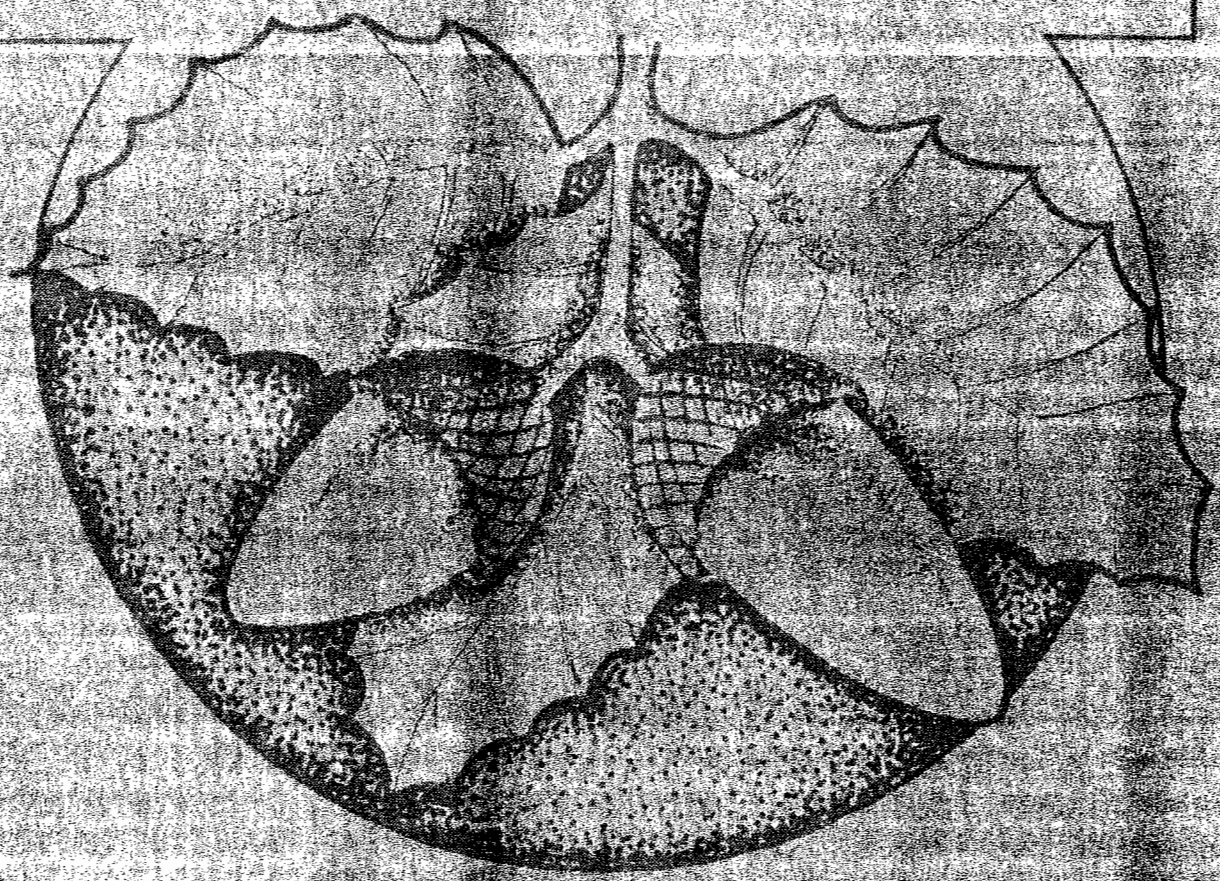
O'NEILL REGIONAL PARK

RESOURCE MANAGEMENT PLAN



County of Orange

COUNTY OF ORANGE

ENVIRONMENTAL MANAGEMENT AGENCY

SANTA ANA, CALIFORNIA

HARBORS, BEACHES AND PARKS

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O'NEILL REGIONAL PARK

RESOURCE MANAGEMENT PLAN

JULY 24, 1989

ERNIE SCHNEIDER
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ORANGE COUNTY BOARD OF SUPERVISORS

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I. THE PREFACE

A. EXECUTIVE SUMMARY

In appreciation and recognition of the importance of the natural and cultural resources of O'Neill Regional Park, the Orange County Board of Supervisors has required the preparation of this Resource Management Plan (RMP). The identification, evaluation and documentation of the park's resources reveal that O'Neill Regional Park represents an extremely rare and valuable collection of importance resources. Resource specialists have provided detailed reports in the following categories:

- Biological Setting (Vegetation, Habitat, Wildlife)
- Wildlife (Large Mammals, Fish, Reptiles, Raptors)
- Water Quality and Hydrology
- Cultural Resources (Archaeology and Paleontology)
- Visual and Aural Quality

These reports also present information describing current and future impacts to the resource and the protective mitigation and management measures which must be implemented. It is very clear that these resources, many of which are non-renewable, are very sensitive; unfortunately, several of these resources have been impacted to the point of serious decline or irreplaceable loss.

The value of O'Neill Regional Park as a link to our cultural past, as a refuge for shrinking ecological habitat, and as a recreational opportunity cannot be over-emphasized. Overall, the goals of the RMP are:

1. To insure the protection and preservation of the natural and cultural resources within O'Neill Regional Park through the development of management tools designed specifically for proper implementation by Park Personnel, Resource Specialists and Orange County Environmental Management Agency Harbors, Beaches and Parks.

2. To maintain a viable ecosystem, a recreational opportunity and the visual quality inherent to O'Neill Regional Park by developing a comprehensive understanding of park resource Systems and interrelationships and directing future planning efforts to insure their protection.

To achieve these goals, the RMP which follows will recommend actions and programs such as:

- Establish on-going monitoring programs for resources habitat, wildlife, water, cultural and visual. Identify one person as responsible party for Park Resource Management

- Develop on-going revegetation program

- Establish policy for development mitigation monitoring with respect to urban interface

- Develop a resting program for highly impacted use areas

- Establish seasonal use area rehabilitation program

- Identify staffing needs for security patrolLing and observation

- Expand and fully develop interpretive opportunities and visitor/community education

- Adopt woodland management techniques, as described in the biological specialist's report

- Restore impacted native habitats

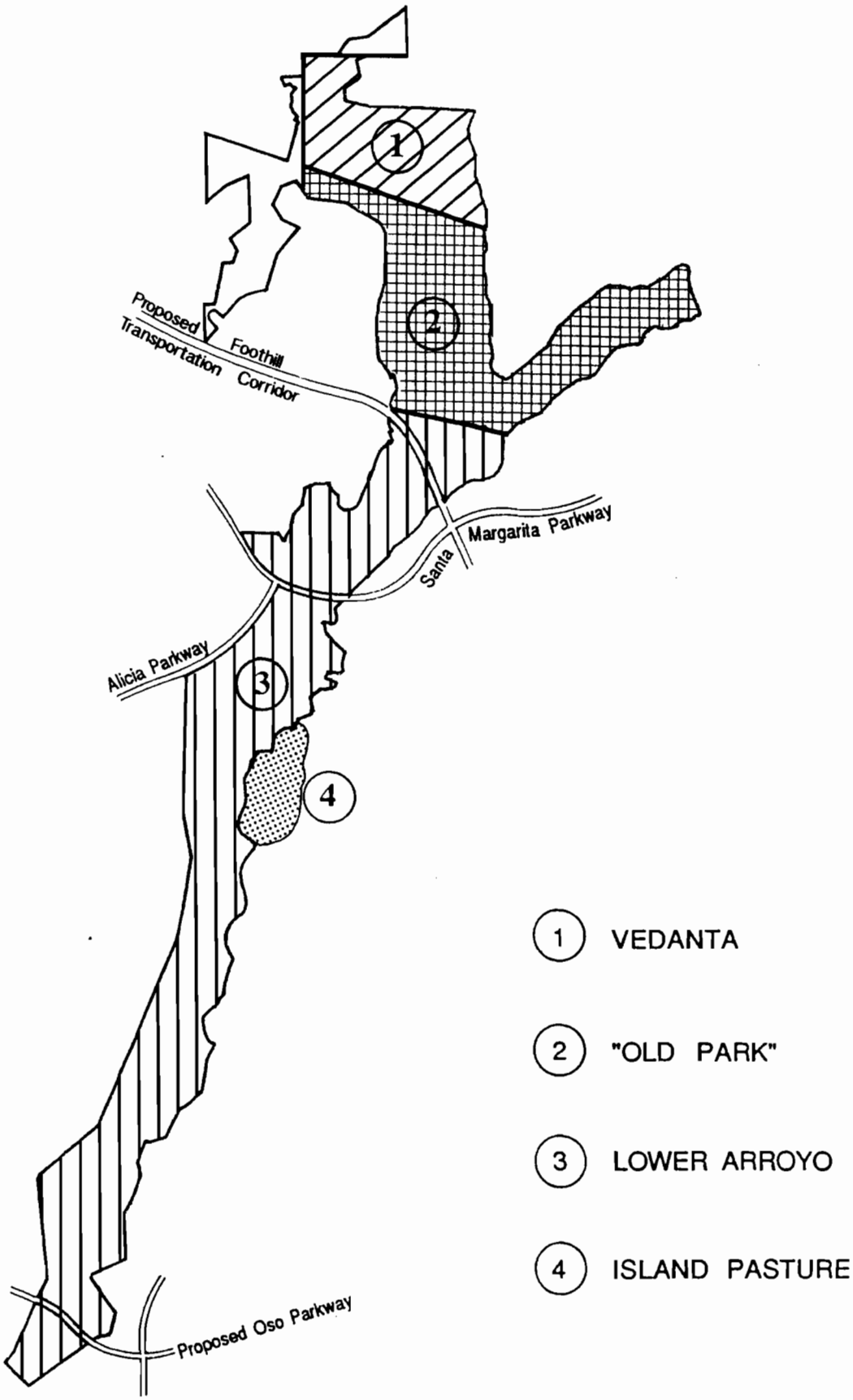
- Implement special programs such as vernal pool restoration, owl nest construction, acquisition of adjacent properties, and wildlife waterer construction

- Encourage and facilitate on going scientific research in all resource categories

Approval of this RMP will allow for the development of an implementation program for the management actions described herein, and for the implementation of flood control improvements designed specifically to protect park resources. This plan will also give specific direction to the General Development Plan for O'Neill Regional Park.

B. RESOLUTION TO DEVELOP PLAN

This Resource Management Plan (RMP) for O'Neill Regional Park has been prepared pursuant to Attachment 2 of the Orange County Board of Supervisors Resolution # 87-967 approved July 7, 1987. Attachment 2 is as follows:



STUDY AREA

EXHIBIT 1

O'NEILL REGIONAL PARK

COUNTY OF ORANGE

1. OVERVIEW

" The Schematic Development Plan (March, 1986) prepared for O'Neill Regional Park identified biological resources, critical habitats, and resource sensitivities for the existing park as well as the Arroyo Trabuco addition.

As part of its analysis of potential environmental impacts, Draft EIR #463 identified resource management and enhancement needs associated with park development. Public comments received on the Draft EIR revealed further areas of public concern with regard to resource preservation.

A Resource Management Plan (RMP) will be prepared as part of a Park Operations Plan for O'Neill Regional Park. At a minimum, the RMP shall include the following general elements:

a. Review and incorporation of the previously identified park resources, critical habitat areas, and resource sensitivities.

b. Establishment of an evaluation framework for the ongoing review of significant resources and critical habitat areas.

c. Preparation of a management plan for significant resources and critical habitat areas, including enhancement of those areas identified in the Biological Resource Management Plan, as identified in Final EIR 463, Biological Resources section:

- Wildlife dispersion corridors

- Ground water table and water quality monitoring

- Species of concern (Coulter's Matilija poppy, Santa Monica Mountains liveforever, mule deer, Arroyo chub, raptors... golden eagle, black-shoulders kite, red-tailed hawk, northern harrier, Cooper's hawk.).

- Habitat loss identification, and programming for on-going resource management and enhancement.

Public comments received on Draft EIR 463 identified additional topics of concern. Those public concerns relating to proposed park capital improvements, rather than to park operations or management issues, would be addressed most appropriately in the General Development Plan. Those public concerns relating to the operation and management of both man-made and natural park resources would be there best addressed by the Resource

Management Plan.

The following topics should be addressed in the Resource Management Plan:

- Human access/potential entry restrictions into the Arroyo Trabuco addition, potential access points for surrounding development.
- Domesticated animals
- Campsite rotation plans
- Park surveillance road - operational aspects

2. IMPLEMENTATION SCHEDULE

TIMING: The Resource Management Plan shall be completed prior to public access/park operation of the Arroyo Section of O'Neill Regional Park.

LIMITS OF STUDY: The Resource Management Plan shall be limited to the boundaries of O'Neill Regional Park and those critical zones beyond the park which have significant influences on wildlife dispersion, water supply and forage species.

FURTHERMORE THE COUNTY RESPONSE TO COMMENTS INDICATES: The regional park resource needs include trails, and day-use facilities. Additionally, a Resource Management Plan will be developed as part of the General Development Plan to protect and enhance O'Neill Park's natural resources."

Exhibit 1 indicates those areas of the park that are addressed within this Resource Management Plan.

II. THE PLAN

This "action" portion of the O'Neill Regional Park RMP offers two basic discussions. The first discussion identifies various direct and indirect "impacts" to the park resources. Mitigation of these impacts is addressed through specific vehicles (measures, policies or programs). The second discussion is comprised of actual management "tools" (checklists, task cards, etc.). Through proper implementation of these tools, the goals, objectives, and management of the park resources can be achieved. A summary is offered below:

A. SPECIFIC MEASURES, POLICIES, PROGRAMS

Biological Management

An extensive biological survey of the park has been conducted by Karlin Marsh, the consultant biologist, and is summarized in this report in the Park Resources Section, and the Impacts and Mitigation Management sections. A full disclosure of the biologist's report can be found in the Supplemental Appendix.

The biological resource management plan summary is divided into reactive and proactive segments. Reactive management endeavors to mitigate existing and past impacts on the park's natural setting. Proactive management addresses future planning and operations, with the idea of avoiding future problems by proper management from the start. Proactive management also offers new ideas to make the park visitors' experience more enjoyable.

In addition, approximately 650 individual oak and sycamore trees were surveyed in the campground and day use areas of the old park. Data has been assembled including height, spread, DBH (diameter breast height), the habit of growth, structural and health condition of each tree. Values with respect to wildlife were also determined. Using this as a basis, the implementation and management plan addresses a management program with respect to soil condition, fertilization, tree maintenance, mulching, understory plantings and general horticultural practices when dealing with improvements in and around oak and sycamore trees. The full report of the tree resource specialist is located in the Supplemental Appendix.

Wildlife Management

O'Neill Regional Park, with its current and projected future land holdings, represents an important network of major and critical wildlife dispersion corridors. The wildlife management program focuses on the preservation of these corridors in terms of continuity and quality. Management programs relative to limitation of user access, trail planning, vegetative cover, water, and park involvement in adjacent land use planning are discussed. Park

participation in such program planning as the Foothill Trabuco Specific Plan will promote the protection of wildlife movement from the Pacific Ocean to the Cleveland National Forest.

The plan also addresses critical management and protection policies for nesting habitats, foraging areas and education with respect to park personnel and the public. Full reports from raptor and wildlife specialists occur in the Supplemental Appendix.

Water Management

As in any ecosystem, plant and animal species in O'Neill Regional Park are dependant on relative availability and quality of water in the surrounding area. That various habitats and ecosystems develop, and how and where they develop, is largely due to water conditions. The water management plan seeks to organize measures that result in monitoring and protection of the parks water resources of the park. Schedules are suggested for periodic testing of water quality and water table fluctuations. In addition, suggestions have been made with respect to preservation of water resources.

Cultural Resource Management

Recommendations for the preservation of cultural resources in O'Neill Park include the following:

1. Adopt qualification standards for those persons hired to perform cultural resources research within the park.

2. Assign one person as cultural resources manager.

3. Develop a file of cultural resource documentation.

4. Develop a means of approval for all surface disturbing projects to be accomplished within the park.

5. Adopt professional standards to guide the completion of cultural resource research within the park.

6. Develop plans and the means for adequate curation of material collected at O'Neill Regional Park.

7. Adopt the maps and Mitigation Matrix contained in this report as management tools.

Adoption and implementation of these recommendations will do much to insure the long range preservation of the O'Neill Regional Park cultural resources.

Visual and Aural Quality Management

The RMP discusses the visual and aural qualities associated with

O'Neill Regional Park. As an "island" of nature and wilderness surrounded by ever growing development, the park and its resources offer an escape from the urban setting and refuge in a back-to-nature experience.

Ironically, however, as development grows, increased pressure is placed on this back-to-nature experience. The visual and aural quality management section of this plan seeks to promote the protection of this resource through mitigation and management actions such as sound attenuation, visual screening, planned buffer zones, limitation of access, a comprehensive revegetation program and future planning policies with respect to maintaining critical park viewsheds.

B. TOOLS

As a means of implementing the above management programs, these "tools" are offered:

Park Management Checklist

This management checklist is designed to make recommendations for the purpose of developing and expanding the current operations Maintainence Index System. While the Maintainence Index System focuses on general park operations and administration tasks, the resource management checklist focuses solely on park resources. This checklist identifies schedules, qualifications and performance standards with respect to monitoring, testing and overall management of park resources. A suggestion of task cards with one or two examples is also provided in the Supplemental Appendix section of this report.

