. Observed in the SFVSP.
Coronado Island skink (*Eumeces skiltonianus interparietalis*)	RS/CDFG CSC	High potential to occur on site. Observed in the SFVSP.
Red diamond rattlesnake (*Crotalus ruber ruber*)	RS/CDFG CSC	High potential to occur on site. Observed in the SFVSP.
Two-striped garter snake (*Thamnophis hammondii*)	RS	High potential to occur near the San Dieguito River on site.

Appendix E (cont.)

SPECIES	LISTING OR SENSITIVITY*	POTENTIAL TO OCCUR
VERTEBRATES (cont.)		
Reptiles and Amphibians (cont.)		
Coast patch-nosed snake (*Salvadora hexalepis virgultea*)	RS/CDFG CSC	High potential to occur on site.
San Diego ringneck snake (*Diadophis punctatus similis*)	RS	High potential to occur on site.
Coastal rosy boa (*Lichanura trivirgata roseofusca*)	RS	High potential to occur on site.
Birds		
Bell's sage sparrow (*Amphispiza belli belli*)	RS/CSC	Moderate potential to occur on site in chaparral, because it would have been observed if present.
Loggerhead shrike (*Lanius ludovicianus*)	CSC	Moderate potential to occur throughout site but not observed.
Black-crowned night heron (*Nycticorax nycticorax*)	Rookery—CDFG Special Animal	High potential to occur on site. Observed in the SFVSP.
Sharp-shinned hawk (*Accipiter striatus*)	Nesting—CDFG CSC	High potential to occur on site.
Golden eagle (*Aquila chrysaetos*)	Nesting and Wintering—CDFG CSC	High potential to occur on site. Observed in the SFVSP.
Ferruginous hawk (*Buteo regalis*)	Wintering—Regionally Sensitive/ CDFG CSC	High potential to occur on site.
Prairie falcon (*Falco mexicanus*)	Nesting—CDFG CSC	High potential to occur on site. Observed in the SFVSP.
Merlin (*Falco columbarius*)	CDFG CSC	High potential to occur on site. Observed in the SFVSP.
American peregrine falcon (*Falco peregrinus anatum*)	USFWS FE/CDFG SE	Low potential to occur on site.
Forster's tern (*Sterna forsteri*)	Nesting colony—CDFG Special Animal	High potential to occur on site. Observed in the SFVSP.
Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)	Nesting—CDFG SE	Low potential to occur on site.
Long-eared owl (*Asio otus*)	Nesting—CDFG CSC	Low potential to occur on site.
Burrowing owl (*Speotyto cunicularia*)	Burrow sites—CDFG CSC	Moderate potential to occur on site.
Southwestern willow flycatcher (*Empidonax traillii extimus*)	USFWS FE/CDFG SE	Low potential to occur on site.
Cactus wren (*Campylorhynchus brunneicapillus*)	RS/CDFG CSC	Low potential to occur on site.

SPECIES	LISTING OR SENSITIVITY*	POTENTIAL TO OCCUR
VERTEBRATES (cont.)		
Birds (cont.)		
Loggerhead shrike (*Lanius ludovicianus*)	CDFG CSC	High potential to occur on site. Observed in the SFVSP.
Least Bell's vireo (*Vireo bellii pusillus*)	USFWS FE/CDFG SE	Low potential to occur on site.
Yellow-breasted chat (*Icteria virens*)	CDFG CSC	Moderate potential to occur on site.
Tricolored blackbird (*Agelaius tricolor*)	RS/CDFG CSC	Moderate potential to occur on site.
Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)	RS/CDFG CSC	High potential to occur on site. Observed in the SFVSP.
Bell's sage sparrow (*Amphispiza belli belli*)	RS/CDFG CSC	High potential to occur on site. Observed in the SFVSP.
Yellow warbler (*Dendroica petechia brewsteri*)	CDFG CSC	High potential to occur on site. Observed in the SFVSP.
California horned lark (*Eremophila alpestris actia*)	RS/CDFG CSC	High potential to occur on site. Observed in the SFVSP.
Mammals		
Pallid bat (*Antrozous pallidus*)	CDFG CSC	Low potential to occur on site.
Townsend's western big-eared bat (*Plecotus townsendii townsendii*)	RS/CDFG CSC	Moderate potential to occur on site.
California mastiff bat (*Eumops perotis californicus*)	RS/CDFG CSC	High potential to occur on site.
Dulzura (California) pocket mouse (*Chaetodipus californicus femoralis*)	RS/CDFG CSC	High potential to occur on site.
Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)	RS/CDFG CSC	High potential to occur on site.
Pacific pocket mouse (*Perognathus longimembris pacificus*)	USFWS FE/CDFG CSC	Low potential to occur on site.
San Diego desert woodrat (*Neotoma lepida intermedia*)	RS/CDFG CSC	High potential to occur on site.
American badger (*Taxidea taxus*)	CDFG CSC	Low potential to occur on site.

*See Appendix F for an explanation of codes.

Appendix F

EXPLANATION OF STATUS CODES FOR PLANTS AND ANIMALS

Appendix F
EXPLANATION OF STATUS CODES FOR PLANTS AND ANIMALS

U.S. FISH AND WILDLIFE SERVICE
FE = Federally listed endangered
FT = Federally listed threatened
PE = Federally proposed endangered
PT = Federally proposed threatened
RS = Regionally Sensitive

CALIFORNIA DEPARTMENT OF FISH AND GAME
CE = State listed endangered
CR = State listed rare
CT = State listed threatened
CSC = Species of special concern

MULTIPLE SPECIES CONSERVATION PROGRAM
MSCP = Multiple Species Conservation Program target species

BLUE LIST
Species undergoing population or range reductions.

CALIFORNIA ENVIRONMENTAL QUALITY ACT
For plants with no current state or federal legal standing, CEQA refers to the fact that under the Act, impacts to species may be found significant under certain circumstances (e.g. uniqueness due to size, age, or regional sensitivity).

CALIFORNIA NATIVE PLANT SOCIETY

LISTS: R-E-D CODE
1A = Presumed extinct.
1B = Rare, threatened, or endangered in California and elsewhere. Eligible for state listing.
2 = Rare, threatened, or endangered in California but more common elsewhere. Eligible for state listing.
3 = Distribution, endangerment, and/or taxonomic information needed.
4 = A watch list for species of limited distribution. Needs monitoring for changes in population status.

R (Rarity)
1 = Rare but found in sufficient numbers and distributed widely enough that potential for extinction is low at this time.
2 = Occurrence confined to several populations or to one extended population.
3 = Occurrence limited to one or a few highly restricted populations, or present in such small numbers that it is seldom reported.

E (Endangerment)
1 = Not endangered
2 = Endangered in a portion of its range
3 = Endangered throughout its range

D (Distribution)
1 = More or less widespread outside California
2 = Rare outside California
3 = Endemic to California