



Final Long-term Management Plan for Fox- Miller Property Open Space Carlsbad, California

Prepared for

H.G. Fenton Company
7577 Mission Valley Road, Suite 200
San Diego, CA 92108
Contact: Allen Jones

Prepared by

RECON Environmental, Inc.
1927 Fifth Avenue
San Diego, CA 92101-2358
P 619.308.9333 F 619.308.9334
RECON Number 3028-2B
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A handwritten signature in black ink, appearing to read "Wendy Loeffler".

Wendy Loeffler, Senior Biologist



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1.0 Executive Summary

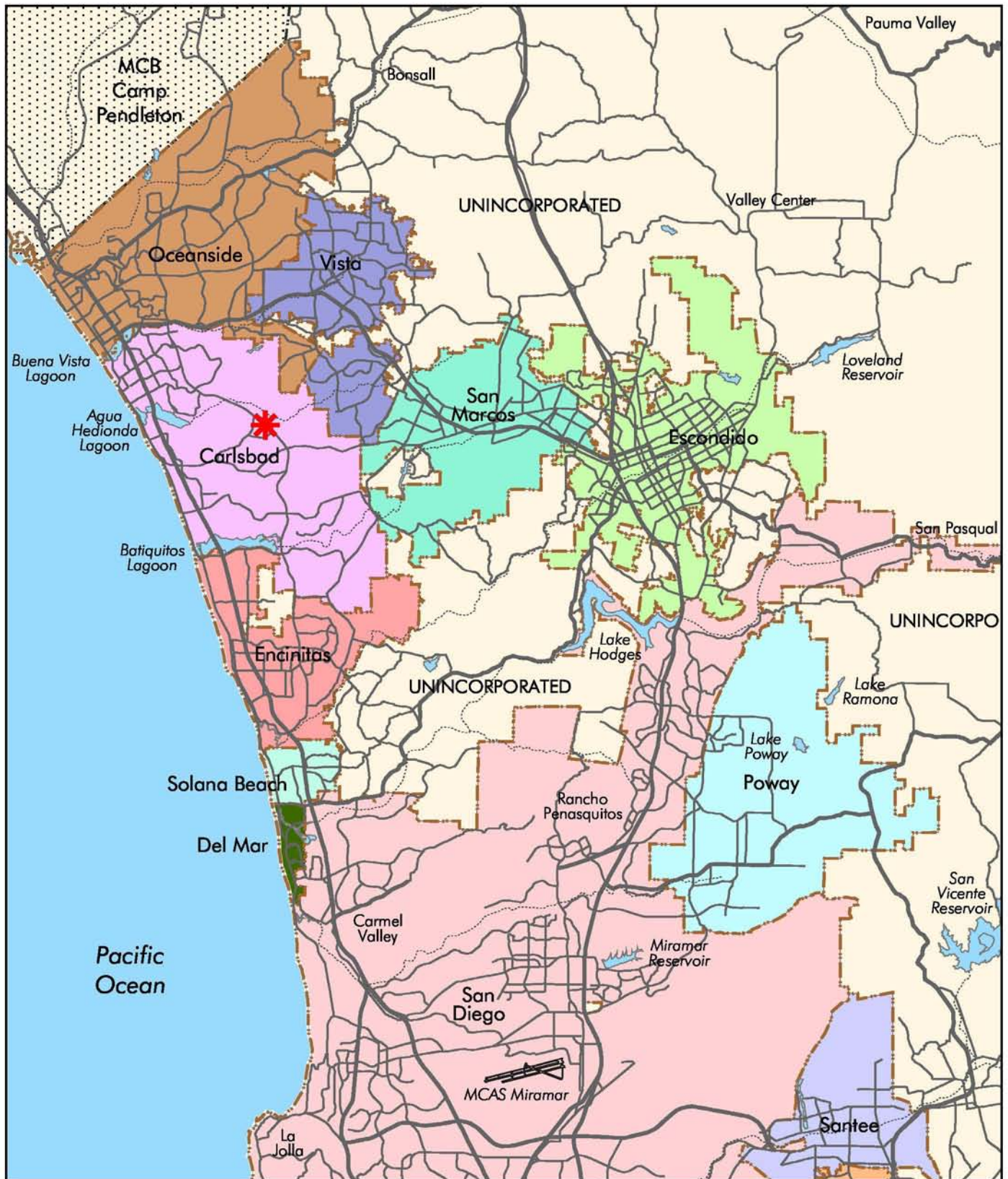
This long-term management plan (LTMP) provides a framework for the enhancement and management of thread-leaved brodiaea (*Brodiaea filifolia*) populations, Diegan coastal sage scrub, native grassland, and southern willow scrub on the Fox-Miller Property open space, which includes approximately 18.11 acres of land in the city of Carlsbad, San Diego County. The dedication of the open space and the implementation of the associated LTMP fulfill a portion of the mitigation for impacts to the biological resources associated with development of the property. This plan will become effective following the completion and approval of the five-year maintenance and monitoring activities associated with the approved restoration plan prepared for this project. The open space will be managed in perpetuity to maintain and improve the habitat quality on-site. Habitat enhancement of the open space will benefit the thread-leaved brodiaea as well as a variety of wildlife species using the open space.

Management guidelines and the responsible parties are identified in this document. This plan was written and is believed to be in conformance with the Multiple Habitat Conservation Program (San Diego Association of Governments [SANDAG] 1998), the City of Carlsbad's Habitat Management Plan for Natural Communities (City of Carlsbad 1999), and Section D of the draft Open Space Management Plan.