Public Brochure

A brochure is recommended in an effort to more effectively reach interested groups and the public in general. This brochure will become an informational tool to inform the public of park management efforts and education. The brochure is intended for distribution at the front gate, through the mail, as well as local stores, schools, etc.

Interpretive Programs

The management plan discusses opportunities and subject matter for park lectures, volunteer groups and affiliated organizations. It also suggests a 'Friends of O'Neill Park Alliance Group'.

Management Matrix

In an effort to help facilitate the ensuing implementation program as executed by Harbors Beaches and Parks, a management matrix has been prepared that organizes and associates management programs with

the proper tools and vehicles for execution.

Interjurisdictional Mitigation Program

Many projects in Orange County require mitigation for on-site impacts to resources. Often, the mitigation is not possible on-site, and off-site mitigation is considered.

O'Neill Park can be the recipient of off-site mitigation measures; this represents great opportunity for the park. Many recommendations are made in this RMP which would be ideal for implementation through such a mitigation program: examples include vernal pool restoration, revegetation, grassland restoration, etc.

Park Resource Monitor

Key to the effort of guiding and observing resource management is the establishment of a qualified resource monitor. The monitor would have the knowledge and opportunity to understand and act on impacts to sensitive resources. Tasks involved would include observation and documentation of resource condition; guiding new construction efforts with respect to resource protection; full development of educational and interpretive programs; community liaison with respect to community involvement in park projects; implementation of special resource projects.

The use of some or all of these management "tools" by the County of Orange when developing the implementation plan for this RMP will help provide an effective means to achieve the goals and objectives as stated earlier in the preface section.

C. VEHICLES

Vehicles have been identified to implement the proposed management actions of this plan. This Resource Management Plan will suggest directives to be implemented through the following vehicles.

- General Development Plan - Implementation Phase
- HBP Operations - Implementation of the checklist and associated monitoring programs
- Volunteer Groups - Park staff directed interpretive and special programs
- General Public - Park staff directed interpretive and special programs
- Orange County EMA - Administration, staffing and policy
- Others - Inmate work programs, weed busters

It will be the responsibility of Harbors Beaches and Parks to develop an implementation program for the Resource Management Plan which orchestrates the relationships between the above mentioned programs, tools and vehicles, insuring that the Resource Management Plan objectives are fulfilled.

III. THE PLACE

Extensive historical, topographical, climatological, hydrological, and geological background reports have been developed during previous studies. These studies include: the General Development Plan prepared by Fong & LaRocca Associates in 1975; the Schematic Development Plan (SDP) prepared by Woodward Dike and Associates in 1986; and the Environmental Impact Report Number 463 prepared by PRC Engineering Inc. in 1986. The introduction to this report, therefore, will consist of a summary of this information on the background, location and environmental setting of O'Neill Regional Park. (see bibliography for listing of additional studies.)

O'Neill Regional Park is situated in the foothills of the Santa Ana Mountains at the intersection of Live Oak and Trabuco Canyons. The park encompasses 1,700 acres and is approximately 25 miles southeast of the City of Santa Ana. In describing O'Neill Regional Park, Dike/Runa in the 1988 GDP stated, "Its topography and environment vary greatly with canyon bottomlands, oak/sycamore woodlands, riparian woodlands, grassy meadows and chapparal covered hillsides." [1]

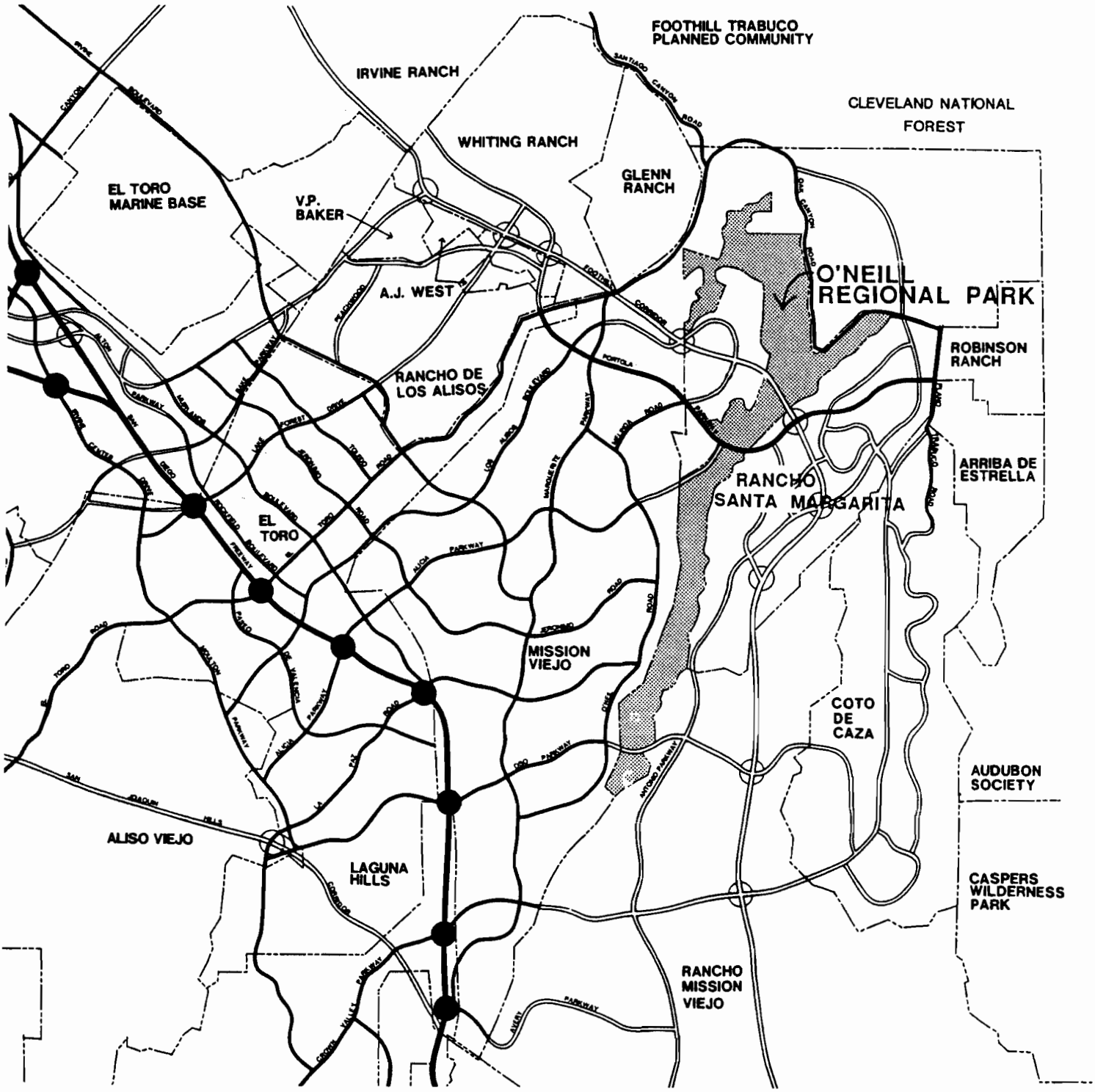
A. HISTORY

O'Neill Regional Park is the second oldest regional park in the County of Orange, having been established in 1948 by a donation of 254 acres by the O'Neill family. "An additional 131 acres was donated by the O'Neills in 1963. For many years, the 385 acre park has provided camping and recreational experiences for a rapidly expanding population. Recognizing the need for expansion of the park, in 1974 the County purchased 232 acres along the park's northern boundary and a subsequent adjacent 40 acre parcel from the Vedanta Society".[2] This property was deed restricted as "non-intense day use" only, with the designation as a "wilderness area" by the Orange County Board of Supervisors in 1976.

In 1982,an additional 629 acres were dedicated to the park as part of the approval of the Rancho Santa Margarita planned community. This 629 acres is now known as the Lower Arroyo Trabuco. From 1984 through 1988 and additional 676 acres have been dedicated as parkland as a result of associated development. In 1988, approximately 87 acres were dedicated as a critical foraging habitat. This parcel, known as the "Island pasture" addition, was dedicated as a result of the Rancho Santa Margarita Development.

In summary, the history of O'Neill Regional Park is a rich one. The following historical chronology is taken from the draft General Development Plan (GDP) as prepared by Dike/Runa, Inc. in 1988.

" 1769: Don Gaspar de Portola explores suitable sites for Spanish Mission camps on the Plano Trabuco.



SOURCE: FOCUSED ENVIRONMENTAL IMPACT REPORT NO. 463

REGIONAL LOCATION MAP

EXHIBIT 2

O'NEILL REGIONAL PARK

COUNTY OF ORANGE

The soldiers construct the Trabuco Adobe which is used as an outpost for farming and ranching activities.

1841: 11,520 acres of the Rancho Trabuco are granted to Santiago Agruello by the Mexican Governor Alvarado. III-1

1843: Arguello sells the land to Don Juan Forster.

1846: Forster receives an additional grant by Pio Pico, his brother in law, then Governor of California.

1880: Richard O'Neill Sr., and James C. Flood purchase the three ranchos which today form the Rancho Mission Viejo. O'Neill and Flood work the property as a successful cattle ranch and dry farm agricultural empire.

1948: The O'Neills dedicate 254 acres of canyon bottomland to the County of Orange for park purposes. The area is used as an informal campground.

1963: The O'Neills dedicate an additional 131 acres; the acquisition brings the park's total acreage to 385 acres.

1974: The County of Orange acquires an additional 232 acres along the park's northern boundary from the Vedanta Society.

1975: An additional 40 acres along Live Oak Canyon Road are acquired by the County for access into the new property. This land is deed restricted to passive recreational use.

1982: Rancho Mission Viejo dedicated 629 acres to the County of Orange, known as the Arroyo Trabuco." [3]

Additional dedications include the following:

1984	Horno O.N.	212 Acres
1984	Parcel C-2	134 Acres
1985	TT12767 Lot B	3.6 Acres
1986	TT12646 Lot A	5.2 Acres
1988	Rancho Trabuco	315 Acres
1988	Tract 13165	1.8 Acres
1988	Tract 13166	2.6 Acres
1988	Tract 12784	2.2 Acres

B. TOPOGRAPHY

"The topography of existing holdings and future dedications include ridgelines, dissected canyon slopes, broad canyon bottoms and the margin of the flat plano. The ancient elevated floodplain of Arroyo Trabuco is located easterly of the present creek and about 110 feet above its canyon bottom". [4]

Significant topographic features include the upper Oso Creek Valley which is overlooked by the Ramakrishna Monastery. This valley gently slopes toward Oso Reservoir and is flanked by a steep west ridge of some 250 feet and a more gentle east ridge. East of this ridge is the future site of the Rancho Trabuco Planned Community. Live Oak Canyon lies just northwest of the existing park entry and is utilized as the West Youth Group Area. This canyon at its widest point is comprised of approximately 2,500 feet of slope land. The canyon rises nearly 500 feet from Live Oak Canyon Road.

The highest point in the park (1,492 feet) is located along the crest of Live Oak Canyon. "The canyon side is dissected by a number of tributary drainages, creating many north facing slope micro-habitats heavily wooded with live oak. The canyon bottom contains in and north of the park, a closed canopy oak forest, accounting for its name". [5]

The Arroyo Trabuco extends down the heart of O'Neill Regional Park for approximately 6 miles. The northern 1 1/4 miles of the arroyo contain the majority of current park improvements. Within this portion of the Arroyo the flood plain floor is approximately 875 feet wide and + 100 feet below the Plano Trabuco. Downstream of this "old part of the park" the Arroyo widens to approximately 1,250 feet. The character of the southern reach of the Arroyo varies dramatically in both width and character of landform, with its steep canyon walls. Along the west side of the Arroyo three major cliff outcrops, known as the Palisades Cliffs, provide visual character and interest.

Rancho Santa Margarita, which is currently under development, borders the east side of the Arroyo Trabuco. A small hill known as the "island pasture" is located within Rancho Santa Margarita. This area has been dedicated to the park as a critical foraging area. The western edge of the the boundary between the park and Rancho Santa Margarita has been acquired as park land in concert with the development.

C. GEOLOGY, SOILS

Geologic substrate within O'Neill Regional Park, "varies in age from the 26 million year old vaqueros cliffs of the Arroyo Trabuco narrows to streambed alluvium deposited only a few years ago."[6] Geologic formations that have been identified include tertiary oligocene sespe formation, tertiary oligocene vaqueros formation, tertiary miocene topanga formation, tertiary miocene monterey formation, tertiary miocene pliocene puente formation, tertiary miocene pliocene capistrano formation, pleistocene river terrace, holocene colluvium and holocene alluvium. Detailed descriptions of these formations and their locations can be found in the Schematic Devlopment Plan (1986).

Most areas within the park contain transported soils. No developed in-place soils are to be found. These transported soils are intermixed with gravel and cobbles. Soils vary from clay to fine silt to sand. Extensive discussions relating to soils can be found in the Fong and LaRocca Report, PBR, 1982, EIR 320 and a draft report (unpublished) by Katherine Hook, on file at O'Neill Regional Park.

D. CLIMATE

"O'Neill Regional Park is located in the "Santa Ana Mountains Thermal Belt Zone". Only slightly influenced by the temperature modifying effects of the Pacific Ocean, the area is subject to substantial high and low temperature fluctuations typical of continental (as opposed to maritime) environmental settings. Thermal convection on the lower mountain slopeland tends however to lessen the frequency of winter frost, though frost pockets can occur at low points. Winter minimum temperatures may drop to 23° - 27° (F). Summer maximum temperatures are near 100° and average daily high temperatures during this season are 73°." [7]

"Average annual rainfall over the last 40 years has been 17.5 inches. The rainfall average for urbanized areas oceanward of the Santa Ana Mountains ranges from less than 10 inches to about 16 inches. At the crest of the Santa Ana Mountains, 26 inches is average. Thus the park receives some of the precipitation capturing benefits of the mountain range directly, as well as indirectly through runoff passing down Arroyo Trabuco." [8]

Because of similarities in climate to that of areas bounding the mediterranean sea, the climate in this area is referred to as "mediterranean", with characteristic mild, wet winters and dry summers. This climate has a direct relationship to the drought tolerant nature of the native vegetation in this area; stress to this vegetation occurs when dry summers and falls are combined with hot, dry Santa Ana winds. This condition typically sets the stage for wildland fires. Additional meteorological information can be found in the Schematic Development Plan.

E. HYDROLOGY/WATER QUALITY

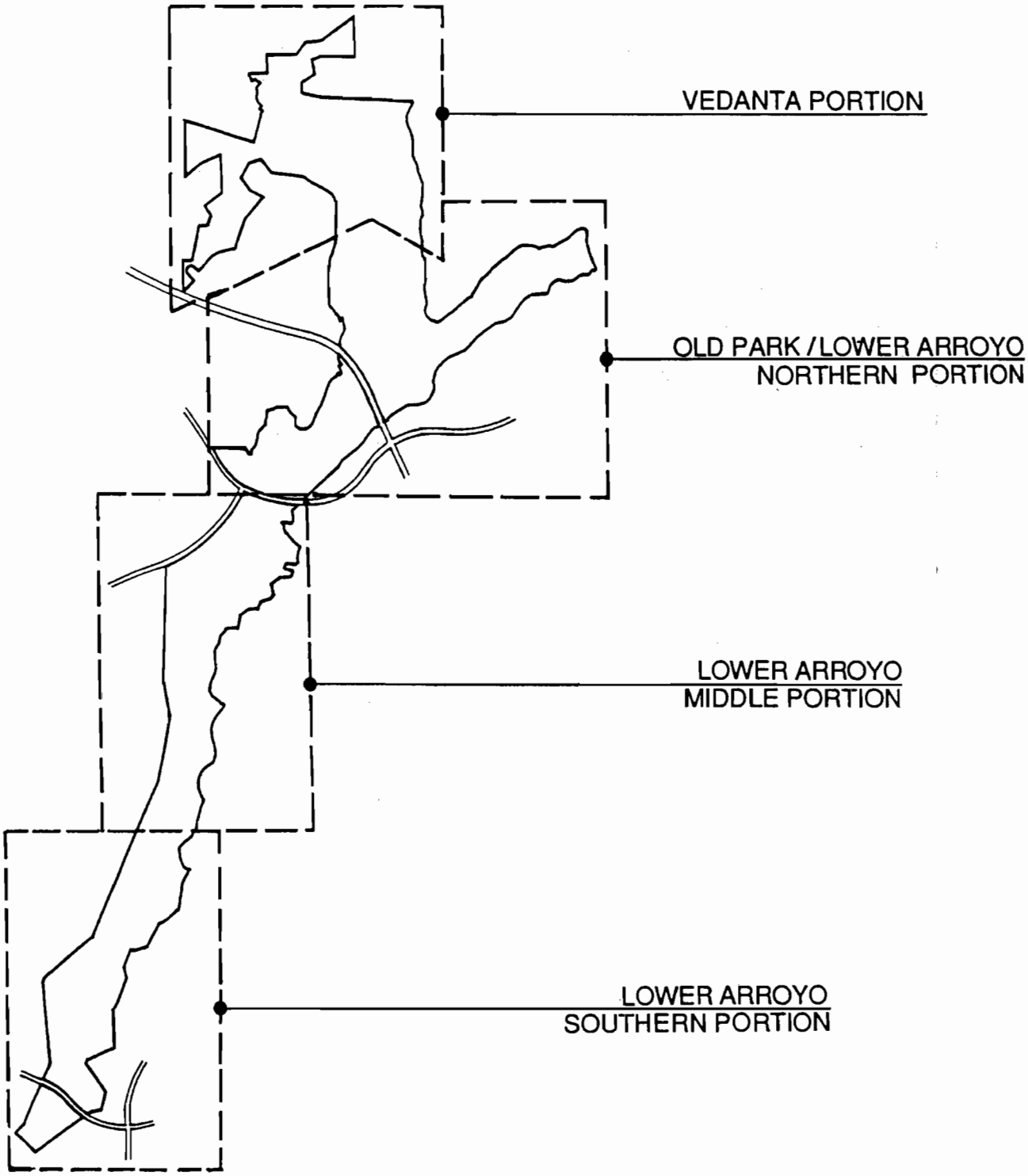
For the most part, O'Neill Regional Park is located within the Trabuco Creek watershed. Portions also lie within the Oso Creek watershed. The Trabuco Creek watershed extends from the Santa Ana Mountains to the confluence with San Juan Creek. Many tributaries empty into Trabuco Creek as described in the SDP. In addition, numerous existing and proposed urban runoff outlets enter the Arroyo Trabuco (Trabuco Creek). Existing and projected flows have been studied extensively (see SDP and Simons, Li and Associates, 1984) and have led to proposed flood control improvements to protect park and down stream resources.