2.0 Introduction

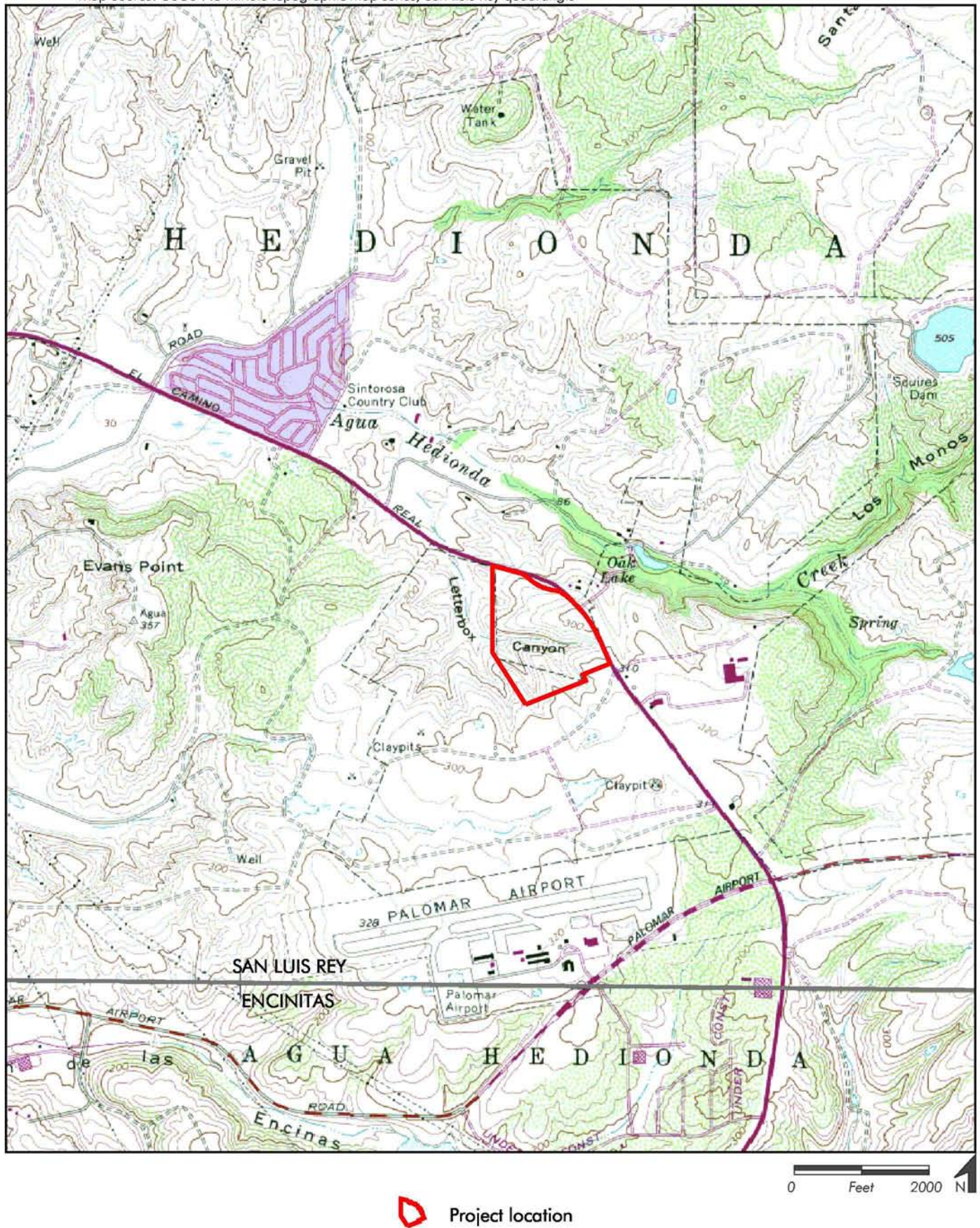
The property is in the city of Carlsbad, California located north of Palomar Airport Road, east of El Camino Real, and between Faraday Avenue and College Boulevard (Figures 1 and 2). The project site includes a portion of Letterbox Canyon with its associated drainages and the adjacent upland slopes. The site is bounded by El Camino Real to the east and north with industrial development surrounding the rest of the site. The property is currently owned by Fenton Carlsbad Research Center, LLC of which H.G. Fenton Company is the manager.

The open space that will be placed in a conservation easement totals 18.11 acres. The objectives and guidelines included in this LTMP are intended to preserve and increase the value of thread-leaved brodiaea habitat and the Diegan coastal sage scrub, native grassland, and southern willow scrub vegetation communities in the open space in perpetuity.



 Project location

0 Miles 4 N



2.1 Regional Management Context

The Multiple Habitat Conservation Program (MHCP) is a habitat conservation plan created for seven cities within the northern subregion of San Diego County (SANDAG 1998). The City of Carlsbad has adopted the Habitat Management Plan for Natural Communities in the City of Carlsbad, a subarea plan of the MHCP (City of Carlsbad 1999) which provides an implementation and regulatory framework for designing and protecting the proposed open space preserve for the City of Carlsbad while allowing for the continued growth and development of the City. The habitat management plan (HMP) provides guidelines for determining significant impacts to biological resources and designating mitigation associated with proposed projects. The MHCP and HMP identify a series of focused planning areas within which some lands will be dedicated for preservation of native habitats. These areas contain both “hard line” areas which will be preserved as open space and “soft line” areas which will include both development and open space to be determined through the planning process. Mitigation requirements for impacts to the biological resources are provided in the HMP (City of Carlsbad 1999).

The City’s HMP identifies the Fox-Miller Property as a Special Resource Area 1 based on the presence of the thread-leaved brodiaea. The project was “hard lined” in the HMP that was adopted, but new information on the extent and size of the thread-leaved brodiaea population was discovered prior to issuance of the take authorization by the regulatory agencies. The large size of the population identified it as a critical population under the MHCP, which requires preservation of 95 percent of the population. Take authorization of the thread-leaved brodiaea by the agencies became contingent upon the preservation of the critical population on the Fox-Miller Property.

2.2 Administration and Responsibilities

Several entities will be involved in the implementation of this plan. These entities include state and federal wildlife agencies, the City, the property owner (owner), and a Preserve Manager (PM). Their interactions are discussed briefly below.

2.2.1 Agencies

The U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG), and City, collectively referred to in this document as the agencies, will provide advisory input and review to this document and may provide expertise and guidance to the PM on implementation and adaptive management tasks.

2.2.2 Property Owner

The owner will be responsible for the creation of a non-wasting endowment to provide funding for the implementation of this LTMP. The owner will be responsible for the initial installation, maintenance, and monitoring of any revegetation within the preserved areas associated with the project and the initial five-year maintenance and monitoring program.

The owner shall be responsible through the non-wasting endowment paid to the PM for funding all aspects of the project including implementation, long-term maintenance, and remedial actions as determined by the following regulatory agencies: USFWS, the CDFG, the USACE, and the City of Carlsbad. The owner will supply the agencies with copies of all applicable reports pertaining to the open space, particularly reports documenting biological resources.

If Fenton Carlsbad Research Center, LLC sells the property or otherwise transfers responsibility of the open space to another entity, the new owner will be responsible for all conditions and requirements set forth in this document, unless otherwise agreed to between the owner, agencies, City, and PM.

2.2.3 Preserve Manager

Helix Community Conservancy has been hired as the PM to implement this LTMP and will take responsibility of the open space after the five-year Habitat Restoration and Mitigation Plan (HRMP) has been completed and approved, which is projected for 2010.