Implications to the park resources with respect to these flood improvements and general water quality are discussed in later sections of this report.

F. VEGETATION, WILDLIFE AND CULTURAL RESOURCES

Thorough surveys have been conducted by various consultants in conjunction with this Resource Management Plan.

Descriptions of their surveys and findings are summarized in the Park Resources Section (IV). In general the park is rich in resources, character and variety. There exists, however, a concern with respect to the continued proliferation of these resources. Areas impacted by human use and development continue to be of concern. It is for this reason that this Resource Management Plan places special emphasis on an implementation and management plan for the preservation of these resources.



PLACE NAME MAP KEY

EXHIBIT 3

O'NEILL REGIONAL PARK

COUNTY OF ORANGE

LEGEND

- (A) UPPER LIVE OAK CANYON
- (B) LIVE OAK CANYON ROAD
- (C) SHORT CANYON E
- (D) SHORT CANYON D
- (E) HOFFMAN HOMESTEAD
- (F) SHORT CANYON C
- (G) NOLINA CANYON (SHORT CANYON F)
- (H) VEDANTA CANYON
- (I) BILLY'S CANYON
- (J) NATIVE GRASSLAND
- (K) VENDANTA HIGHLANDS
- (L) PAC BELL VERNAL POOL
- (M) WILDLIFE JUMP OFF
- (N) PARK HIGH POINT ELEV. 1480
- (O) PAC BELL VERNAL POOL I
- (P) NORTH RAVINE
- (Q) VERNAL POOL
- (R) MIDDLE RAVINE
- (S) SOUTH RAVINE
- (T) MONASTERY WELL
- (U) MANN JENSEN LEASE
- (V) RANCHO TRABUCO BUFFER ZONE
- (W) FILLED-IN-POND
- (X) SADDLEBACK MEADOWS PROPERTY
- (Y) SHRINE VERNAL POOL
- (Z) NORTHERN PANHANDLE

PLACE NAME MAP:
VEDANTA PORTION

0 200 400 800 NORTH

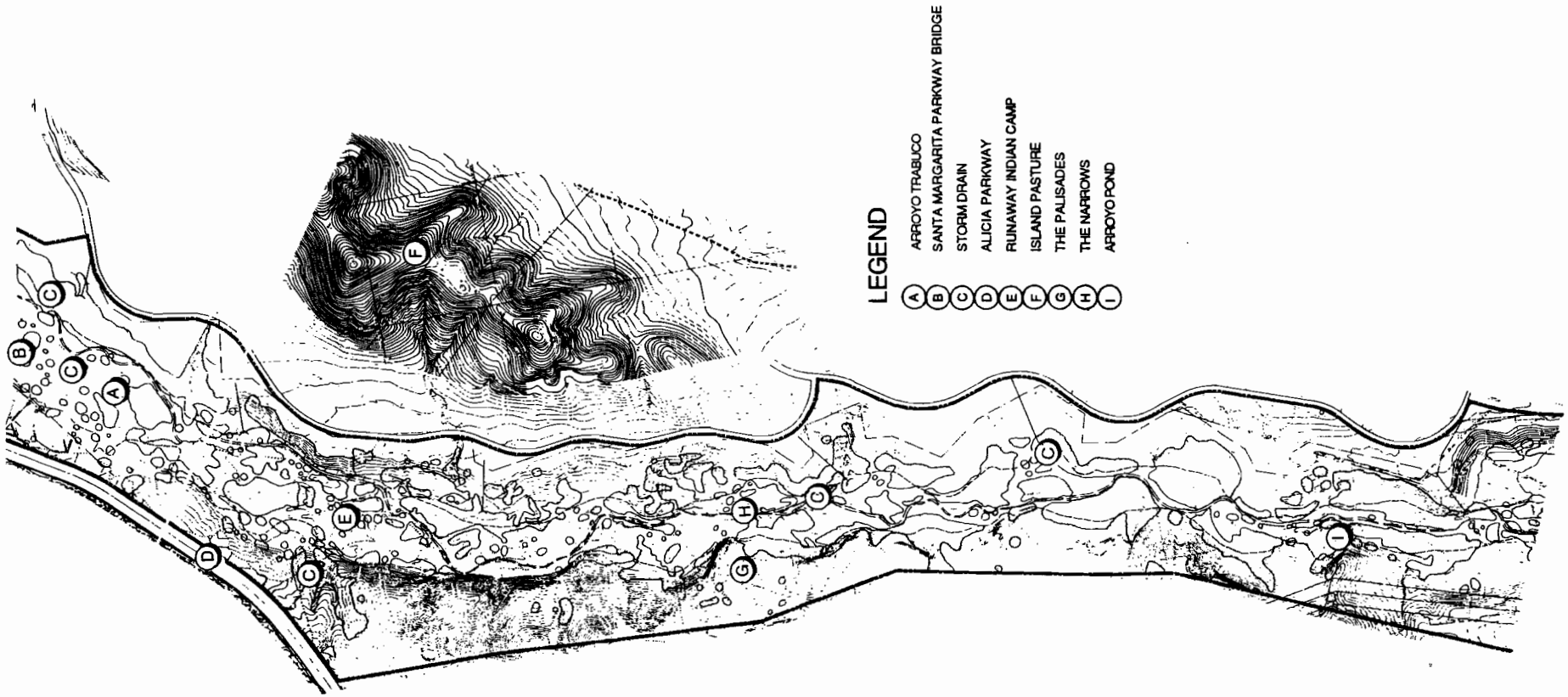
EXHIBIT 4

O'NEILL REGIONAL PARK
COUNTY OF ORANGE

PLACE NAME MAP:
OLD PARK & LOWER ARROYO
NORTHERN PORTION

O'NEILL REGIONAL PARK
COUNTY OF ORANGE

EXHIBIT 5

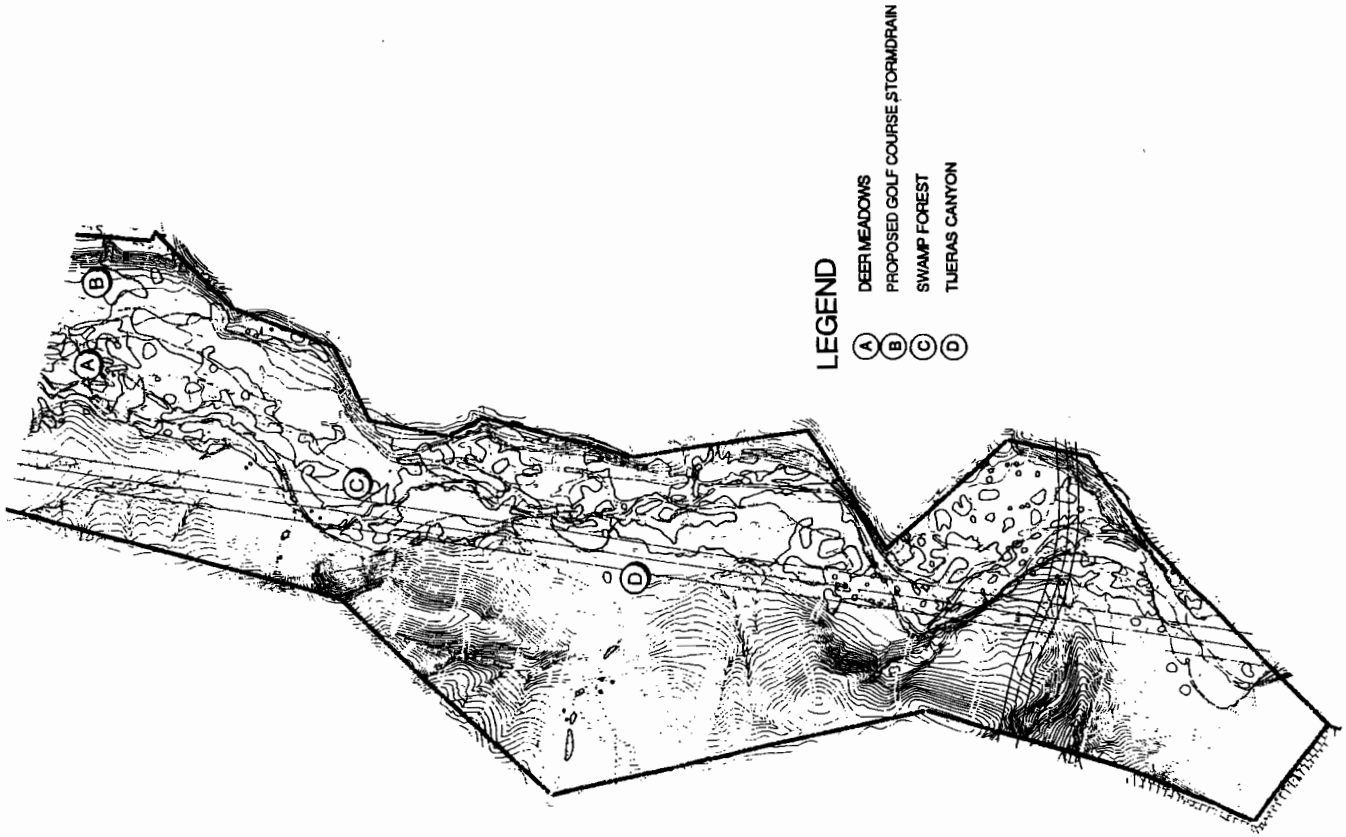


PLACE NAME MAP:
LOWER ARROYO
MIDDLE PORTION

0 200 400 800 NORTH

EXHIBIT 6

O'NEILL REGIONAL PARK
COUNTY OF ORANGE



PLACE NAME MAP:
LOWER ARROYO
SOUTHERN PORTION

0 200 400 800 NORTH

EXHIBIT 7

III-11

O'NEILL REGIONAL PARK
COUNTY OF ORANGE

IV. PARK RESOURCES

A. THE BIOLOGICAL SETTING: SUMMARY DESCRIPTION OF RESOURCES

The following is an excerpt from the biological resource specialist's report. The entire report is included in the Supplemental Appendix.

Biotic Communities and Microhabitat Features

The following communities and microhabitats have been identified in the park.

1 Coastal sage scrub

2 Nolina scrub

3 Chaparral

4 Native and adventive grasslands

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These communities and microhabitats are described below.

1. Coastal Sage Scrub

This is the dominant community of the park's upland, south-facing slopes. In the "Old Park", it is particularly

widespread in the Live Oak Canyon watershed slopes and in Spalding Trail Canyon. It is also widespread on the west slope of the Arroyo in the Arroyo Trabuco Wilderness. Coastal sage scrub is a summer-dormant community of suffrutescent, waist-high scrubs, many of which contain oily resins which apparently aid in moisture conservation and which make the community.

highly flammable in the drought season. These substances also lend unique olfactory aesthetic character to the community, most noticeable after a winter rain.

Characteristic coastal sage plants, are California sagebrush, black sage, white sage, California buckwheat, prickly pear cacti and orange bush monkeyflower. Whippie yucca, golden yarrow, chaparral bedstraw and a variety of other species also occur.

2. Nolina Scrub

This is a rare and threatened south-facing slope community found in association with, and sometimes intermixed, coastal sage scrub. The dominant plant is a yucca relative, chapparal nolina (Nolina cismontana). This species, recently separated from Parry nolina (Nolina parryi, a desert plant), is restricted to a few xeric, well drained slopeland habitats in cismontane southern California from western Ventura County to the foothills of the Palomar and Cuyamaca Mountains of San Diego County. In Orange County, it occurs in population loci centered about Coal Canyon, Borrego Canyon (most now lost) and Live Oak Canyon. The stands in O'Neill Park represent a significant area of protection for the species and community.

The best nolina stands, on sunny slide aprons within the tributaries of Live Oak Canyon, are very dense and exclude most other growth. When associated species are present , they are of coastal sage scrub and xeric barrens habitats.

The primary stands of chaparral nolina in O'Neill Park are in Scout Group Camp Canyon, West Youth Group Canyons 3 and 4, Short Canyon A, Nolina Canyon, Short Canyons C, D and E, and on the east-facing slope of Live Oak Canyon just north of Billy's Canyon. Because this cismontane nolina is a de-facto threatened species, its habitats within the park are designated as significant ecological areas, (SEA).

3. Xeric Barrens and Cliff Faces

The xeric barrens association is found in proximity to, and sometimes intermixed with, the preceding two habitat types. The association is found on arid ridges and on and around rock outcrop exposures such as boney hogbacks and south-facing cliffsides. It is found throughout the highland ridges in the

Live Oak Canyon watershed and is best developed on the promontory ridge and upper slopes at the head of Spalding Trail Canyon, partly within O'Neill Park and partly within the Rancho Trabuco buffer zone (future dedication area.)
Typical flora of xeric barrens includes lichens, Bigelow spike moss, crested stipa, purple three-awn grass, beard grass, annual muhlenbergia, odora, California brickellbush, matchweed, wishbone bush, Whipple yucca, prickly phlox, golondrina, bicolored leaved cudweed, white everlasting, chia sage, Canterbury bells, fluffweeds, California butterweed, white pincushion flower, sapphire erlastrum, Weed's mariposa lily, San Diego streptanthus, mock parsley or wild-celery, prickly pear cacti, chalk lettuce, dudleya, chaparral bedstraw, California buckwheat and, sometimes, scrubby specimens of birch-leaved mountain mahogany.

The xeric barrens are potential habitat for two rare animals, the San Diego horned lizard and the Pacific pocket mouse, both of which have been documented from areas near the park. Especially rare plants found in the Park's xeric barrens are Turkish rugging and Douglas sandwort. Such species as odora point to the barrens' affinity with desert habitats east of the southern California coastal mountain ranges. Because the habitats are highly restricted and because they harbor many species which are otherwise rare in Orange County, the most diverse of the park's xeric barrens are designated as significant ecological areas. (SEA).

4. Chaparral

The second of the widespread plant communities in the park is chaparral. Chaparral is an evergreen, often arborescent woody shrub community well developed on the north-facing slopes of the Live Oak Canyon tributaries, somewhat marginal in Spalding Trail Canyon and almost absent in the Arroyo Trabuco Wilderness. In the Ashbury and Oso Creek watersheds, a kind of simplified chaparral dominated by laurel sumac occurs on bedrock landslides, northwest-facing barrancas and lateral ridge aprons.

The diverse chaparral of the Live Oak Canyon watershed is typically dominated by the barberry-leaved scrub oak, Quercus berberidifolia, recently separated from Quercus dumosa which in its limited maritime populations qualifies as a threatened, and possibly an endangered, species. Substantial scrub oak dieback has been noted in several of the Live Oak Canyon tributaries in the park; the cause, although not yet determined, could be simply long-term drought, or a combination of drought, smog and opportunistic infection.

In addition to the scrub oak, other characteristic chaparral species found here are toyon in the most mesic sites,

lemonadeberry, holly-leaved redberry, birch-leaved mountain mahogany and chamise on dry ridges, and laurel sumac in marginal habitat such as drainage gullies running through coastal sage scrub slopes. Within the chaparral understory can be found foothill needlegrass, orange bush monkeyflower, black sage, saw-toothed goldenbush, golden yarrow, chaparral honeysuckle, wild cucumber, and sometimes mosses, wood ferns, and goldenback ferns. Richly mesic habitats of mosses, liverworts, lance leaved dudleyas and goldenback ferns are sometimes found on shaded trail cuts within the chaparral community, as on the Edna Spalding Nature Trail and along some of the bridle trails in the West Youth Group Area.

5. Mesic Cliff Faces

These are north-facing cliffs within chaparral or oak woodland. Two areas of mesic cliff faces have been found in the "Old Park", on the Arroyo Trabuco bluff below Mesa Campground and at the head of the south tributary of Billy's Canyon. There are also some mesic exposure microhabitats within the Palisades Cliffs in the Arroyo Trabuco Wilderness.

The dry season timing of the field survey and the inaccessibility of the Billy's Canyon cliff precluded a detailed survey of what probably is a very interesting and species-rich microhabitat within the park. Supervising Ranger Richard Dyer describes this tributary as a "fern canyon", rich in fern species; the limited sortie into it revealed maidenhair goldenback and western wood ferns. The shaded cliffs at the back of the canyon were splotched with large white lichen patches, but were too far away for inventory of their potentially interesting edge flora.