If at any point, Helix Community Conservancy is no longer the PM, an alternative PM shall be hired to continue the implementation of the LTMP. The following standards must be met for the subsequent PM to be accepted. The PM can either be an organization or an individual as long as the person(s) actively managing the open space meets the qualifications outlined below to the satisfaction of the agencies. If the PM is an organization, a project manager shall be designated. The PM will be responsible for the day-to-day implementation of this LTMP and will carry out the LTMP's requirements and objectives.

The agencies shall have the primary responsibility for the approval of the conditions covered under this LTMP. This responsibility includes the approval of the PM and review and approval of yearly work programs, budgets, and annual reports prepared by the PM. The PM shall report directly to the agencies on all issues, concerns, and questions regarding work schedules and overall management.

The PM must provide a qualified individual(s) whom is acceptable to the agencies and the owner. This person(s) must meet the following criteria:

- B.S. or B.A. degree in wildlife management, ecology, zoology, botany, biology, or related field.
- At least two years of experience in field biology in southern California, preferably San Diego County.
- At least two years of experience in bird and general wildlife species surveys with a current USFWS recovery permit for the federally listed endangered coastal California gnatcatcher (*Polioptila californica californica*) and experience with the least Bell's vireo (*Vireo pusillus bellii*).
- At least two years of experience in conducting rare plant surveys and able to appropriately identify thread-leaved brodiaea.
- Experience dealing with community groups.
- Demonstrated experience in similar projects or in projects including similar skills.

The PM shall manage the open space and will:

- Be an advocate of the open space by maintaining and protecting its integrity and managing project activities in the best interest of the restoration goals set forth in the HRMP prepared by RECON in 2005 and the LTMP.
- Be familiar with the provisions of this LTMP, its attachments, and all documentation supporting the LTMP.
- Manage the open space in accordance with local regulations.
- Be responsible for all points noted within the LTMP as being within his/her judgment as discussed within the Open Space Enhancement section.
- Keep and maintain all documents provided by the owner.
- Educate the surrounding community about the presence and purpose of the open space.
- Document all field visits and notify the agencies in writing of any issues, problems, and proposed solutions in a timely manner.
- Coordinate with the PMs of adjacent or nearby properties on management practices and tasks related to preservation and maintenance of the subregional open space system.

- Prepare and submit to the agencies an annual report by December 31 of each year (see the Reporting/Status Reviews section for requirements).

2.3 Funding Mechanism

Fenton Carlsbad Research Center, LLC will meet the funding requirements set forth herein to implement this plan. The funding will be divided into two components: (1) initial site maintenance and management for five years and (2) long-term maintenance and management funding. A long-term funding program will be a non-wasting endowment, where an initial amount will be deposited in a trust or bond and the interest generated from the principal, will be drawn to cover the cost of maintenance and management activities.

Long-term maintenance and management costs require an endowment amount as identified in the Property Analysis Record (PAR), which assumes a 4.5 percent capitalization rate (Helix Community Conservancy 2005). While State law directs non-adjudicated assets held by a non-profit 501(c)(3) to revert to the State of California should the non-profit dissolve, to further clarify the parties' intent, a clause will be added to the contract between the project applicant and the Helix Community Conservancy that directs all monies in the endowment account for this project to be held in an account that shall be transferred to the State Department of Fish and Game in the event the Helix Community Conservancy is dissolved for any reason. Such funds can then be maintained by the Department or assigned to another organization it deems capable of managing the account.

3.0 Existing Conditions

The proposed project will include the grading of four lots on the 52.33-acre Fox-Miller Property. Impacts assessed also include the installation of sewer and storm drains and the creation of a detention basin within the western end of Letterbox Canyon. The project will impact approximately 33 acres of area within the project boundaries for development of commercial or light industrial purposes.

3.1 Topography and Soils

Elevation of the site ranges from approximately 160 to 300 feet above mean sea level (U.S. Geological Survey 1968). Letterbox Canyon runs east-west through the center of the site. Two side canyons, each supporting a drainage, run north-south and join Letterbox Canyon in the western half of the property.

Soils on the site consist of Altamont clay of 15 to 30 percent slope for the entire property. Altamont clay is derived from weathered calcareous shale and tends to be a well-drained soil (U.S. Department of Agriculture 1973).

3.2 Sensitive Biological Resources

3.2.1 Sensitive Plant Communities

The open space preserve area includes the following vegetation communities: Diegan coastal sage scrub (5.32 acres), valley needlegrass grassland (4.79 acres), non-native grassland (7.70 acres), and southern willow scrub (0.30 acre). These communities are considered sensitive by the agencies. Both grassland communities also support a large population of thread-leaved brodiaea. Ninety-five percent (2.16 acres) of the pre-existing thread-leaved brodiaea population will remain preserved in place and five percent (0.11 acre) will be translocated from the development activities on-site. The native grassland community supports both the translocated thread-leaved brodiaea as well as a large portion of the remaining population within the open space preserve area.

3.2.2 Sensitive Plants

Two sensitive plants were observed on-site: thread-leaved brodiaea and California adolphia.

Thread-leaved brodiaea, a state endangered and a federal threatened species, is a perennial flower typically occurring on hillsides or valleys in grassland communities with clay, loamy sand, or alkaline silty-clay soils (USFWS 1994). It is present within the non-native grassland on-site covering a total of 2.16 acres of thread-leaved brodiaea. Based on the 2005 vegetation survey, a conservative estimate of thread-leaved brodiaea is 7,534,844 corms.

California adolphia, a CNPS List 2 species (CNPS 2001), is a xeric shrub occurring in Diegan coastal sage scrub, often associated with California buckwheat and California sagebrush. It is generally found in habitats in which the shrubs have reached a height of four to five feet. This species is located within the large slope of coastal sage scrub in Letterbox Canyon and within one isolated patch above the southwestern most side drainage.

3.2.3 Sensitive Wildlife

The coastal California gnatcatcher, a federally listed threatened species, was not observed during focused surveys conducted in July 1998. One pair was observed

foraging throughout the coastal sage scrub in Letterbox Canyon during focused surveys conducted in December, 2000 and January, 2001 (Figure 3).

A pair of white-tailed kites, a California fully protected species, was observed foraging over the non-native grassland on-site during all three coastal California gnatcatcher surveys. One kite was observed landing on a blue elderberry on-site and this species has some potential to nest on-site.

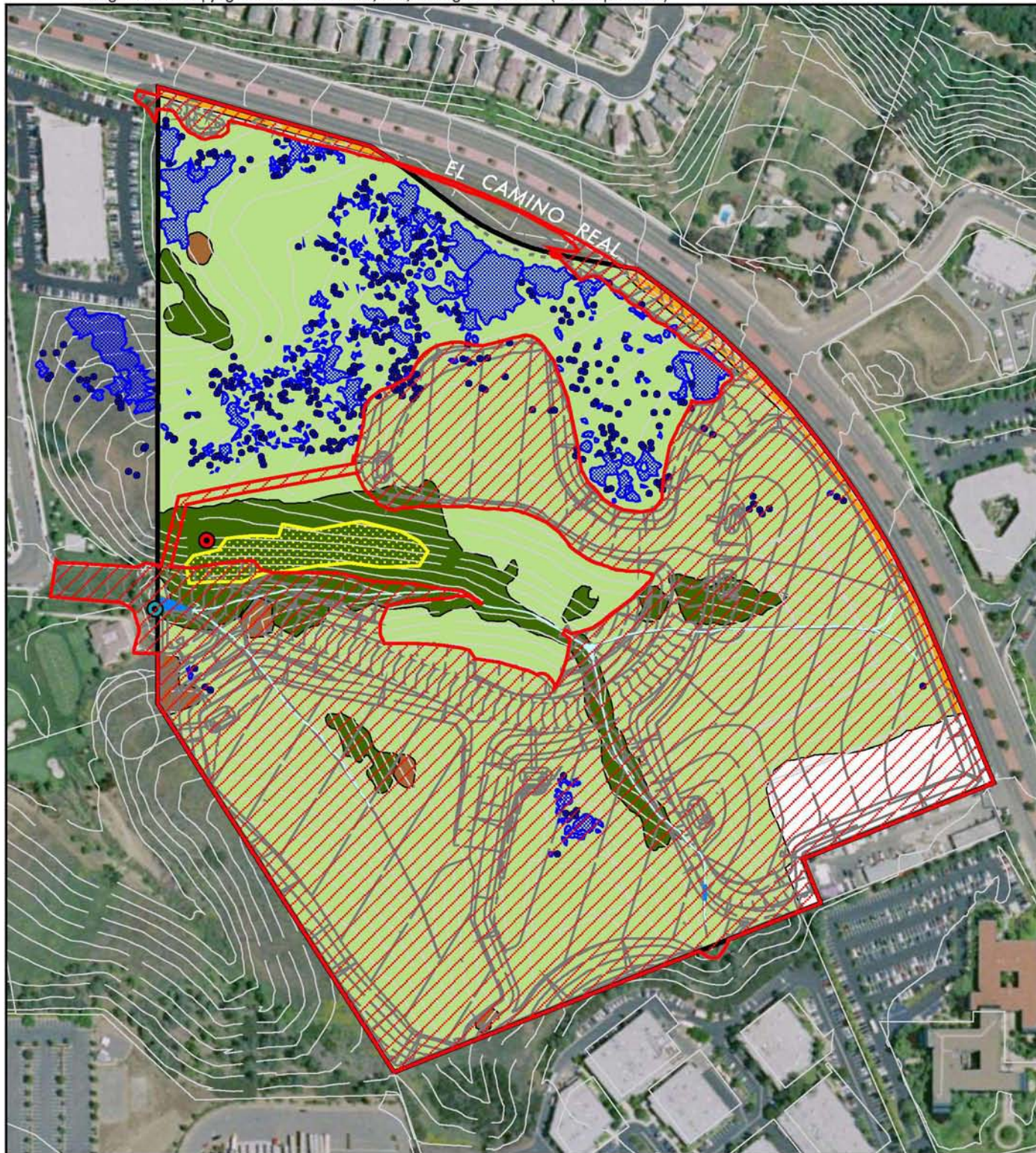
Northern harrier and Cooper's hawk, both California species of special concern, were observed flying from Letterbox Canyon. Red-tailed hawk and American kestrel were also observed flying over the project site. The raptors were actively foraging, with one bird observed carrying a rodent in its talons. Both the federal and California governments protect active raptor nests. There is a potential that raptors are nesting either on-site or in the larger trees on the adjacent property.

A pair of least Bell's vireo and an active nest were located within a white alder tree (*Alnus rhombifolia*) on the manufactured slope at the base of the grassy area at the boundary between Taylor-Made and Fox-Miller property. The least Bell's vireo is listed as federally and state endangered.

4.0 Habitat Management

The focus of this LTMP is to preserve and maintain the habitat preserved in open space. This habitat will be set aside to protect the thread-leaved brodiaea, coastal California gnatcatcher, and all other sensitive plant and animal species present in the open space. This open space will be managed and protected in perpetuity as defined by the LTMP; following completion of the five-year habitat creation and restoration detailed in the HRMP.

Habitats within the open space include the Diegan coastal sage scrub, non-native grasslands, native grasslands, and southern willow scrub. Maintaining the thread-leaved brodiaea population is the primary focus of long-term management of the open space. The open space preserve area includes the following vegetation communities: Diegan coastal sage scrub (5.32 acres), valley needlegrass grassland (4.79 acres), non-native grassland (7.70 acres), and southern willow scrub (0.30 acre). Ninety-five percent (2.16 acres) of the pre-existing thread-leaved brodiaea population will remain preserved in place and five percent (0.11 acre) will be translocated from the development activities on-site. The native grassland community supports both the translocated thread-leaved brodiaea as well as a large portion of the remaining population within the open space preserve area.



Project boundary
Project impacts

Vegetation Communities
 Diegan coastal sage scrub
 Valley needlegrass grassland
 Non-native grassland
 Disturbed-ECR ROW
 Developed

Jurisdictional USACE/CDFG Areas
 Jurisdictional waters
 Wetland

Sensitive Species
 Thread-leaved brodiaea
 California adolphia
 Coastal California gnatcatcher (2000/2001 observation)
 Least Bell's vireo

0 Feet 300 N

4.1 Guidelines for Long-Term Management

The open space will be conserved in perpetuity, and therefore the monitoring needs of this open space may change over time, given a variety of conditions that may occur (climate, fire, surrounding development). An adaptive management approach will allow for the goals of the LTMP to be achieved with changing circumstances.

Since long-term habitat management practices may be changed over time to fit the needs of the resource being protected, several key points should be considered when adapting management protocols. These factors include:

- **Compatibility.** Regional habitat planning requires a regional and subregional approach. Future modifications to this LTMP should incorporate relevant information from regional planning efforts to the maximum extent possible to achieve compatibility.
- **Flexibility.** All plans should be specific enough to afford adequate protection for their respective habitats. However, the plans must also be flexible enough to allow for any potential future changes in habitat management efforts and activities.
- **Cooperation.** All plans should require habitat management to be executed in cooperation with other plans' efforts in the region.
- **Communication.** All active PMs in the region should meet at regular intervals to discuss common problems and solutions. Such activity will facilitate the sharing of biological information, habitat management successes and failures, and coordination with the sheriff and fire departments.