The Arroyo bluff cliffs are edged and partially carpeted with mosses and lichens. This carpet is dotted with delicate mesa saxifrage plants and vivid green dudleyas. Shaded cliff margins are draped with lush cascades of California polypody fern. A variety of unusual plants not detectable in fall, including the California Native Plant Society rare and endangered many-stemmed dudleya are of potential occurrence. The dudleya whose presence is confirmed may be a hybrid of the lance-leaved dudleya and the California Native Plant Society listed Santa Monica Mountains liveforever.

6. Species-Enhanced Chaparral-Oak Woodland Ecotone

In certain areas where oak woodlands and chapparal habitats meet (possibly where fire breaks have been cleared along bridle paths in the past), especially within certain of the West Youth Group Canyons, there are refugia-like habitats containing native grasses, wildflowers and ferns. Some of the native

grasses in these habitats are species which were once indigenous to oak woodland-savannahs, now crowded out by the aggressive adventive, ripgut brome. Native perennial grasses found in the ecotone include foothill and purple needlegrass, San Diego bentgrass, blue wild rye, California brome and small-flowered melic. Non-aggressive non-native annual grasses sometimes present are nit grass and Zorro fescue. Bulb and corn wildflowers are characteristic in the ecotone. These include mariposa lilies, blue-eyed grass, golden stars, amole lily and mesa saxifrage. Other wildflowers may include clarkias, glandular cudwee, wild sweet-pea and fringed Indian pink. Ferns and mosses and low shrubby elements like snowberry are additional interesting ecotone features.

7. Southern Oak Woodland

Visually, and with respect to habitat value, this is one of the two most important resource types in O'Neill Park (the other is the sycamore woodland-savannah).

The distribution of oak woodland extends from the north-facing bluff slope of the Arroyo Trabuco to the mixed oak-sycamore savannah on the Arroyo floor to near pure stand oak woodlands in Live Oak Canyon and in the major ravines on the Vedanta Addition.

The coast live oak is the community's dominant tree. No other tree-sized oak occurs in O'Neill Park, though in a few areas of the South County, some Engelmann oak are found in oak woodlands.

Oak woodlands on north-facing slopes tend to have alot of understory vegetation, lending a lush, mesic but often poison oak ridden, aspect to them. Canyon floor woodlands in the Park, as in the West Youth Group Area, contain open savannah floors, and often no understory shrubbery except at the ecotonal edges.

Characteristic "second canopy" shrubs which lend interior structure to oak woodland habitats are toyon, holly-leaved redberry, live oak saplings, lemonadeberry and sometimes coffeeberry and Mexican elderberry, both more typical in the park in sycamore and mixed-species woodland.

The third layer consists of knee-high shrubby and suffrutescent elements, the most prominent of which is poison oak. Its look-alike, squaw bush, is also often present. Also common in this layer in the most pristine woodlands in northern Live Oak Canyon is the low, finely branched shrub, snowberry. Other third layer elements include giant rye, white-flowered currant, climbing penstemon, golden yarrow, hillside and fuchsia-flowering gooseberries, the herb, wild cucumber, saw-toothed

goldenbush, chaparral and Nuttall's bedstraw and rarely, at the margins of savannah openings, hairy golden aster.

Finally, there are the grassland savannah and the truly herbaceous woodland floor flora species. The dominant savannah grass in the park today is the robust annual adventive, ripgut brome, which has replaced, except in the least disturbed woodlands, the native perennial grassland flora of the drier forest floor and the little meadows dispersed through it. Only in the upper reaches and ecotonal margins of the tributary canyons and in the uppermost Live Oak Canyon are native woodland grasses important vegetative elements. These "special" areas contain such perennial natives as blue wild rye, California brome, small flowered melic, San Diego bend, foothill needlegrass and, along intermittent watercourses, deergrass. Herbs of the native savannah found in the park are California goldenrod, which is quite common in undisturbed areas, amole lily, blue-eyed grass and, in the most unspoiled portions, meadow hedge nettle, species of Clarkia or farewell-to-spring, and in one population at the mouth of Billy's Canyon, the showy flowering mustang mint.

On shaped slopes, the mesic oak forest floor herbaceous cover is dominated by common chickweed, an adventive widespread in the county's oak woodlands and, in years of good rainfall, the lushly growing native miner's lettuce. Polypody and wood ferns are also characteristic elements. Pacific sanicle is fairly common. Less common are herbs such as slender madia, fiesta flower, goosegrass, meadowrue and common eucrypta.

Disturbed habitat elements seen in the oak woodland understory include the grass, foxtail barley, the noxious weed, Italian thistle and, in excessively impacted sites at the margin of compacted bare ground areas, bur clover, South American horseweed, summer mustard, weedy cudweed and puncture vine. These species, especially the barley, are common within the camping and day use areas of the Park.

8. Sycamore Riparian Woodland-Savannah

Sycamore and mixed oak-sycamore woodland-savannah is the dominant habitat of the floor of Arroyo Trabuco from the Rose Canyon confluence just north of the Park south to the old aggregate mining area downstream from the Arroyo Trabuco Wilderness. This assemblage of sycamore trees is one of the largest and most significant in Southern California. So large is the stand that it has in the past functioned as a major refugium for raptors and cavity nesting birds including rare species such as the Lewis woodpeckers (which wintered here, at least formerly.)

In the past, heavy cattle use impacted the habitat of the Arroyo Trabuco Wilderness sycamore forest. The still-widespread stands of noxious milk thistle remain as evidence of heavy cattle impact during the O'Neill Ranch era.

Within the "Old Park", soil compaction and loss of understory species diversity are among the results of heavy human use.

The following discussion on the composition of sycamore woodlands and woodland-savannahs is adapted from the Biology Technical Appendix within the Schematic Development Plan (SDP). The western sycamore is a stream bench species, and in portions of Arroyo Trabuco, benches situated away from the periodically inundated lower floodplain are extensive enough to provide habitat for substantial areas of sycamore forest. The sycamore forest is usually quite open, with a grass/forb groundcover and scattered understory of coffeeberry and Mexican elderberry shrubs. Individual sycamore trees may reach a total spread of 95 feet or greater and a multiple trunk diameter at breast height (dbh) sum of nine feet or greater (as many as six multiples were counted on individual sycamore clones in random sampling within the principal woodland). Tree height varies from 58 to 80 feet in specimens measured.

Because of the sycamore's open crown and because individual specimens and clones are spaced so that each crown can develop a substantial spread without competing with crowns of neighboring clones, ample light reaches the forest floor. In addition, the forest cover is not continuous but is interspersed by meadows. The aspect of the formation is that of a natural parkland. Where the sycamore woodlands becomes admixed with coast live oak specimens, less light reaches the forest floor, and in some areas, where freshwater runoff has been captured, small mesic swales and forest swamps occur.

In 1980 when the investigator first inspected the sycamore forest of the Arroyo Trabuco, its principal understory was ripgut brome, and introduced annual grass common in moderately disturbed woodland-savannahs. In the intervening years, cattle grazing took place, most recently in the southern reach. Today, the dominant understory species in the lower Arroyo is the noxious weed, milk thistle. Cattle trampling is closely correlated with establishment of milk thistle stands, causing soil disturbance and compaction.

The indigenous groundcover within this community is the perennial grass, beardless wild rye, sometimes hybridized with blue wild rye. Sizable stands of this grass persist in isolated, undisturbed parts of the sycamore woodland. Since the 1985 survey, these patches appear to be spreading as the habitat recovers. The hip-high blue-green grass is growing vigorously in shaded areas where milk thistle is not competing

for space. There is probably enough of this grass on site to provide stock for nursery propagation for planting out understory areas as they are successively cleared of milk thistle.

Additional common understory components within the park's Arroyo Wilderness sycamore woodlands are ripgut brome, fiesta flower, clustered field sedge, hedge mustard, giant wild rye, prickly pear cactus patches, poison oak thickets and stands of California rose. While understory shrubs are more or less frequent throughout the forestland, they do not form a major secondary canopy except in one area, the mesic Swamp Forest south of the large fields ("Deer Meadows") below the San Francisco Solano adobe ruins. Here the secondary canopy is composed of the typical coffeeberry and Mexican elderberry shrubs along with young sycamores and oaks, festoons of poison oak and some wild grape vines. Wetter parts of the forest floor contain a varied mix of hydrophytes which grow in lush profusion along the wet channel slough which crosses the site. The drier banks and terraceland are carpeted with sycamore leaf litter, thickets of the aforementioned secondary canopy components and head-high patches of stinging nettle. This particular woodland exhibited high songbird use which is related to the diversity of its structure, providing a multiplicity of habitat niches. (end of discussion adapted from the SDP.)

Within the "Old Park", there is a species-diverse sycamore-oak woodland on the east side of the graded Trabuco Creek channel. The Trabuco Creek Nature Trail passes through this woodland. Understory shrubs are uncommon in the camping and day use areas, except about the periphery of Featherly Campground and at the south end of the Oak Grove day use area, where sapling sycamores and coffeeberries remain within the mature sycamore clone clusters.

In Live Oak Canyon, sycamores are sparsely distributed along the drainage course, within the oak woodland matrix. Mugwort and poison oak are the dominant shaded stream margin plants. Patches of California blackberry are also found. One population of false indigo shrubs was located.

9. Willow and Alder Woodlands

Thickets of Arroyo and red willows and mulefat are found along open reaches of Live Oak Creek, with associated bank flora of San Diego sedge, clustered field sedge and other phreatophytes.

Extensive areas of willow woodland are not found in the Arroyo Trabuco Wilderness, although this community becomes the dominant woodland type further south, at the confluence of Oso Creek and Arroyo Trabuco. Willow clusters and small groves are

found principally along the creek margin and in more protected lower floodplain areas, especially within the Narrows and southward. In the sand and gravel extraction zone south of the park, willow thickets when surveyed several years ago comprised the only tree stands present, with the exception of isolated sycamores on the east bench. Willows, intermixed with other tree, shrub, forb and grass species form the brushy margin of Oso Creek above the impoundment reservoir. The Oso Creek tributaries on the Vedanta Addition also contain willow and mulefat stands along their lower reaches.

Arroyo willows of shrub and small tree size are the most common components of the park's willow woodlands. Red willows occur with some frequency. Black willows are rare, apparently limited to the main Oso Creek drainage. Mulefat shrubs are prominent within and at the margins of willow stands, and extend into large monotypic stands elsewhere on moist portions of the floodplain. Mugwort, stinging nettle and other creek edge hydrophytes are common associated components.
White alder woodlands occur in the Arroyo Trabuco Wilderness associated with willow stands and partially shaded by adjacent oaks and sycamores. The shaded alder woodland floor contains few understory plants, and none which are distinctive to the association. Alders here exist in outlier stands seed-dispersed from the extensive alder riparian woodlands lining the creek margins of Upper Trabuco and Holy Jim Canyons. (Foregoing discussion adapted from SDP Appendix.)

10. Mulefat Scrub

Mulefat scrub is found in marginal and flood-disturbed riparian settings, in a habitat type federally classified as scrub-shrub wetland (as contrasted to the forested wetland type which encompasses sycamore, alder and willow woodland). In the park, mulefat in extensive stands is found at the western edge of the Vedanta Addition, in a filled-in pond in lower Billy's Canyon and in the upper part of the Arroyo Trabuco Narrows. The occurrence of this habitat type on abraided floodplains rather than the habitat, discussed next (alluvial scrub) is dependent on proximity to the water table as represented by creek underflow.

11. Alluvial scrub

Alluvial scrub is an open desert-like association which occurs on frequently abraided floodplain sand, gravel and cobble outwash areas.

The indicator shrub within this association is scale broom, a composite family plant which here, grows to about 3-4 feet in height. Adult shrubs are green stemmed with leaves reduced to minute scales.

New growth and seedlings are covered with small leaves and are white-tomentose, giving rise to much confusion regarding their identity.

Other characteristic low-growing shrubs scattered across the partially barren cobble alluvium include California buckwheat, California brickellbush, sandwash groudsel, deerweed and California sagebrush. The desert-like appearance of the setting is visually enhanced by scatterings of yucca, prickly pear cacti, dudleyas and valley cholla. Several kinds of cudweed or everlasting (white, bicolored, fragrant and weedy) are frequently encountered forbs. Drifts of white forgetmenot and lupines such as loosely flowered, dove and nettle add spring color. The interstitial bare areas within a cholla stand in the Arroyo Trabuco Wilderness just north of the Santa Margarita Parkway bridge, are carpeted with goldfields in spring. Fluffweeds and pigmy stonecrop are other diminutive forbs found. Telegraph weed, horehound, Indian rice grass and tarragon, all somewhat weedy plants, are present but not abundant. A light growth of annual grasses, particularly red brome, covers some open areas between larger forbs and shrubs. Small, often flood-abraided, sycamore trees and chaparral shrubs such as laurel sumac survive on slightly elevated "islands" within the outwash plain.

Certain montane washdown species also occur in the Arroyo Trabuco Wilderness floodplain, though none is common. These include the showy flowering blue penstemon, a forb, and California false indigo and greenbark ceanothus, both shrubs. Stands of matilija poppy, here at the lower edge of its montane foothill range, are fairly common in the Arroyo Trabuco Wilderness near the "Old Park" and in lower Spalding Trail Canyon, in habitats which may represent old, well stabilized floodplains at the upland margin. The species was not found within areas of actively abraided alluvium on site. (Foregoing discussion adapted from SDP Appendix.)

Within O'Neill Park, alluvial scrub is best developed within the northern Arroyo Trabuco Wilderness. In the "Old Park", stands of scalebroom and buckwheat, through which are sparsely scattered individuals of brickellbush and other community components, have established on Trabuco Creek levee slopeland, mostly above the Hicky Creek confluence. A large stand of buckwheat vegetates the lower Hickey Creek levee, and scattered patches of scalebroom are found upstream along this drainage course.

Alluvial scrub and the related Riversidian alluvial fan sage scrub biotic communities are of restricted distribution and increasingly threatened. The range of the community complex appears to be from the Santa Clara River in Ventura County,

east along the alluvial fan and stream margins at the south edge of the San Gabriel and western San Bernardino Mountains, to the desert edge east of Banning, and southward, patchy along interior cismontane Temescal Creek and along several drainage courses in Orange County. The community essentially disappears in northern San Diego County. Prime examples of this unusual habitat type still persist but are threatened in Big Tujunga Canyon, along the San Gabriel River, Cajon-Lytle Creek and the upper Santa Ana River. The best remaining stands in Orange County are in Coal Canyon, on the Trabuco Flats just north of O'Neill Park, in those portions of the Santiago Canyon - lower Silverado Canyon floodplain not yet mined for sand and gravel and along San Juan Creek in Caspers Wilderness Park.

Throughout its range, the community is threatened by aggregate mining, flood control channelization and urban-related developments. Several rare and endangered species are endemic to the alluvial scrub community, including two now extinct in Orange County (Santa Ana River woolly-star and the San Fernando Valley spine-flower). Federal Candidate fauna within the community which probably occur in or near the park are the San Diego horned lizard and the Pacific pocket mouse. (These also occur on the desert-like ridgetop xeric barrens.) Desert disjunct species also occur in alluvial scrub, including sweetbush and its dependent butterfly, Wright's metalmark, both of which occur on Trabuco Flats but apparently not within the park. The Coulter's matilija poppy discussed above is a California Native Plant Society limited-distribution shrub near endemic to the Santa Ana Mountains.

12. Freshwater Marsh, Lacustrine and Vernal Pool

These are biologically among the most interesting and valuable habitat types in the study area. Included in this category are a lake (Oso Reservoir), the Arroyo Trabuco pond, three vernal pools in the Vedanta Highlands, four freshwater marshes (Oso Reservoir inlet, the Arroyo Pond inlet, the 78" storm drain outlet and a natural marsh in West Youth Group Canyon 4, and the Arroyo Swamp Forest.

Oso Reservoir, adjacent to the park's future dedication area, is a unique and interesting lake-like setting fringed above by a large weedy freshwater marsh dominated by white sweet-clover and limited areas of cattails and California bulrushes.

The pond in Arroyo Trabuco is located at the south end of the Narrows. It is completely encircled by fence and occupied, at least previously, by bullfrogs. Above the pond is a freshwater marsh of excellent floral diversity. Tall-growing emergents forming a dense reed habitat are common, as are narrow-leaved cattails and California bulrush. Along the inlet channel is a diverse assortment of hydrophyte rushes, grasses and forbs

including toad rush, spike rush, water bent, ditchgrass, rabbit's foot grass, smartweed, cut-leaved water parsnip, California cottonweed, weedy cudweed and wild mint.

The storm drain marsh is a new one now dominated by cattails, willows and mulefat, with Alta fescue and tall sedge in the understory. It edges the outlet channel and adjacent portions of Trabuco Creek and its side channels (fed by underflow).

The natural marsh in West Youth Group Canyon 4 is dominated by basket rush and edged by tussocks of deer grass and patches of mugwort. This is the only known extant locality in Orange County for basket rush; deer grass is quite rare in the County. This marsh is a designated "Old Park" significant ecological area, (SEA).

Two of the three Vedanta Highlands vernal pools are heavily impacted by cattle. The third pool, on Monastery property, is small but quite pristine. The Pac Bell pool is dominated, as it desiccates in the spring, by swamp timothy. About the margin of the Monastery Shrine pool is a small population of clover fern, the only one known in Orange County. All the vernal pools are designated SEAs.