4.2 Prohibited and Compatible Uses Within the Open Space

4.2.1 Prohibited Uses

Within the open space, the following shall be prohibited:

- Grading or excavation;
- Placement of soil, sand, rock, gravel, or any other material;
- Clearing of vegetation; construction, erection, or placement of any building or structure;
- Vehicular activities, except on the existing paved road;

- Trash or hazardous waste dumping;
- Use for any purpose other than open space; and
- Unauthorized hiking and equestrian activities.

4.2.2 Compatible Uses

To limit impacts to the open space, activities within the open space will be authorized by the PM and restricted to:

- Habitat management activities identified in this plan.
- Wildlife monitoring surveys conducted as part of the annual status reviews.
- Emergency response by the PM and the appropriate agencies in case of fires, floods, earthquakes, or other natural disasters.

All activities within the open space will be conducted in accordance with the applicable impact avoidance and reduction measures identified herein:

- All activities authorized by the PM must be conducted to avoid take of listed species or must be covered by their own permits.

All activities authorized by the PM must be consistent with the goals and objectives of this LTMP.

4.3 General Open Space Management

Management of the open space will include ensuring that the native vegetation communities remain in a high-quality native state and that any non-native grasslands are maintained in such a way as to minimize encroachment into the native communities. General habitat conditions will be noted during each monitoring visit by the PM. A formal vegetation mapping effort will be performed at a minimum of every five years to assess open space conditions. Mapping will be digitized and entered into a geographic information system (GIS) database to analyze trends and/or changes in community shape, size, or composition over time. All data will be presented to the agencies and remedial actions, if necessary, developed.

Existing exotic dominated areas and future disturbances may warrant restoration or revegetation, as determined by the PM and the agencies. Should future revegetation be warranted, a revegetation plan would be proposed by the PM in the annual report, for approval by the agencies. Revegetation may consist of weed control, seeding, and/or

planting. The PM should collect seed from native plant species occurring in the open for plant propagation or seed stock for any needed revegetation in the open-space.

In the event of any slope failures the property owner is responsible for restoration both of the slope and of the habitat existing on the slope prior to the failure.

4.4 Sensitive Species Management

4.4.1 Thread-leaved Brodiaea

Long-term management will be required to ensure that there is not a decrease in the existing population size and that there is a long-term sustainability of this species at this location. Thread-leaved brodiaea will be monitored (i.e., delineate population boundaries, measure density, and assess condition and degree of disturbance to habitat) annually to be consistent with Appendix A.3 of MHCP Volume III. Management will focus on the following:

- Monthly site visits will be made to the open space preserve to check the integrity of the fence and identify any illegal/unauthorized activities within the preserve or any other threats to the habitat. All incidental data relevant to the thread-leaved brodiaea and the open space areas will be identified and recorded.
- An annual site inspection will be conducted to assess the condition of the thread-leaved brodiaea population and habitat during blooming season (March – June).
- Beginning the year after the PM takes responsibility for site management and every year to follow, the PM will monitor the thread-leaved brodiaea area (approximately 2.16 acres) by conducting five 50-meter long transects to assess coverage by non-native species, the distribution of thread-leaved brodiaea, the distribution of native plant species, and the overall composition and structure of the plant community. Along each transect, a one-meter square quadrat will be placed at five-meter intervals for a total of 10 quadrats per transect or 50 quadrats within the open space preserve area. Percent cover for each species encountered within each quadrat will be recorded. Sampling will be conducted from March through June, during the peak blooming period of the thread-leaved brodiaea on-site. If possible, the PM will collect data along the same transects established as part of the HRMP. Transect results will be included in the annual report and will not be provided in a stand-alone report.
- If a population decline is identified the PM will consult with the agencies to determine potential factors and develop remedial actions, if necessary.

4.4.2 Coastal California Gnatcatcher

The City's HMP does not identify this site as a major population area for the coastal California gnatcatcher. However, given their presence on the site, the open space will be

maintained in such a way as to maximize the potential for the continued use by this sensitive bird species. Coastal California gnatcatchers will be monitored (i.e., map general distribution, measure abundance/number of pairs, and assess condition and degree of disturbance to habitat) annually to be consistent with Appendix A.3 of MHCP Volume III.

- The open space preserve area within the remaining portion of Letterbox Canyon will include the preservation of and additional creation/restoration of Diegan coastal sage scrub of a composition to provide habitat for the coastal California gnatcatcher, as identified in the HRMP. Long-term management for this species will include annual inspection of the Diegan coastal sage scrub area to ensure the vegetation community continues to provide high-quality habitat for this species.
- Baseline surveys for this species will be conducted during the first year and conducted every year to determine whether the species continues to be a resident on the site. Surveys will be conducted in accordance with the protocols detailed in Section 3 of the Final MHCP, Volume III (SANDAG 2003), which states the following: "Surveyors will establish systematic survey routes through patches of suitable habitat, such that the suitable habitat is completely covered. Survey routes should be varied relative to time of day between visits. The surveyors will visit these patches three times during January through mid-March each year, with at least a seven-day interval between site visits. Taped vocalizations will be used, as needed. The number of gnatcatcher pairs will be recorded, and notes will be taken on the condition of the habitat (e.g., level of vehicular disturbance, trampling of habitat, relative abundance of exotic species, trash, erosion, drainage conditions, etc.). See an example field data from in Appendix C.2. Management actions to control or reduce habitat disturbance will be monitored for effectiveness. The observer should be skilled in identification, including knowledge of the songs and calls of birds. Surveys should begin within 1 hour after sunrise and end by noon. Surveys should not be conducted under extreme conditions, i.e., during heavy rains or when the temperature is >95°F or <40°F or with winds >10 miles per hour (mph)."
- Monthly site visits and annual inspections and assessments will be made to the open space preserve and all incidental data relevant to all sensitive species within the open space areas will be identified and recorded.
- If these species are not detected at any point within the monitoring activities and inspections, the PM, with consultation from the agencies, shall implement adaptive management strategies in an attempt to identify potential remedial actions that might result in the recolonization of these species to the site.

4.4.3 Least Bell's Vireo and Cooper's Hawk

The City's HMP does not identify this site as a major population area for the least Bell's vireo. However, given their observation and the observation of Cooper's hawk on the site, the open space will be maintained in such a way as to maximize the potential for the continued use by these sensitive bird species. These Carlsbad HMP covered species will be monitored (i.e., map nest sites, census number of pairs, and assess condition and degree of disturbance to habitat) annually to be consistent with Appendix A.3 of MHCP Volume III.