The Arroyo Wilderness forest swamp typifies the shaded marsh habitats found along many reaches of the Arroyo where side channels persist with standing or gently flowing water. The difference between this setting and the numerous smaller sites is one of extent of wetland and floristic structural diversity of the adjacent stream terrace habitat. This woodland slough is vegetated by tall growing green dock and stinging nettles, rigid hedge nettles, speedwell, broad-leaved plantain, tall sedge, iris-leaved rush, wrinkled rush, prickly sow thistle and some bull thistle.

Other hydric areas along Trabuco Creek in the Arroyo Tarbuco Wilderness, especially small sunlit channels are dominated by watercress. Showy blossoming yellow monkeyflower and scarlet monkeyflower, both of occasional occurrence, require at least filtered sunlight. Other kinds of hydrophytes encountered besides those enumerated above are Braun's scouring rush in lower Tijeras Canyon, celery, slender aster and poison hemlock (mostly in the Oso Creek watershed), brass buttons, English plantain, willow dock, curly dock, umbrella sedge, wire rush and dallis grass.

One streambed submerged aquatic, hornwort, was found in the southern reach of Arroyo Trabuco. A single montane washdown species, durango root, was found at one location along the Arroyo margin. (Discussion adapted in part from SDP Appendix.)

13. Grasslands

Much of the upland habitat flanking O'Neill Park and its additional parcels is grass vegetated. The Plano Trabuco was, most likely, originally a grasslands habitat although much of it had been farmed for many years before Rancho Santa Margarita was built. The Rancho Trabuco hills in the Ashbury and Oso Creek watersheds are mostly grass vegetated except on the steeper slopes and the high ridgeland adjacent to the existing park. The slopeland west of the south reach of the Arroyo contained a highly disturbed forb association resulting from past mismanagement of the original grassland community here. The slopes are recovering after herbicide application. Within the Arroyo is a mosaic of small meadows interspersed with the tree stands previously discussed, a habitat complex called woodland-savannah.

The largest areas of grasslands inside the park are on the Island Pasture and within the Vedanta Highlands, on the broad slopes between Live Oak and Oso Canyon.

a. Native Perennial Grassland

Cismontane native grassland (California prairie) historically was the indigenous grassland of the Central Valley and certain portions of coastal southern California. Other indigenous grassland associations, composed of different dominant species, vegetated coastal and valley areas of northern California and the Pacific northwest, and the interior grassland areas which are transitional to desert.

The dominant and indicator species of cismontane native grassland is the perennial bunchgrass, purple needlegrass. The original prairie contained wildflowers and some annual grasses as well as the more obvious tufted perennial species. Light soil areas were dominated mainly by wildflowers before they were invaded by Eurasian bromes. A few of these flower-fields persisted in the County until a few years ago, as at the UCI Ecological Reserve now being developed for campus housing, and on the old Whiting Ranch. The needlegrass prairies occur on heavy, moisture-retentive soil. These prairies, including stands within the park, have their own floral color from gum plant, Parry larkspur, johnny jump-ups, blue-eyed grass, golden stars, mariposa lilies, wild hyacinth, California buttercup and sharp-toothed sanicle.

Remaining native perennial grasslands in the park include:

- Higher slopes of the Island Pasture.

- Lateral headwater of Vedanta Canyon.
- Watershed divide slope above West Youth Group Canyon 3- 4.
- Meadow along road below Mesa Campground.
- Savannah openings on east slope of Arroyo Trabuco in the Arroyo Trabuco Wilderness above the Narrows.
- Saddle between Ashbury and Oso watershed, Rancho Trabuco buffer zone.
- Lower Ashbury Canyon.

All native perennial grasslands in the "Old Park" and Vedanta Addition are designated significant ecological areas,(SEA's).

b. Adventive Annual Grassland

Early European explorers in the New World were probably responsible for introduction of such exotic genera as oats, rye, brome, bluegrass, filaree, dock and sow thistle into the native grasslands ecosystem of the Americas. Species of these genera were able to compete successfully with native grass and forb species and gain a foothold in the virgin prairie even before the advent of cattle grazing and agriculture. With the institution of grazing and cultivation, Eurasian species' colonization of the virgin prairie proceeded rapidly and led to present conditions wherein most areas in California where native prairie originally occurred are now dominated by Eurasian annual species. Elimination of the native community can take place in as little as five years.

Among the dominant grasses of this community as it occurs on site and elsewhere in Orange County are the following species:

common wild oats
slender wild oats
ripgut brome
soft chess
foxtail barley
red brome
foxtail fescue

Common forbs include, but are not limited to the following:

cardoon or artichoke thistle
filarees: longbeaked, red stemmed, white stemmed, broad-lobed
mustards: black, summer, field

bur clover
star thistle
wild radish
fiddleneck
bicolored annual lupine
succulent annual lupine
windmill pink
tarweed

Most of the Vedanta Highlands' grasslands are adventive, badly cattle-impacted and dominated by artichoke thistle. The Live Oak-Ashbury watershed divide grasslands are mostly of typical adventive composition, with a substantial amount of wild oats, which grows well in the heavy soil.

In the Arroyo Trabuco Wilderness, formerly dominated by artichoke thistle, are widespread grasslands on Monterey formation substrate on the southwest slopes. The Deer Meadows within the Arroyo are also vegetated by adventive grasses; these savannahs are steadily improving in quality as they recover from cattle impact.

The lower slopes of the Island Pasture still contain adventive grasses. The flats below are badly impacted by construction activities and now contain a primary-succession ruderal cover.

Most of the Rancho Trabuco buffer zone is annual grass-vegetated. (Some portions of foregoing discussion adapted from SDP Appendix.)

14. Disturbed Sere

Essentially denuded areas of the park include the graded upper channel of Trabuco Creek, most of the adjoining levee, two large flats on the west side of the levee formerly vegetated with alluvial scrub, high use areas within the campgrounds and picnic grounds, and the high divide ridge mesa in the Vedanta Highlands where cattle have consumed all edibles. As these areas revegetate, they are or will be dominated by ruderals such as summer mustard, black mustard, star thistle, telegraph weed, horseweeds, cheeseweed, bur clover, filarees and the like.

<u>Condition of Biotic Communities</u>

To summarize from the foregoing discussions, the approximate conditions of the park's biotic communities and associations are as follows.

1. Coastal Sage Scrub - good but possibly threatened by the unusual long-term drought.

2. Nolina Scrub - good.

3. Chaparral - most is good, but dieback in certain stands pointing to drought and smog impact.

4. Native Grasslands:

   - Island Pasture heights - good.
   - Blufftop Park Plano Margin - being impacted by construction activities.
   - Arroyo Slopes - some impact from storm drain construction.
   - Meadow below Mesa Campground - impact from too low mowing.
   - Mesa Campground - poor. Most grasses gone. Pedestrian impact, too low mowing.
   - Lower Ashbury Canyon - substantial cattle impact.
   - Upper Ashbury-Oso Saddle - unknown but suspected cattle impact.
   - Vedanta Highlands - cattle impact, invasion of artichoke thistle.
   - Above West Youth Group Canyons 3-4 - good, continuing to recover.

5. Adventive Grasslands

   - Island Pasture flats - poor, serious construction activity impact.
   - Lower Arroyo Trabuco west slope - recovering, artichoke thistle being controlled but some areas badly slumping.
   - Deer Meadows - excellent.
   - Live Oak-Ashbury Divide - good but not very species-diverse.
   - Vedanta Highlands - poor. Serious cattle impact, heavy artichoke thistle invasion.

6. Southern Oak Woodland

   - Day Use Area - poor, serious pedestrian impact.
   - Main Camp - poor to fair, pedestrian impact.

- West Youth Group Area - poor/fair in campsites, fair near campsites, good to excellent up in canyons further away from sites.

- Upper Live Oak Canyon - excellent.

- Vedanta Highlands - fair, cattle impact.

- Arroyo Trabuco EastBluff - mostly good to excellent. Erosion from informal trails below Mesa Campground. Some impact from storm drain construction.

7. Sycamore Riparian Woodland-Savannah

   - "Old Park" Camping and Day Use Area - most is fair, some poor. Generally lacks understory structure. Fair to good near Arroyo trailer and in Featherly Campground.

   - Trabuco Creek Nature Trail - good but impacted by erosion from above (informal trails).

   - Upper and middle Arroyo Trabuco Wilderness - good to excellent.

   - Lower Arroyo Trabuco Wilderness - fair, heavy milk thistle invasion.

8. Willow and Alder Riparian Woodlands - good. Enhancement in Arroyo from storm drain runoff.

9. Mulefat Scrub - good.

10. Alluvial Scrub

    - Upper Arroyo Trabuco Wilderness - excellent.

    - Trabuco Creek levee and graded channel periphery near Hickey Creek confluence, Hickey Creek levee - fair.

    - Rest of Trabuco Creek levee, flats behind - poor.

11. Freshwater Marsh

    - Arroyo Pond Inlet - threatened by proposed pond expansion.

    - Storm Drain Outlet - fair/good but water going through is polluted. Not very species-diverse yet.

    - Oso Reservoir Inlet - unknown. Alot resurveyed in 1989.

- West Youth Group Canyon 4 - excellent, but potential equestrian threat.
- Swamp Forest - excellent but potentially threatened by herbicides in storm drain runoff.

12. Vernal Pool
    - Pac Bell - poor/fair. Cattle impact.
    - Vedanta Highlands in park - poor/fair. Cattle impact.
    - Monastery Shrine - good. However, canopy shade suppresses pool-margin flora.
13. Lacustrine
    - Oso Reservoir - apparently good, but fishermen disturb wintering waterfowl population.
    - Arroyo Pond - enlargement may impact.
14. Xeric Barrens - most good to excellent. Some erosion impact from informal pedestrian use.
15. Cliffside Xeric - mostly good.
16. Cliffside Mesic - Billy's Canyon apparently excellent; Arroyo Trabuco bluff below Mesa Camp Ground fair, impacted by rock climbers and graffiti; Palisades not checked in 1988-9.
17. Species-Enhanced Ecotone
    - Lower Scout Group Camp Canyon - excellent.
    - West Youth Group Canyon 3 - good.
18. Disturbed Sere - by definition, all these habitats are poor.

Sensitive Communities, Microhabitat and Biota

The following table summarizes communities, microhabitats and biota considered to be sensitive. Locales of these resources, within the "Old Park" and Vedanta Addition are designated as SEA's (Sensitive Ecological Areas). Within the Arroyo Trabuco Wilderness, they are designated as Category 1 and 2 habitats.

Community	Microhabitat	Species	Occurence confirmed	Occurence suspected	Rationale for Rating
Nolina scrub		Chaparral nolina (Nolina cismontana)	X		Dice, 1988 finding of threatened status.
Native grassland			X		CA Natural Diversity Data Base finds less than 1% of former range still extant habitat.
Pristine southern oak woodland			X		Oak woodlands rare in County, pristine examples even more so
Species-diverse alluvial scrub			X		Community of limited distribution and threatened throughout its range.
	Freshwater marsh		X		Valuable, uncommon habitat type in County.

Community	Microhabitat	Species	Occurence confirmed	Occurence suspected	Rationale for Rating
	Vernal pool			X	Unique, almost extirpated habitat type in County.
	Xeric barrens			X	Unique, limited-distribution habitat type.
	Cliffside mesic			X	Unique, limited-distribution habitat type.
	Cactus patches			X	Habitat of coastal cactus wren.
	Species-enhanced ecotone			X	Refugium for uncommon native savannah flora.
		Coulter's matlija poppy (Romneya coulteri coulteri)	X		CNPS Limited distribution listed.
		Turkish rugging (Chorizanthe staticoides)	X		Probably hybrid with subpecies C.s chrysacantha CNPS Rare and Endangered-listed.
		Clover fern (Marsilea vestita)	X (Monastery)		Only known extant population of species in Orange Co.

Community	Microhabitat	Species	Occurence confirmed	Occurence suspected	Rationale for Rating
		Basket rush (Juncus textilis)	X		Only known extant population of species in Orange Co.
		Santa Monica Mountains liveforever (Dudleya cymosa ovatifolia)	X		CNPS Limited Distribution Lanced leaved dudleyas (D. lanceolata) in Park suspected of being hybrids with this species (David Verity, personal communication.
		Douglas sandwort (Arenaria douglasii)	X		Only known extant population in Orange Co.
		Catalina mariposa (Calochortus catalinea)	X (at least formerly in Rancho Trabuco buffer zone)		CNPS Limited Distribution
		Teasel (Dipasacus sativus)	X		Only known population in Orange Co. (Species interpretive interest).
		Arroyo chub (Gila orcutti)	X		CFG Special Animal.

Community	Microhabitat	Species	Occurence confirmed	Occurence suspected	Rationale for Rating
		Western spadefoot (Scaphiopus hammondi)		possible	Vernal pool amphibian rare in Orange Co.
		Red-legged frog (Rana aurora)		possible	Federal candidate for Threatened/Endangered listing.
		Western pond turtle(Clemmys marmorata pallida)		possible	Federal candidate for Threatened Endangered listing.
		San Diego horned lizard (Phrynnosoma coronatum blainvillei)		X	Federal candidate for Threatened/ Endangered listing.
		Orange-throated whiptail (Cnemidophorus hyperythrus)		possible	Federal candidate for Threatened/ Endangered listing.
		Western aquatic garter snake (Thamnophis couchi)		possible	Rare in Orange Co.
		Western grebe (Aechmophorus occidentalis)	X Oso Reservoir		CFG special Animal.
		Double-crested cormorant (Phalacrocorax auritus)	X (Oso Reservoir)		CA species of Special Concern.
		Great blue heron (Ardea herodias)	X		CFG Special Animal.

Community	Microhabitat	Species	Occurence confirmed	Occurence suspected	Rationale for Rating
		Black-crowned night heron (Nyctocorax nyctocorax)	X	(Oso Reservoir)	CFG Special Animal.
		Turkey vulture (cathartes aura)	X		One of only a few nesting localities in Orange County.
		Cooper's hawk (Accipiter cooperi)	X		CA species of special Concern.
		Sharp-shinned hawk (Accipiter striatus)	X		CA species of Special Concern.
		Golden eagle (Aquila chrysaetos)	X		CA and Fed. Protected, CA Species of Special Concern.
		Northern harrier (Circus cyaneus)	X		CA species of Special Concern.
		Black-shouldered kite (Elanus caerula)	X		CA Protected
		Prairie falcon (Falco mexicanus)	X		CA Species of Special Concern.
		Long-eared owl (Asio otus)	X (at least formerly)		CA Species of Special Concern.
		Lewis woodpecker (Asynedesmus lewis)	X (at least formerly)		Rare in Orange Co.
		Downy woodpecker (Dendrocopus pubescens)	X		Rare in Orange Co.

Community	Microhabitat	Species	Occurence confirmed	Occurence suspected	Rationale for Rating
		Willow flycatcher (Empidonax traillii)		possible	CA Species of Special Concern.
		Coastal cactus wren (Campylorhynchus brunneicapillus sandiegensis)	X		Fed. Candidate for Threatened/ Endangered listing.
		CA black-tailed gnatcatcher (Polioptile mealanura californica)		possible	Fed. Candidate for Threatened/ Endangered listing.
		Blue grosback (Guiraca caerula)	X		Rare in Orange Co.
		Grasshopper sparrow (Ammodramus savannarum)	X		Native grassland bird rare in Orange Co.
		Scott's oriole (Icterus parisorum)	X		Desert specie rare in Orange Co.
		Pacific pocket mouse (Perognathus longimembris pacificus)-	X		Federal Candidate for Threatened/ Endangered Listing.
		American badger (Taxidea taxus)	X		CA species of Special Concern.

B. TREES - SUMMARY DESCRIPTION OF RESOURCES

The following is an excerpt from the resource specialist's report. The entire report is included in the Supplemental Appendix.

Detailed Tree Survey: A detailed survey of individual trees covers 651 individual specimens in the campground and day use area of the old park. The study area runs approximately from the fence line behind the trailer in the day use area, up the Arroyo past the main entry gate to approximately the park maintenance yard. The individual trees have been assigned a number (1-651) and identified by genus, species and common names. Additional data is as follows: (See Supplemental Appendix for matrix and plans)

Height (estimated)
Spread (paced)
Circumference at breast height, measured
Habit of Growth (tree form; standard or multi-trunked)
Structural Condition (evaluation of the tree's vigor)
Overall Rating (subjective opinion, on a scale of 1 to 10; worst to best)
Wildlife value (also on scale of 1 to 10; based on species characteristics, location in park, understory growth, etc.)
Comments (pertinent notes and observations not otherwise mentioned)

Both native and introduced species are addressed, however the emphasis is on the two dominant native species of the park, Quercus agrifolia (Coast Live Oak) and Platanus racemosa (California Sycamore).

The Coast Live Oak is a broadleaf evergreen tree, reaching a height of 60-70 feet with a spread of 70 or more feet. The fossil record proves that these oaks have existed in California for millions of years, first appearing just before the last ice age. It is estimated that some oaks in California are over 300 years old. Optimum conditions for oaks include a moderately deep sedimentary soil, 12 to 20 inches of annual rainfall and an elevation range from sea level to 3000'. The soils supporting oaks are able to grow variable numbers of the trees, dependent upon the availability of nutrients and water. In its natural environment the tree's nutrients are insured by the surface accumulation of fallen leaves and mycorrhizae in the roots. Decomposing leaves, twigs and other organic matter provide nitrogen, phosphates, potash and minor elements to the parent tree. The decomposition of this material results in a chemical and physical alteration of the soil, improving soil texture in friability, and thus improving water percolation and ventilation for gas exchanges (oxygen, carbon dioxide and nitrogen) in the soil.

The California Sycamore is a deciduous tree native to riparian areas. It ranges in height from 50-100 feet, prefers alluvial soils and occurs in California from sea level to 4000'.

Fossils of this tree date from the Cretaceous Period, during which time the Sycamore existed even in present day arctic regions.

General Overview/Summary

The trees of O'Neill Regional Park vary greatly from very healthy specimens to extremely sick and dying trees. Soil compaction due to years of foot traffic had taken its toll, causing the gradual decline of many oak trees.

Because of their lessened sensitivity to compaction, the sycamore trees are generally in better health and structural condition than the oaks. However, mistletoe and heart rot are affecting a great number of the sycamores.

Surprisingly, little evidence of Armillaria mellea (Oak Root Fungus), a common affliction of oaks in California, was encountered. Evidence of compaction on the oaks is fairly obvious when examining the soil beneath the trees in certain areas. With regards to the appearance of the trees, indications of compaction are a scarcity of foliage and a general chlorotic appearance (yellowing of the leaves).

In areas where the intensity of human use has been minimal the trees are often in excellent condition. Circulation patterns and the presence of understory brush seems to be important determining factors in this regard.

Identification of Sensitive Areas

Presently the Old Park consists of the following categories of native oak-sycamore woodland.

1. Severely degraded areas: These are mainly in the campground and day use areas. The poorest trees are found on the west end in the vicinity of the park meeting trailer.

2. Moderately degraded areas: These are the remainder of the lower area and the upper mesa campground area.

3. Recovering areas: These areas such as the Lower Arroyo (fenced area behind the park meeting trailer) and the closed area along Live Oak Canyon Road.

4. Pristine areas: Uncommon, but the draws that run perpendicular to the closed area along Live Oak Canyon Road (roughly between the main entry gate and the

monastery) contain many young to middle aged trees in remarkably healthy condition with diverse understory vegetation.

These areas are to be considered very valuable, perhaps to be protected from degradation by the general public. These are appropriate areas for study by selected school groups, biologists and other groups determined to have less impact than usual.

Coastal Prickly Pear

Coulter's Matilija Poppy

Coast Live Oak Specimen

C. WILDLIFE - SUMMARY DESCRIPTION OF RESOURCES

The following is an excerpt from the wildlife resource specialist's report. The entire report is included in the Supplemental Appendices.

Methodology

Existing studies and public comments on previous plans and EIRs were reviewed to get an understanding of the current knowledge of the wildlife resource in the park and the surrounding areas. Field evaluations were made in and around the park from Interstate 5 to the Cleveland National Forest to understand habitat relationship and wildlife use patterns in light of current and proposed development. Evaluations involved inspection of the existing habitat condition for wildlife as well as direct observations of wildlife or their sign. Emphasis was placed on large mammals due to their wide ranging habits, sensitivity to human development and use, and limited funding for the study. In addition to direct observation, personal interviews with park employees, local residents, and employees of businesses and government agencies in the local area were conducted to provide increased understanding of the existing wildlife situation. Funding only provided sufficient time to look in depth at large animal movement and habitat use on a broad scale over only a portion of one year; interpretations of habitat use and management must take this into consideration.

General Description and Condition of the Resource

The wildlife resource of O'Neill Park has been described in previous documents (O'Neill Regional Park Schematic Development Plan 2/86, Focused EIR No. 463 on the Schematic Development Plan, Biological Assessment of Park Addition Parcels by Karlin G. Marsh 5/85, and the Arroyo Trabuco Raptor Nesting Survey by Peter H. Bloom 5/85). Current evaluations of the park and adjacent habitats resulted in findings that supported the accuracy of, and expanded somewhat, on these previous studies and biological descriptions.

This region of Orange County is extremely productive for wildlife. This area was formerly the home of the grizzly bear and wolf. These animals were eliminated due to their conflict with humans and livestock. Pronghorn antelope also inhabited the region and were eliminated during the relatively recent human occupation of Southern California. The area still supports a wide diversity of wildlife. There are an estimated 13 species of fish, 41 species of reptiles and amphibians, 52 species of mammals, and 145 species of birds.

Wildlife habitat in this portion of Orange County is undergoing some drastic changes that have a great effect on the wildlife of the Park. Private land adjacent to the Park is being developed at an unprecedented pace. As these lands are developed, small mammals, reptiles, and amphibians which are dependent upon specific habitats and are not capable of making long movements out of the area are

generally destroyed by heavy equipment and the total loss of required habitat. Larger mammals and birds that are capable of moving of out the way of development are displaced to adjacent protected habitats such as O'Neill Park and other areas of open space. Some of these animals find unoccupied habitat suitable for survival, but a larger number end up dying a cruel death because the adjacent habitats are already filled to their capacity. Animals that are displaced die from exposure, starvation, increased exposure to preditation, and indirect battles with others of their kind for limited space and resources.

In the near future, it appears that O'Neill Park will be surrounded by development on three sides. The Park will be a long peninsula of natural habitat with in a sea of development. The long-term value of the park to wide-ranging wildlife species such as mountain lions and golden eagles is dependent upon maintaining the size of the park and associated open space as large as possible through County development requirements and cooperation of adjacent developers.

With adequate open space protection and maintenance of corridors for movement into and out of the Santa Ana Mountains, all wildlife species currently using the park could by maintained. Maintaining wide-ranging carnivores and raptors such as the mountain lion and golden eagle will be the most difficult. To maintain these species as part-time or full-time residents, the park will need to manage habitats to provide healthy prey populations, and manage recreation to hold human disturbance to acceptable levels.

Some of the wildlife habitats of O'Neill Park are in poor condition due to the presence of concentrated human use, disturbance from adjacent construction and developed areas, and high levels of grazing use in and around recent additions to the park. Most of the wildlife habitat in the park is in fair to good condition and is showing signs of improvement with increased control of public use resulting partially from mountain lion safety concerns.

Emphasis Species

A habitat conservation plan for mammals in the park must focus on a few species and groups of species to develop desired management direction and gain public administrative support. Species with regional or local viability concerns must receive priority treatment to insure long-term survival. The loss of any species will reduce the quality of the wildlife resource and thus the park. In addition to species of concern due to potential viability problems, species of special public interest should be used to drive and monitor habitat management objectives. The habitat conservation program needs to be designed to maintain viable populations of all native animals, and to maintain or enhance habitat for special interest species.

In order to simplify discussion of wildlife and habitat management in the Resource Management Plan, the wildlife resource will be discussed in terms of emphasis species or group of species. Trends in populations of these species or their habitat can be used to monitor the effectiveness of park habitat management. Species and groups selected as emphasis species represent species of concern because of their threatened population status, need for special management, or significant public concern. It is hoped that management designed to conserve these species will help insure protection of all species.

(1) Large Mammals - Major large mammals of concern are mule deer, mountain lion, bobcat, coyote, gray fox, badger, raccoon, skunks, and potentially ringtail. Large mammals generally have several things in common: they require large areas of land with diverse, productive habitat and surface water to sustain their existence; and they need the ability to move freely about their home range. With the rapid destruction of large areas of prime habitat for these species, any large areas of natural open space are critical to large mammals of the County.

(a) Mountain lions - have extremely large home ranges consisting of many square miles. One mountain lion with a transmitter entered the park during this evaluation and spent considerable time in and around the park headquarters. Lion sign was also observed in the upper end of Ashbury Canyon. It is possible that several other lions use the park, or will as future build-out of adjacent habitats occur. Mountain lions are largely dependent upon deer for their survival. An adult lion can eat 20-40 deer per year, so healthy deer herds are generally required to maintain healthy lion populations. In addition to deer, lions eat other large prey items such as hares and rabbits, opossums, coyotes and domestic pets.

Lion attacks on humans have occurred recently in nearby Caspers Park. There have been an increasing number of dangerous encounters between lions and humans where development is moving into mountain lion habitat at a rapid pace. The problem with human/lion conflicts occurs in Orange County as judged by lion attacks of humans and close calls. Although there have been no lion attacks in O'Neill Park, there is always the possibility that an attack could occur. The park is doing a very good job of managing the lion situation. Warning notices, releases, signing and public use control are all being used effectively to protect visitors.

Mountain lion density in this potion of Orange County is increasing daily with the rapid development of remaining wildlands which concentrates lions on a smaller land base. Deer numbers and habitat in the park appear to be sufficient to maintain foraging habitat for lions for quite some time, if their habitat is managed properly.

(b) Mule deer - are doing fairly well in the park. They are present throughout the park in all vegetation types. They are fairly tolerant of humans and were capable of being quietly approached within 50 yards many times. Human use of the park is controlled enough so that the deer are not very fearful of humans. Hunting and shooting is strictly controlled although some hunting does take place on adjacent private land and occasionally by trespassers on the park. The distribution of good foraging habitat, mixed with areas providing dense cover for hiding, provide high potential for good deer populations.

Heavy grazing in Ashbury Canyon and recent additions near the Ramakrishna Monastery have seriously reduce deer use of these potentially valuable areas. It appears that concentrated livestock use adversely affects deer use through fouling of water sources, competition for preferred forage, and continual disturbance while cattle are moving for food and water.

Deer movement into and out of the park to the north and east is largely by way of Live Oak Canyon above the developed West Youth Area. Some movement appears to taking place in the developed portion of the West Youth Area due to recent restrictions on public use. This increase in deer activity demonstrates the ability of deer to respond to increased public control.

Deer do not appear to be using the Arroyo Trabuco immediately above the park. Historical movement patterns through this area have been disrupted due to excessive, uncontrolled public use. Dumping, high levels of off-highway vehicle use, and uncontrolled human habitation are rendering this area unsuitable for deer. The oak woodland on the south and east slope above the wash is also impacted due to high levels of human use and uncontrolled construction of roads and shacks for human living quarters. This area could be restored as deer habitat, large mammal movement corridor by controlling public use.

(c) The Coyote is an emphasis species due to its large size and observability, ecological importance as a predator and significant public interest. Coyotes are viewed frequently in and adjacent to the park. Sign and observations of coyotes during the field investigations were concentrated in the washes and riparian areas, on ridge top trails, and on the edges of openings. Dirt roads, firebreaks and trails in the park are heavily utilized by coyotes for movement. With large home ranges required to meet the needs of the coyote, easy access and the ability

to hunt over large areas is important. Coyotes require drinking water and are fairly tolerant of humans when not harassed. They are omnivorous opportunists, eating birds, reptiles and amphibians, small and medium sized mammals, carrion, insects, fruit, berries, and other items.

(d) Bobcats are fairly common in the park and their sign was observed on roads and trails. They feed mostly on rabbits and small rodents near dense cover. They den in natural cavities in logs, rock outcrops, caves, and dense brush. They require drinking water. They are an emphasis species due to the amount of public interest in their well being. This species has a much smaller home range than the mountain lion, and populations appear to be doing well in southern California chaparral ranges. Large, wild cats are extremely popular with the public throughout the world, and bobcats are no exception.

(e) The badger is a State Species of Special Concern. Badgers have been reported on the site in previous studies. Badgers feed primarily on burrowing rodents. Their principal habitat requirements are sufficient food production, friable soils for digging, and large areas of relatively open, uncultivated ground. Although no badgers or their sign were observed during this survey, suitable habitat does still exist in the Park.

(2) Snag Dependent Species- Many wildlife species use snags (dead standing trees or portions of trees) for denning, nesting and feeding. Snag densities are high in undeveloped woodlands in the park. In some developed portions of the park, snags are lacking due to their removal as safety threats.

(3) Dead and Down Dependent Species- Numerous species make use of large woody material on the ground for denning and feeding. This material is also very critical to long term soil productivity in forest and woodland habitats. Dead and down material is abundant in most of the woodlands in the park. Only areas where large amounts of down wood have been removed for campfires are lacking this habitat component.

(4) Riparian Dependent Species- Riparian areas are used by the majority of wildlife species. Some species, such as raccoons, frogs and fish are dependent upon riparian areas. Other species, such as deer, can make it without

riparian areas if water is made available in the uplands, but do much better with quality riparian areas in their home range.

(5) Cottontail rabbits and California Ground Squirrel- These species are of special interest to due to their value as prey species for the predators of the park and their value for public observation. They are some of the most frequently observed native mammals in the park and provide a significant amount of public enjoyment. They are a primary food source for many of the predators in the park and are extremely tolerant of human activity. They are most frequently observed in openings and shrub/grass edges.

(6) Native Fish- Although no survey was conducted for native fish, both the speckled dace and arroyo chub are expected to occur in the perennial portions of the Arroyo. Native fish are seriously threatened in southern California due to the severe alterations that have been made to natural streams. Streams have been channelized in the name of flood control, and others have dried up due to diversions and wells for domestic purposes. Native fish habitat in the Park is being greatly affected by runoff from adjacent developments. It is unclear what the impact these increased flows will have on native fish. Monitoring will need to be conducted in conjunction with the Department of Fish and Game.

Raptor Species

The following is an excerpt from the resource specialist's report; the entire report is included in the Supplemental Appendice.

O'Neill Park is an intensively-used, Orange County Regional Park. As a result, only the most adaptable species of raptors do well in the park.. No threatened or endangered raptorial species nest in the park. Included within the study area are 4-5 pairs of Red-shouldered Hawks, 0-2 pairs of Cooper's Hawks, 2-4 pairs of American Kestrels, 1-3 pairs of Common Barn-Owls, 1-2 pairs of Great Horned Owls, and 3-6 pairs of Western Screech-Owls. Nesting of all the above species with the exception of the Cooper's Hawk has occurred within the last 5 years. No breeding pairs exist in the Island Pasture but several species use it as hunting habitat. Virtually all of the above species are at least in part dependent on the oak and sycamore woodlands within the park.

Several species occur in the area, but do not nest within the study area, including Golden Eagle, Turkey Vulture, Osprey, Red-tailed Hawk, Swainson's Hawk, Ferruginous Hawk, Rough-

legged Hawk, Black-shouldered Kite, Sharp-shinned Hawk, Northern Harrier, Long-eared Owl, and Burrowing Owl. Of particular interest is the fact that the Red-tailed Hawk, Black-shouldered Kite, and possibly the Cooper's Hawk no longer nest on the study area. One pair of Red-tailed Hawks use the Vedanta addition, but no nests were found suggesting that they are nesting off site or that they have not yet built their nest.

All three of these species, and particularly the Black -shouldered Kite, are easily disturbed by people during the nesting season. Nest desertions and failures occur as a result. Ultimately these species have been extirpated from the local study area, but continue to nest just outside the downstream in the Arroyo Trabuco Canyon in 1984 and probably will never nest there again as a result of habitat loss.

The condition or health of the remaining raptor population is good, but is being slowly degraded as human use of the park increases and native sycamores and oaks continue to decline. Most of the raptors in the park are resident with relatively few migrants.

Other than nest sites no highly sensitive areas or concentrations of raptors were discovered. However, all groves of oaks and sycamores should be protected and managed in their natural state to the fullest extent possible.

KNOWN AND POTENTIAL WILDLIFE OF O'NEILL PARK

(From the biological Assessment of Park Addition Parcels by Karlin Marsh, 1985, plus the Wildlife Habitat Relationships Data Base for Southern California, on file at the Riverside Fire Lab, US Forest Service.)