- Implementation of the HRMP should provide a larger and higher quality habitat area for the least Bell's vireo in the form of the 0.30-acre southern willow scrub. Management for this species will include annual inspection of the southern willow scrub area to ensure the vegetation community continues to provide high-quality habitat for this species.
- Baseline surveys for both species will be conducted during the first year and conducted every year to determine whether the species is a resident on the site. Surveys will be conducted in accordance with the protocols detailed in Section 3 of the Final MHCP, Volume III (SANDAG 2003), which states the following: "Surveyors will establish systematic survey routes through patches of suitable habitat, such that the suitable habitat is completely covered. Survey routes should be varied relative to time of day between visits. The surveyors will visit these patches three times during April through June, with at least a 7-day interval between site visits. Taped vocalizations will be used, as needed. The number of pairs will be recorded, and notes will be taken on the condition of the habitat (e.g., level of vehicular disturbance, trampling of habitat, relative abundance of exotic species, trash, erosion, drainage conditions, etc.). See an example field data from in Appendix C.2. The observer should be skilled in identification, including knowledge of the songs and calls of birds. Surveys should begin within 1 hour after sunrise and end by noon. Surveys should not be conducted under extreme conditions, i.e., during heavy rains or when the temperature is >95°F or <40°F or with winds >10 miles per hour (mph). Conditions and degree of disturbance to the habitat will be recorded, and management actions to control or reduce habitat disturbance will be monitored for effectiveness."
- Monthly site visits and annual inspections and assessments will be made to the open space preserve and all incidental data relevant to all sensitive species within the open space areas will be identified and recorded.
- If these species are not detected at any point within the monitoring activities and inspections, the PM, with consultation from the agencies, shall implement adaptive management strategies in an attempt to identify potential remedial actions that might result in the recolonization of these species to the site.

4.5 Exotic Invasive Species Management

A weeding program will be implemented and will follow the guidelines described below. A diligent weeding program is a necessary component for the long-term management goals described in this plan. Adaptive management strategies must quickly address control of newly dominant non-native species. Frequent site visits are necessary throughout the year to assess the extent of non-native plants present and to determine whether changes are needed in the strategy being used or the intensity of non-native plant removal efforts. To be most effective, non-native plant removal requires control of weeds prior to flowering and seed development. Removal of non-native plants by hand may be required around sensitive species, such as thread-leaved brodiaea, and small populations of herbaceous natives. Herbaceous annuals, which may be locally rare because of non-native plant competition, may need population augmentation and careful hand removal of non-natives to ensure expansion of native plant species. Control of exotic plant species will include:

- Management of the open space preserve will include a target of maintaining cover of non-native annual grasses and herbs (such as brome grass or filaree) at or below five percent and zero percent cover of species listed by the California Invasive Plant Council (Cal-IPC) list of “Exotic Pest Plants of Greatest Ecological Concern,” with the exception of brome grasses (Cal-IPC 1999).
- Areas where exotics removal will be focused will be identified during the initial baseline vegetation mapping of the open space preserve area. To be conducted within the first year.
- The majority of exotic species will be removed by hand or mechanical weed cutters, or with low persistence herbicides (e.g., glyphosate) by maintenance workers familiar with and trained to distinguish weeds from native species. Weeds will be killed or removed before seed sets. Herbicide application will only be done in consultation with the agencies prior to initiating this approach. Appropriate weed control measures will be implemented under the direction of the PM.
- Exotic species of concern include those included on Table 9 of the HRMP (RECON 2005). These plants are exotic species of particular concern for maintaining native open space habitats and will be monitored to maintaining cover of non-native annual grasses and herbs (such as brome grass or filaree) at or below five percent and zero percent cover of all other species listed in the table. The PM shall add plants to this list of exotics if it can be shown the species is having a negative impact on the open space.
- Monitoring for exotic invasive species shall be conducted quarterly each year with weeding to occur once a year. The timing of the weeding should occur after the

previous year's seeds have germinated but prior to the current year's weed population setting seed.

If herbicides are used on-site, the following guidelines will be followed:

- The herbicides will be limited to widely accepted brands.
- The herbicides should be biodegradable.
- The minimum amount required to be effective will be used.
- Applications need to be done at the appropriate time of year to maximize efficiency, as described by the manufacturer.
- Applications must be focused on the target species, avoiding impacts to native vegetation.
- Areas treated shall be posted with signs warning of the presence of herbicides.
- Herbicide application may only be conducted by licensed personnel.

All applications must avoid take of listed species. The PM is responsible for all the necessary permitting required for exotic plant species removal.

4.6 Other General Habitat Management Issues

4.6.1 Public Awareness

The long-term success of the open space and the concept of habitat protection are partially dependent on the open space's acceptance by local community residents and businesses that occupy the future Fox-Miller Property development area as a valuable amenity and resource. A sense of propriety in natural open space by the local community causes residents and businesses to become interested and protective of the resource. Consequently, residents and businesses will not only refrain from disturbing the resource but also inform others of its importance. This will limit vandalism and unauthorized activities from occurring within the open space. By becoming stewards of the open space areas, community members provide a valuable service to the PM, as their vigilance affords protection to the area when the PM is not present.

It is the PM's responsibility to work with the community where appropriate and take steps to maintain a positive working relationship between the community and the habitat management program. The following steps should be taken to facilitate both public awareness of the open space and coordination between the PMs of other properties.

- The PM shall design and install signage where appropriate. The signage should indicate that the open space is an ecological area for sensitive resources and trespassing is not allowed. The signage should include a section to post notices on such topics as herbicide use dates, rattlesnake warnings, the PM contact information, and other items of concern.
- The PM shall, when working on-site, answer questions and explain the open space to local residents and businesses initiating inquiries.
- The PM shall include in the above methods, as he/she sees most appropriate, education on the sensitive species in the open space and shall emphasize the importance of not collecting sensitive species.
- An annual newsletter will be produced that describes the sensitive resources, the need for the community to preserve the resources, and to explain how to avoid indirect impacts to the resources from exotic plant and pest species associated with adjacent landscaped areas. The newsletter will be provided annually to the future businesses in the Fox-Miller Property development area and adjacent businesses, such as Taylor-Made Golf.
- The PM will report persistent and chronic problems related to human or exotic species encroachment to the City of Carlsbad.

4.6.2 Trash

The PM shall be responsible for the general cleanliness of the open space and should be monitored regularly to any illegal dumping of trash or increase in general litter from the adjacent development. Monthly visits to the site will identify any areas of concern. Trash removal will occur quarterly.