FISHES

Treadfin Shad (Dorosoma petenense)
Rainbow Trout (Salmo gairdneri)
Brown Trout(Salmo trutta)
Arroyo Chub(Gila orcutti)
Golden Shiner (Notropis lutrensis)
Speckled Dace, "Stoneroller" (Rhinichtys osculus)
Black Bullhead (Ictalurus melas)
Channel Catfish (Ictalurus punctatus)
Mosquitofish (Gambusia affinis)
San Juan Creek Threespine Stickleback (Gasterosteus aesculus microcephalus × G. a williamsoni)
Red-eared Sunfish (Lepomis Microlophus)
Largemouth Bass (Micropterus salmoides)

AMPHIBIANS

Class : AMPHIBIA

ORDER: CAUDATE (Salamanders)

FAMILY: SLALMANDRIDAE (Newts)

California Newt (Taricha torosa)

FAMILY: (Ensatina eschscholtsi)
California Slender Salamander (Batrachoseps attenuatus)
Black-bellied Slender Salamander (Batrachoseps nigracentris)
Garden Slender Salamander (Betrachoseps pacificus major)
Aboreal Salamander (Aneides lugubris)

ORDER: SALIENTIA (Frogs and Toads)

FAMILY: PELOBATIDE (Spadefoot Toads)

Western Spadefoot (Scaphiopus hammondi)

FAMILY: BUFONIDAE: (True Toads)

Western Toad (Bufo boreas)
Southwestern Toad (Bufo microscaphus)

FAMILY : HYLIDAE (Tree Frogs and Relatives)

California Treefrog (Hyla cadaverina)
Pacific Treefrog) (Hyla regilla)

FAMILY: RANIDAE (True Frogs)

Red-legged Frog (Rana aurora)
Bullfrog (Rana catesbeiana)

REPTILES

CLASS: REPTILIA

ORDER: TESTUDINES (Turtles)

FAMILY: EMYDIDAE (Pond and March Turtles)

Western Pond Turtle (Clemmys marmorata)

ORDER: SQUAMATA

FAMILY: IGUANIDAE (Iguanids)

Western Fence Lizard (Sceloporus occidentalis)
Side-blotched Lizard (Uta stansburians)
Coast Horned Lizard (Phrynosoma coronatum)

FAMILY: SCINCIDAE (Skinks)

Western Skink (Eumeces skiltonianus)
Gilberts Skink (Eumeces gilberti)

FAMILY: TEIIDAE (Whiptail and Relatives)

Orange-throated Whiptail (Cnemidophorus hyperythrus)
Western Whiptail (Cnemidophorus tigris)

FAMILY ANGUIDAE (Alligator Lizards and Relatives)

Southern Alligator Lizard (Gerrhonotus multicarinatus)

FAMILY ANNEILLIDAE (California Legless Lizards)

California Legless Lizard (Anielia pulchra)

FAMILY: LEPTOTYPHLOPIDAE (Slender Blind Snakes)

Western Blind Snake (Leptotypholps humillius)

FAMILY : BOIDAE (Boas)

Rosy Boa (Lichanura trivirgata)

FAMILY: COLUBRIDAE (Colubrids)

Ringneck Snake (Diadophis punctatus)
Yellow-bellied Racer (Coluber constrictor mormon)
Red Racer (Masticophis flagellum piceus)
Striped Racer (Masticophis lateralis)
Western Patch-nosed Snake (Salvadora hexalepis)
Glossy Snake (Arizona elegans)
Gopher Snake (Pituophis melanoleucus)
Long-nosed Snake(Rhinocheilus lecontei)
Western Aquatic Garter Snake (Thamnophis couchi)
Western Black-headed Snake (Tantill planiceps)
Lyre Snake (Trimorphodon biscutatus)
Night Snake (Hypsiglena torquata)

FAMILY : VIPERIDAE (Vipers)

Red Diamond Rattlesnake (Crotalus ruber)
Speckled Rattlesnake (Crotalus mitchelli)
Western Rattlesnake (Crotalus viridis)

MAMMALS

Class: MAMMALIA

ORDER: MARSUPILALIA (Opossums, Kangaroos, and Relatives)

FAMILY ; DIDELPHIDAE (Opossums)

Virginia Opossum (Didelphis virginiana)

ORDER: INSECTIVORA (Shrews and Moles)

FAMILY: SORICIDAE (Shrews)

Ornate Shrew (Sorex ornatus)
Desert Shrew (Notiosorex crawfordi)

FAMILY : TALPIDAE (Moles)

Broad-footed Mole (Scapanus latimanus)

ORDER : CHIROPTERA (Bats)

Yuma Myotis (Myotis yumanensis)
Long-eared Myotis (Myotis evotis)
Fringed Myotis (Myotis thysanodes)
Long-legged Myotis (Myotis volans)
California Myotis (Myotis californicus)
Small-footed Myotis (Myotis leibii)
Silver-haired Bat (Lasionycteris noctivagans)
Western Pipistrelle (Pipistrellus hesperus)
Big Brown Bat (Eptesicus fuscus)
Red Bat (Lasiurus cinereus)
Spotted Bat (Euderma maculatum)
Townsend's Big-eared Bat (Plecotus townsendi)
Pallid Bat (Antrozous pallidus)

FAMILY: MOLOSSIDAE (Free-tailed Bats)

Brazilian Free-tailed Bat (Tadarida brasiliensis)
Western Mastiff Bat (Eumops perotis)

ORDER : LAGOMOPHA (Rabbits, Hares and Pikas)

FAMILY : LEPORIDAE (Rabbits and Hares)

Brush Rabbit (Sylvilagus bachmani)
Desert Cottontail (Sylvilagus audubonii)
Black-tailed Hare (Lepus californicus)

ORDER: RODENTIA (Squirrel, Rats, Mice and relatives)

FAMILY : SCURIDAE (Squirrels, Chipmunkc and Marmots)

California Ground Squirrel (Spermophilus beecheyi)

FAMILY : GEOMYIDAE (Pocket Gophers)

Bottas Pocket Gopher (Thomomys bottae)

FAMILY : HETEROMYIDAE (Pocket Mice and Kangaroo Rats)

Pacific Pocket Mouse (Perognathus longimembris pacificus)
San Diego Pocket Mouse (Perognathis fallax)
California Pocket Mouse (Perognathus californicus)
Pacific Kangaroo Rat (Dipodomys agilis)

FAMILY: CRICETIDAE (Deer Mice, Voles and Relatives)

Western Harvest Mouse (Reithrodontomys megalotis)
Cactus Mouse (Peromyscus eremicus)
California Mouse (Peromyscus californicus)
Deer Mouse (Peromyscus maniculatus)
Brush Mouse (Peromyscus boylii)
Southern Grasshopper Mouse (Onychomys torridus)
Desert Woodrat (Neotoma lepida)
Dusky-footed Woodrat (neotoma fuscipes)
California Vole (Microtus californicus)

FAMILY: MURIDAE (Old World Rats and Mice)

Black Rat (Rattus rattus)
Norway Rat (Rattus norvegicus)
House Mouse (Mus musculus)

ORDER: CARNIVORA (Carnivores)

FAMILY : CANIDAE (Foxes, Wolves and Relatives)

Coyote (Canis latrans)
Gray Fox (Urocyon cinereoargenteus)

FAMILY: MUSTELIDAE (Weasels, Badgers, and Relatives)

Long-tailed Weasel (Mustela frenata)
Badger (Taxidea taxus)
Western Spotted Skunk (Spilogale gracilis)
Striped Skunk (Mephitis mephitis)

FAMILY : FELIDAE (Cats)

Mountain Lion (Felis concoler)
Bobcat (Lynx rufus)

FAMILY : CERVIDAE (Deer, Elk and Relatives)

Mule Deer (Odocoileus hemionus)

D. WATER QUALITY AND HYDROLOGY - SUMMARY DESCRIPTION OF RESOURCES

Introduction

Water relations is an extremely important part of any natural system. Within O'Neill Regional Park and within the region generally, plant and animal species are dependent on relative availability and quality of water. How various habitats and ecosystems develop, and where they develop, is in large measure due to water conditions. For example, the oak and sycamore woodlands which dominate the Arroyo, and which are highly appreciated for their visual and vital habitat value, are there and continue to exist due to specific hydrologic conditions. It is very important, therefore, to thoroughly understand those existing conditions and how these condtions may be affected by adjacent development and park improvements.

Technical discussions regarding existing features, hydrology, and water quality occur in EIR 463; the Plano Trabuco Planned Community Urban Run-off Management Plan prepared by Williamson and Schmid, 1984; The Schematic Development Plan prepared by Woodward Dike, Inc., 1986; and the Draft General Development Plan prepared by Dike/Runa, Inc. 1988. Information from these reports on existing conditions, is summarized below.

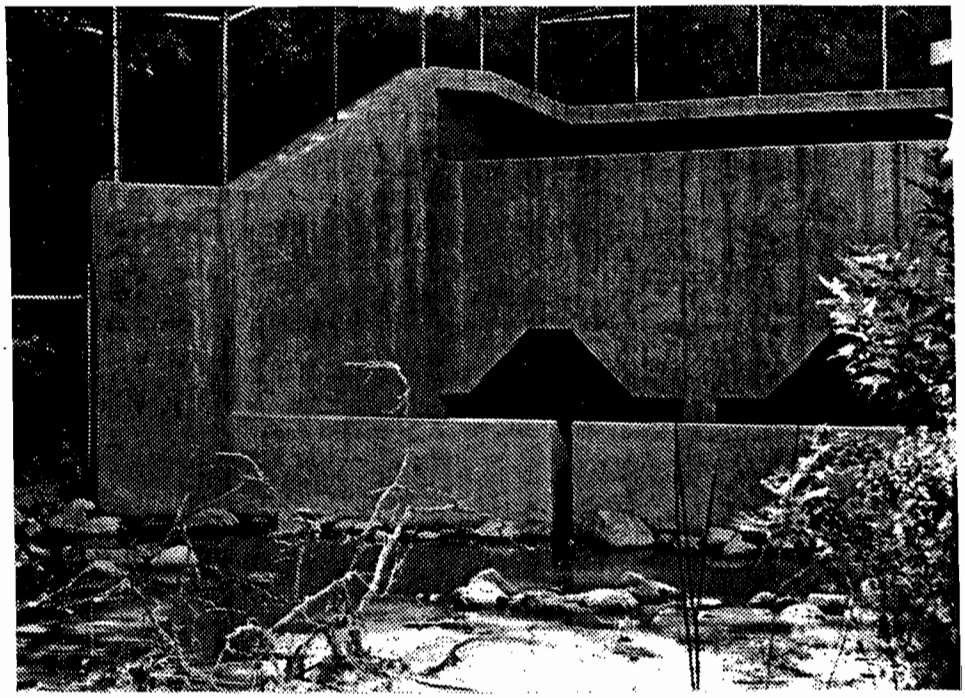
Watershed

"The Arroyo Trabuco Watershed study area is composed of approximately 24,000 acres which is bounded northeasterly by the Cleveland National Forest, easterly by Tijeras Canyon and Arroyo Trabuco, westerly by Live Oak Canyon and Arroyo Trabuco, and southerly by the confluence with Oso Creek, and then subsequently with the confluence with San Juan Creek. Arroyo Trabuco accepts flow from Oso Creek and then ultimately merges with San Juan Creek which flows to the Pacific Ocean near Capistrano Beach. Approximately 19,300 acres of the watershed is tributary to the Arroyo Trabuco at its confluence with Tijeras Canyon". [9]

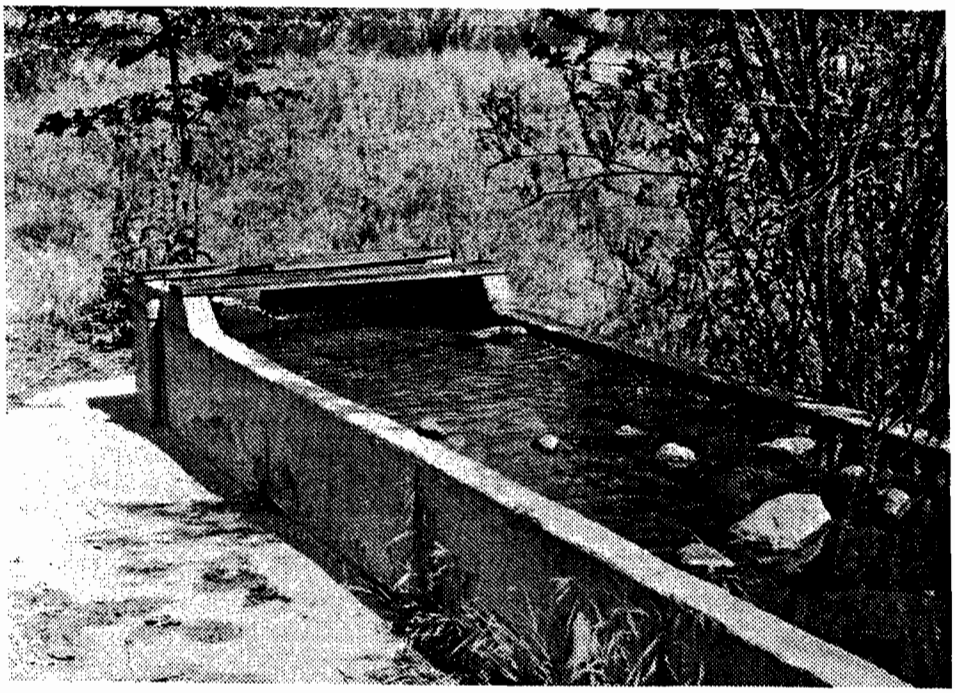
Surface Water and Creeks

The principal onsite creeks within the park are Trabuco, Live Oak, and Oso, which accept flow from numerous smaller drainages. The streambeds are considered to be intermittent, although some flow may occur throughout the year in Trabuco Creek.

Five areas have been identified which perennially contain significant still waters-Oso Reservoir, the Arroyo Trabuco Pond, and three vernal pools in the Vedanta highlands. The biological section of this report extensively describes the rich array of flora and fauna which associates with these habitats, making clear their value and importance as hydrologic features.



78" Stormdrain in Upper Arroyo
Urban Runoff into Trabuco Creek



Waterer in Lower Arroyo

Additionally, several wells exist on site (see Exhibit 8) which were originally used for watering stock animals. Park wildlife now makes use of them as watering holes.

Urban Outfalls

In addition to receiving water from naturally occurring tributaries, Trabuco Creek also receives flow from concentrated urban runoff, via urban stormdrain systems. Eight storm drains exist, or are under construction that daylight into the Arroyo. Three additional stormdrains are proposed. Tijeras Canyon to the east will also receive urban runoff; this water ends up in Trabuco Creek, as Tijeras and Trabuco Creeks join in confluence below Plano Trabuco. Known locations of proposed outfalls are shown in Exhibit 8.

These outfalls distribute not only storm waters , but also low-flow nuisance water from irrigation and incidental water usage. Therefore, some drainage is likely to occur at all times. Ironically, although these urban outfalls carry litter and pollutants and are visual distractions, water from these drains tend to allow the establishment of new, valuable, water-associated habitats. A discussion of these is included in the Biological report.

Groundwater

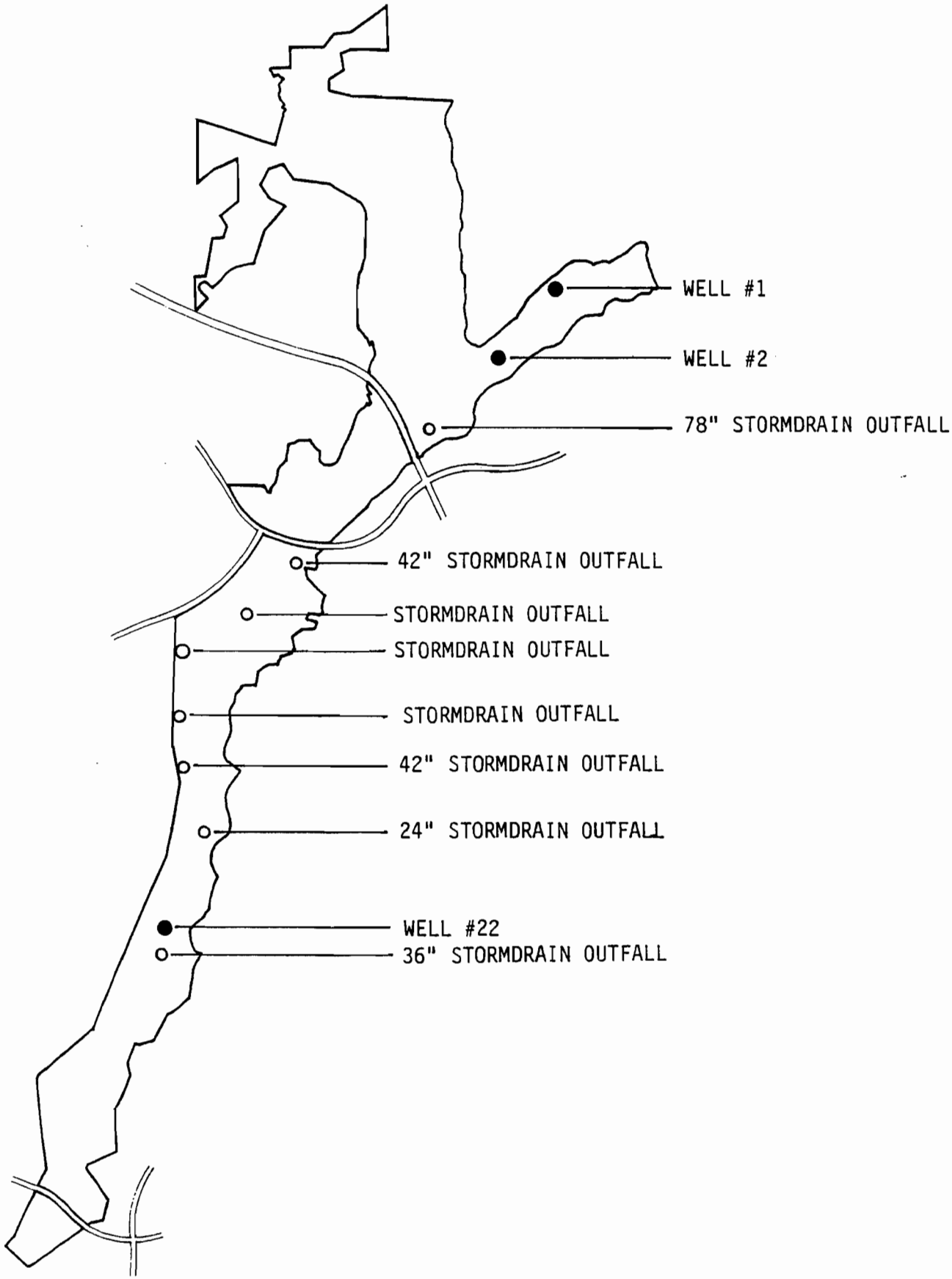
Groundwater and the movements of groundwater are important hydrologic elements. Groundwater as a resource is important not only for use by plants, but also for agricultural, municipal and commercial use.

"In general, trees can be greatly impacted by changes in groundwater availability. A rise or a drop in level can adversely or critically affect trees accustomed to particular groundwater conditions. Groundwater occurs in the alluvial deposits which underlie Trabuco Creek, and presumably Live Oak and Oso Creeks. The water tables within channel alluvial sediments are recharged by stream flow infiltration". [10]

Water Quality

It goes without saying that water quality is an important factor in all living systems. As more thoroughly discussed in the Biological Report in the Supplemental Appendices, aquatic flora and fauna which live within streams and still water are most directly affected by water quality. Also significant are the effects of water quality on animals which feed on aquatic species and/or which drink those waters. No ill effects can be considered insignificant, because many sensitive species, though small and unseen as in the case of many invertebrates, are very important to the integrity of an ecosystem and food chain.