4.6.3 Recreational Use and Trespassing

Recreation use is prevalent throughout the undeveloped open space areas of the city of Carlsbad, including pedestrian, bicycle, and motorized vehicles. The PM shall regularly survey for and report any unauthorized trespassing to the City of Carlsbad Police Department. Eight 'No Trespassing' signs will be placed at appropriate intervals along the interface between the development and open space areas. These will be inspected during the monthly visits and replaced as necessary.

4.6.4 Feral Cats and Dogs

As this will be a commercial development, a direct increase in domesticated pets to the open space area is not expected once the buildings are occupied. However, given the

proximity to residential development in the vicinity, there is a potential for uncontrolled and feral dogs and cats to be present which can predate on native wildlife species. The following additional steps shall be taken to prevent the predation of native species by dogs and cats.

- By posting the appropriate signage, the PM shall discourage the use of the open space by hikers and their pets and inform them of the potential impacts by uncontrolled pets on native habitats.
- The annual newsletter will describe the potential impacts of domesticated and feral pets on the native sensitive resources. This description should also discourage the staff from creating feeding stations around the buildings for the purposes of feeding feral dogs or cats that might be present. This will encourage the persistence of these animals and would serve to attract others to the site.
- The PM shall report to the City and the owner if persistent and chronic problems in the open space from particular uncontrolled pets occur.

4.6.5 Lighting

Any additional lighting required within the development shall be directed away from the open space and/or shielded appropriately to avoid increasing the nighttime light input into the open space.

4.6.6 Fencing/Barriers

As part of the implementation of the HRMP, the owner will install a permanent four-foot chain-link fence along the interface of the open space and development to protect revegetation work and the open space from vandalism, as approved by the agencies (Figure 4). This will include access gates for the purpose of maintenance and monitoring of the open space to be installed as necessary. All gates will remain locked except while construction or maintenance personnel are on-site. Project signs will be placed on the fence at locations where unauthorized entry is most likely. Along public rights-of-way, signage shall occur no less than every 1,000 feet. Signs bolted to the fence will provide notice that the area is an ecological open space, that trespassing is prohibited, and cite penalties for trespass violation, including liability for repair of any damage within the fenced area such as disturbance of soil or vegetation. Signs will also identify a contact for additional information.

In coordination with the owners of adjacent projects, the following will be implemented to prevent the degradation of the habitat in the open space and adjacent to the open space:

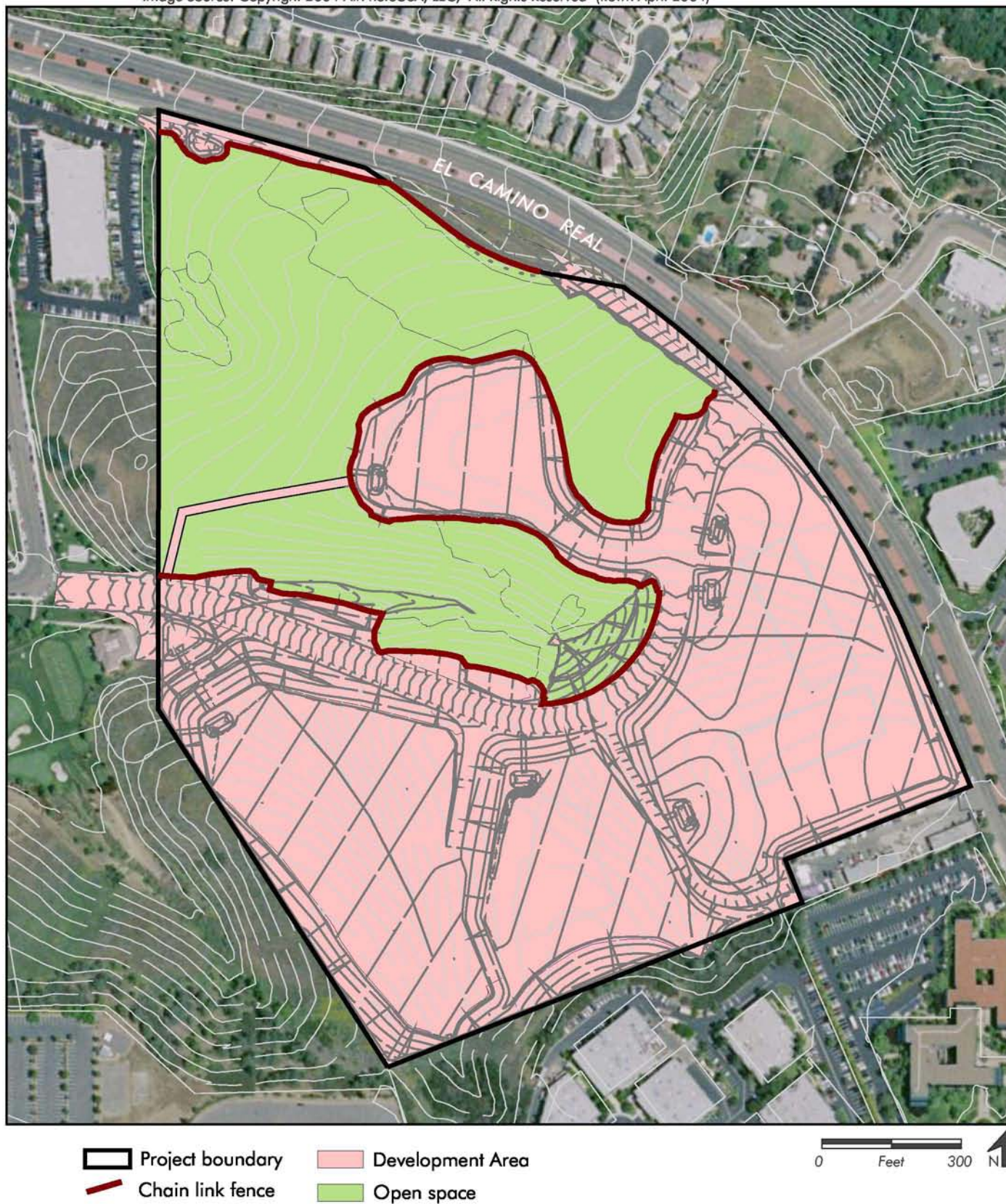


FIGURE 4
Permanent Fencing Plan

- The PM will monitor the fencing and barriers during monthly visits to the open space area. The PM will determine any need for additional temporary fencing based on site conditions. Any additional fencing needs will be discussed with the agencies prior to installation.
- Any breaches to the permanent fencing will be identified during the monthly visits and reported to the Property Owner's Associate (POA) to be repaired as necessary.
- If an area has chronic fence issues, the PM will consult with the agencies and the POA to determine other appropriate measures.

4.6.7 Poaching/Collecting

Removal of any natural resource from the open space—e.g., plants, animals, rocks, fossils, minerals—is prohibited. Anyone attempting to take such things shall be informed of the policy by the PM, in a non-confrontational manner. The annual newsletter will also address this issue. Signage will include language warning of the legal consequences of removing any natural resources. The PM shall report any confrontational situations and any chronic offenders to the City police.

The PM, at his/her discretion, may allow cuttings only for revegetation of areas within the open space that are disturbed by vandalism, erosion, or fire. Any such cuttings shall be taken only by the PM, under his/her supervision, or under a written agreement specifying amounts and localities of collectible materials. These cuttings will be limited to what is necessary to the habitat management effort and will not seriously deplete the existing vegetation.

5.0 Monitoring Schedule

5.1 General Open Space Monitoring

Monitoring for general open space will occur on the following schedule:

- A baseline survey will be conducted within the first year to map the vegetation communities within the open space areas. This will be done in digital format (geographic information system; GIS) and documented in tables.
- Monthly inspections and assessments will be made to the site to ensure that all fences and signs are intact and the general site condition is favorable and to record the status and condition of the native and non-native resources on-site. Any

necessary remedial actions required to maintain the open space will be made at this time.

- An aerial photograph will be purchased annually to aid in the ongoing patrolling and monitoring efforts and for the purposes of documenting changes or problem areas.

5.2 Thread-Leaved Brodiaea Monitoring

An annual site inspection will be conducted every year to assess the condition of the thread-leaved brodiaea population and habitat.

Beginning the year after the PM takes control of the site and every year following that, the PM will monitor the thread-leaved brodiaea area (approximately 2.16 acres) by conducting five 50-meter-long transects to assess coverage by non-native species, the distribution of thread-leaved brodiaea the distribution of native plant species, and the overall composition and structure of the plant community. Along each transect, a one-meter square quadrat will be placed at five-meter intervals for a total of 10 quadrats per transect or 50 quadrats within the open space preserve area. Percent cover for each species encountered within each quadrat will be recorded. Sampling will be conducted March through June, during the bloom period of the thread-leaved brodiaea. If possible, the PM will collect data along the same transects established as part of the HRMP. Transect results will be included in the annual report and will not be provided in a stand-alone report.

5.3 Sensitive Wildlife Monitoring

Coastal California gnatcatcher, least Bell's vireo, and Cooper's hawk surveys will be updated every year. USFWS protocol will not be implemented, but surveys will be compliant with the protocols outlined in the MHCP. Results will be included in the annual report and will not be provided in a stand-alone report.

6.0 Reporting/Status Reviews

Monthly visits will be documented by keeping a monitoring log of site conditions.

Annually, in conjunction with the sensitive species surveys, the PM will prepare a report describing the habitat conditions and species' occurrence in open space. This annual report will include the following:

- An aerial photograph of the open space will be purchased every year and included in the report.

- A description of surveys for thread-leaved brodiaea conducted by the PM.
- A map showing the locations of MHCP/HMP covered species and other sensitive species observed in surveys.
- A description of how each observed MHCP/HMP covered species and other observed sensitive species was using the habitat.
- A monitoring report for each thread-leaved brodiaea survey. Each report will include:
 - A description of the methods used in each survey,
 - A description of habitat conditions at the time of the survey,
 - A description of locations and the approximate numbers of thread-leaved brodiaea observed.
- Any comments by the PM regarding the notable absence or presence of California gnatcatchers or least Bell's Vireo.
- A list of all wildlife species using the open space and the general abundance of each species.
- A summary report on enhancement activities (if any). All site visit logs and data collected during the updated baseline surveys will be included as an appendix.
- A summary of all relevant management actions taken throughout the year, including but not limited to:
 - A report on implementation and evaluation of the effectiveness of the exotic species eradication program, including:
 - A graphic representation of locations and extent of exotic species locations (with the exception of non-native grasses or forbs);
 - A discussion of all on-site measures undertaken to remove exotic species during the year, a comparison of those efforts to actions undertaken in previous years and identification of measures to be performed in the following year.
 - Before and after control measure implementation photographs.
 - A report on implementation and evaluation of the effectiveness of the access/fencing control measures.
 - A report on seed collection and areas requiring cuttings or seeding.

- A description of the habitat conditions observed in the plan area, including a discussion of any signs of habitat degradation or notable presence or absence of MHCP/HMP covered species or any other sensitive species.
- A discussion of potential reasons for any signs of habitat degradation or notable absence of covered species in the plan area.
- A discussion of any management problems encountered within the report period, including maps indicating cumulative areas of disturbance, trespass, dumping, fire, and other such activities.
- A description of the existing conditions of the open space for that year, including vegetation sampling results, wildlife use, and a summary of sensitive species observations with documentation and maps of sensitive species locations.
- Photographs illustrating open space conditions and any other issues relative to funding for open space management.
- A list of names, titles, and companies of all persons who prepared the content of the annual report and participated in monitoring activities.

All annual reports will be submitted to the agencies by December 31 of each year. Copies of all annual reports shall be maintained in the PM's file.

7.0 Remedial/Contingency Actions

This plan assumes that adaptive management decisions will need to be made and identifies remedial/contingency actions as an LTMP category. Qualifying measures must be approved by the PM and agencies and include:

- Addition of materials to open space to attract covered species and provide additional types of sheltering habitat.
- Surveys in open space for species that become listed but are not covered species.
- Remedial and adaptive management measures based on status review reporting.

8.0 References Cited

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- 2005 Property Analysis Record, Fox-Miller Open Space Easement. November.

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- 2005 Revised Habitat Restoration and Mitigation Plan for Diegan Coastal Sage Scrub, Valley Needlegrass, with Thread-Leaved Brodiaea, and Southern Willow Scrub Wetland for the Fox Property Carlsbad, California. September 1.

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- 2003 MHCP Biological Monitoring and Management Plan. March.

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- 1973 *Soil Survey, San Diego Area, California*. Edited by Roy H. Bowman. Soil Conservation Service and Forest Service. December.

U.S. Fish and Wildlife Service (USFWS)

- 1994 Endangered and Threatened Species; Munz's onion, etc. (Four Southwestern California Plants); Proposed Rule. *Federal Register*. December 15. 50 CFR Part 17.

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- 1968 San Luis Rey quadrangle 7.5-minute topographic map. Photorevised 1975.