Currently, the waters of O'Neill Regional Park can be considered impacted from adjacent agricultural and urban uses. Pollutants which have been identified include heavy metals, suspended solids, nutrients, and oxygen-demanding organic substances.



EXISTING AND PROPOSED STORMDRAIN OUTFALL

EXHIBIT

O'NEILL REGIONAL PARK

COUNTY OF ORANGE

The relative proportions of these pollutants is likely undergoing a change, since this historically agricultural area is becoming more urbanized, and pollutants from agriculture differ from those of urban areas.

A study of surface waters in 1988 undertaken by a park intern and described in the Biological Report, Section 3.4 of the Appendice, indicates that significant changes in water quality are taking place. The Urban Run-off Management Plan also identifies several pollutants as currently being in excess of safe drinking water standards. [11] Additionally, water coming from storm drain outfalls carries with it significant amounts of litter, debris and trash. Besides visual impacts, this trash could be hazardous to visitors and park wildlife.

Another source of pollution that should be considered and evaluated is the equestrian facility, a potential contributor of nitrates to surface and groundwater. Proposals for expansion of the equestrian facilities should address the issue of impacts on water quality.

As urbanization continues adjacent the park within the Arroyo Trabuco watershed, an increase in the occurrence and concentrations of pollutants can be expected. A discussion of those impacts occurs in The Impacts and Mitigation/Management Section of this report.

E. CULTURAL RESOURCES

ARCHAEOLOGY

The following is an excerpt from the resource specialists report; the entire report is included in the Supplemental Appendices.

Cultural Setting

The O'Neill Park study area lies within a boundary area between two prehistoric cultures, known today as the Juaneno and Gabrielino (Bean and Shipek 1978, Bean and Smith 1978). The name "Juaneno" identifies those people who were under the control of the Spanish Mission San Juan Capistrano. The name "Gabrieline" identifies those people who came under the control of the mission at San Gabriel. The names, therefore, do not identify specific ethnic or tribal groups. The names the native groups used to identify themselves have, for the most part, been lost.

The latter part of the archaeological record, from the Millingstone to the early Historic Period, is well represented in the O'Neill Park vicinity. Numerous sites excavated within the vicinity have yielded all classes of artifacts known to be made or used by the Juaneno and Gabrielino.

The first Europeans to see what would become Orange County were members of the 1542 expedition of Juan Rodriguez Cabrillo. However, Cabrillo sailed along the coast and did not explore inland. Europeans did not return to the Orange County area until 1769 when Gaspar de Portola led an overland expedition from San Diego to Monterey. This expedition of 63 persons passed directly through the study area. Several of the names they chose are still in use. For example, the name Trabuco stems from the loss of a weapon in the area. A Trabuco was a type of Spanish blunderbuss. Portola is also credited with naming the San Francisco Solano, which now contains the remains of a Spanish Period adobe.

The first permanent settlement in Orange County came when San Juan Capistrano was selected as the site for a Mission in the spring of 1775. The Mission did not become operational until November, 1776.

The first Orange County settlers described the Native American population as very backward and crude, wearing little clothing and subsisting marginally on small game, seeds and berries (Morgan 1973). It is now realized that this picture of the native population is very distorted. The Spanish settlers were describing a population which had been decimated by imported diseases. What remained was only a pitiful remnant of what was once a flourishing and well advanced culture.

The Trabuco Adobe sited near the place where the Portola expedition camped was constructed about 1841. The adobe served as a residence

for an official from Mission San Juan Capistrano who supervised farming and ranching activities in the Plano Trabuco area. On 31 July, 1841 the government granted a large tract of land to Santiago Arguello, an administrator at San Juan Capistrano. This grant, which includes all of the current study area, was named the Rancho Trabuco. Two years later Arguello sold the property to Don Juan Forster.

The Mexican War ended on 2 February 1848 with the signing of the treaty of Guadalupe Hidalgo. The treaty established California as a United States possession. From the beginning of the American Period to the 1980's, the study area vicinity was primarily used for ranching and agriculture. However, the 1980's building boom has reached the study area and residential construction is currently occurring all around the periphery of O'Neill Regional Park.

Prior Cultural Resources Research

A great number of archaeological sites and at least one historical deposit are know to exist within the current boundaries of O'Neill Regional Park.

A considerable amount of excavation has been done on sites within and near O'Neill Regional Park. The work is certainly extensive enough to allow development of a broad cultural framework for the region's prehistory. Unfortunately, the reporting of much of the excavation work has not been completed, or the finished reports have not been filed with appropriate repositories. Within the last decade many local sites were excavated by Marie Cottrell, Archaeological Research Management Corporation (ARMC), but the reports have either not been completed or have been completed and submitted
only to the sponsor, primarily the Mission Viejo Company. The latter case is known to be true for several reports, since they are cited in a later ARMC report completed by Carol Demcak. As part of this project letters were sent in early December 1988 to both the Mission Viejo Company and to Cottrell requesting copies of the subject reports. To date no response has been received from either Cottrell or the Mission Viejo Company. Copies of the letters are in the Appendix.

Twenty eight archaeological and two historical deposits are know to exist within the current park boundary or within immediate proximity to the boundary. These deposits are described below, proceeding from north to south.

O'Neill Regional Park Cultural Resource Site Status

Table 1 summarizes the present state of knowledge concerning the cultural resources deposits known to exist within O'Neill Regional Park. No effort has been made to characterize the sites in terms of age or site activities, since very little analytical information is

available. Instead, Table 1 is focused on the present condition of each site and identifies any work known to have been accomplished.

Table 1 reveals that the significance of most of the O'Neill Park deposits has yet to be established. Meaningful cultural resources management decisions can only be made when the significance of the deposits in question is known.
The prime focus of future research effort at O'Neill Park must be to first establish the significance of the deposits.

TABLE 1

Status of Cultural Resources at O'Neill Regional Park

SITE	SIGNIFICANCE	CURRENT CONDITION	PREVIOUS EXCAVATION
CA-Ora-36	Unknown	Intact	None known
CA-Ora-641	Unknown	Destroyed	None known
CA-Ora-690	Unknown	Intact	None known
CA-Ora-691	Unknown	Intact	None known
CA-Ora-692	Unknown	Intact	None known
CA-Ora-692	Unknown	Intact	None known
CA-Ora-784	Unknown	Intact	None known
CA-Ora-784	Unknown	Intact	None known
CA-Ora-785	Unknown	Intact	None known
CA-Ora-786	Unknown	Damaged	None known
CA-Ora-853	Significant	Destroyed	Demcak (1986)
CA-Ora-862	Unknown	Intact	Cottrell, no report.
CA-Ora-863	Unknown	Intact	None known
CA-Ora-864	Unknown	Intact	None known
CA-Ora-865	Unknown	Intact	None known
CA-Ora-866	Unknown	Intact	None known
CA-Ora-867	Significant	Destroyed	Demcak (1986)
CA-Ora-868	Unknown	Intact	?, no report.
CA-Ora-869	Unknown	Intact	None known
CA-Ora-870	Unknown	Intact	None known
SITE	SIGNIFICANCE	CURRENT CONDITION	PREVIOUS EXCAVATION
CA-Ora-871	Significant	Destroyed	Cottrell (1982), but report not available
CA-Ora-872	Unknown	Destroyed	None known
CA-Ora-874	Significant	Destroyed	Cottrell (1982), but report not available
CA-Ora-875	Unknown	Intact	None known
CA-Ora-876	Significant	Damaged	Some excavation, but report is not available
CA-Ora-897	Unknown	Intact	None known
CA-Ora-898	Unknown	Intact	None known
CA-Ora-1044	Unknown	Damaged	None known
CA-Ora-1045	Unknown	Destroyed	None known

CA-Ora-1046	Unknown	Destroyed	None known
CA-Ora-1079-H	Significant	Destroyed	Demcak (1986)

With the exception of CA-Ora-876, which is twice listed in the California Inventory of Historic Resources, and which has been suggested for nomination to the National Register of Historic Places, no great importance has been attacheD to any of the O'Neill Regional Park cultural resource deposits. It is probably true that no single deposit has, by itself, any great degree of importance.
However, this evaluation changes dramatically when one considers all of the deposits as a whole.

Excepting only a Paleo-Indian component, the entire archeological and historical sequence of the region is represented within the O'Neill Regional Park deposits. The importance of this observation cannot be over emphasized. The completeness of the archaeological and historical record within the local deposits is a unique situation. Certainly, extensive deposits are known from elsewhere in Orange County, but seldom is a situation encountered where a rather small area can be demonstrated to contain an entire, complete and unbroken cultural sequence.

Not only is the local cultural sequence complete, but the area in question has been the locale of many major events important to our understanding of the past. For example:

1. The density of archaeological sites indicates that the area was favored by prehistoric people and that a large population, when compared to other areas, subsisted from the Plano Trabuco and Arroyo Trabuco resources. The archaeological deposits are unique, in that:

   A. All but the Paleo-Indian Period is represented. Taken as a whole, the sites will undoubtedly contain the material for identifying cultural evolution over an extremely long period of time. Careful control may even expose a Paleo-Indian component. This oldest material may be present, but buried so deeply that it no longer has any surface indication.

   B. A full range of prehistoric activity is represented in the local deposits. Examination of the site descriptions given earlier in this report reveals quarry site, chipping stations, seed and vegetable fiber processing stations, hunting encampments, seasonal encampments and permanent villages.

2. The Arroyo Trabuco area was very active during the Mission Period. The area was excellent for cattle grazing, so much so that an adobe residence of a mission representative was constructed.

3. It is evident that the beginning of the Mission Period was a time when many Native Americans resided in and near the Arroyo Trabuco. The local area was quite probably one of the major centers of initial contact between the Native Americans and the Europeans. Evidence of this contact is undoubtedly contained in the subsurface of many of the deposits.

4. Heavy agricultural and citrus farming have been continuous in the area since the early American Period.

   This activity still takes place in the present day, with the switch from agriculture to residential development.

   It is clear that the O'Neill Regional Park cultural resources are extremely significant when viewed as a whole, rather than as a series of unrelated sites. It is the current researcher's belief that the deposits would easily qualify for inclusion in the National Register of Historic Places as an Archaeological District. It is recommended that a nomination study be immediately undertaken by the park, either through use of internal resources or through hiring a professional consultant to perform the task. The nomination should include all of the sites discussed in this report, as well as others which are near O'Neill Regional Park. Sites outside park boundaries should be included only if they add significantly to the strength of the nomination to the National Register of Historic Places.

PALEONTOLOGY

Geologic History

The southern California region has a long and varied geologic history. Rocks formed as long ago as 270 million years record the animal life, climates, and geologic activity of the region. The majority of these rocks were deposited in or along the shores of seas that have occupied the region. Exposed in Orange County are 25,000 feet of sedimentary rocks ranging in age from Late Cretaceous (75 million years ago) to the present. These rocks record the advance and retreat of seas from Orange County. Preserved in these rocks are the remains of the animal and plant life that lived during this time period. It is from this combination of rocks and fossils that we are able to develop a picture of what Orange County was like during this time period. Within O'Neill Park are rocks that represent the middle and latter portions of this record. In these rocks is a record of the retreat and advance of the sea, and the deposits of streams left during the "Ice Age" after the final retreat of the sea.

The oldest rocks exposed within the Park are assigned to the Santiago Formation. These 40+ million year old sediments were deposited along the margins of a tropical sea.

The shoreline was inhabited by a variety of primitive mammals, some of which have left modern descendants and others that have not. These rocks represent the final stages of the sea that covered southern California for most of the previous 100 million years.

As the sea withdrew from the area, a delta advanced depositing the rocks of the Sespe Formation. The sandstones and conglomerates exposed within the Old Park represent the stream channels of this advancing river delta. The climate 30+ million years ago was warm and moist. Fossils from the Sespe Formation of Simi Valley indicate that

a large and diverse assemblage of animals lived in southern California at the time, ranging from extinct turtles to extinct types of rhinoceroses, horses, camels, etc.

This retreat of the sea was short lived; by 25 million years ago the ocean had once again invaded the area of the park. O'Neill Park was located along the eastern side of the Capistrano Embayment, a large structural depression that formed in the Early Miocene. The Capistrano Embayment eventually covered most of southern Orange County from the San Joaquin Hills to the Santa Ana Mountains and extended as far inland as Anaheim Hills. The initial advance of the sea is recorded in the sandstones and mudstones of the Vaqueros Formation. The seas teamed with abundant vertebrate and invertebrate life, while on shore, primitive horses, camels, and a variety of rodents roamed. The climate was warm and moist. The area of the park was probably a shallow protected bay along the margins of the embayment.

As the embayment continued to deepen, the park area became part of a barrier beach complex that is now preserved in the sandstones of the Topanga Formation. These sedimentary rocks were deposited along the beaches of the Middle Miocene sea, 15+ million years ago. The Miocene sea contained abundant marine vertebrates and invertebrates, many of which have descendants that are found in tropical seas today. On land, primitive horses, deer-like animals, and camels browsed on tropical vegetation.

The Capistrano Embayment reached depths in excess of 1000 feet by the Late Miocene, 10+ million years ago. The sea was cooler than the Middle Miocene sea, but continued to support a large assemblage of the marine vertebrates and invertebrates. Leaves recovered from formations related to the Monterey Formation of the park indicate that the climate was warm, moist, and subtropical.

The geologic record for the park area is interrupted at this point, but can be inferred on the basis of information from areas immediately to the west. The Capistrano Formation of Late Miocene through Middle Pliocene age records the continued deepening of the embayment until it reached a depth in excess of 3,000 feet by million years ago. During the late Pliocene, deposition of sediments exceeded the rate of

subsidence of the basin and the level of water became increasingly shallow. There were local uplifts throughout the basin. O'Neill Park was very close to the shoreline, based on the record preserved in the rocks west of the park.
The climate was warm and moist; winters were probably frost free and streams flowed year around.

The final destruction of the Capistrano Embayment began during the late Pleistocene. This event is recorded within O'Neill Park in the deposits left by streams flowing across the area from the rising Santa Ana Mountains. These are now exposed as terrace deposits on Plano Trabuco and the flanks of Arroyo Trabuco. Plano Trabuco may represent an older erosional surface, which has been uplifted in the past few thousand years. The timing of the deposition of the terrace deposits and uplift is uncertain because of the lack of fossils and any precise means of dating the deposits. Similar deposits elsewhere in Orange County are known to contain the remains of "Ice Age" or Pleistocene age land animals approximately 50,000 years old.

The final chapter in the geologic history of the region is the down cutting and development of the present day Arroyo Trabuco. This event probably took place within the past 10,000 years and may be continuing today.

The development of the Capistrano Embayment in southern Orange County resulted in the nearly continuous deposition of several thousand feet of fossiliferous sediments ranging in age from 25 million years old to a few years old. These rocks record the events that took place in the region during this time. O'Neill Park contains a portion of this record from the beginning and the end of the Capistrano Embayment.

Discussion of Paleontological Resources

The rockunits within O'Neill Park contain the record of 35+ million years of life on earth. The oldest rocks exposed within the park are 45+ million years old; the youngest are now being deposited.

The known and potential paleontological resources within O'Neill Park represent significant resources, because they will allow scientists and the public to develop a better understanding of the region's rich geologic history.

These resources may provide the scientific community with the opportunity to develop a means of correlating the various time scales used to determine the age of various events in the geologic past. The joint occurrence of marine vertebrates, marine invertebrates, and terrestrial mammals in the Vaqueros and Topanga Formations, and the interfingering relationship of the Sespe and Vaqueros Formations provide the basis for such a correlation. The development of this correlation will allow paleontologists on the west coast to equate the marine sedimentary sequences to the non-marine sedimentary sequences of the Great Basin region, thus allowing the correlation of time

scales based on marine invertebrates and terrestrial vertebrates. This is critical to development of a time scale that includes the marine vertebrates.

The Vaqueros, Topanga, and Monterey Formations present scientists with the opportunity to collect fossils from stratigraphically superimposed formations. This provides scientists with the means to develop ancestor-descendant relationships, note changes in the fauna with time, and to develop an understanding of the biogeographic distributions of the animals.

The discovery of fossils that indicated the exact age of Sespe Formation and the Quaternary terrace deposits would represent a major addition to the region's paleontological resources and geologic history.

Such fossils would allow earth scientists to develop a clearer picture of the timing of events at the beginning and end of the development of the Capistrano Embayment.

Fossils from the terrace deposits could provide information on the timing of the development of Plano Trabuco, the rise of the Santa Ana Mountains, and faulting in the region.

Paleontological Sensitivity Ratings

Five paleontological sensitivity ratings or zones have been developed by paleontologists familiar with the rock units exposed in Orange County. No paleontological sensitivity is for volcanic or granitic rocks, which because of their molten origins will not contain fossils. A low paleontological sensitivity suggests little likelihood that fossils will be encountered during development. A moderate paleontological sensitivity implies that fossils may be encountered during development. A high paleontological sensitivity indicates that it is extremely likely that fossils will be encountered during development. An undetermined paleontological sensitivity is a reflection of the lack of adequate information on a formation's paleontological resources to place it in one of the four other ratings.

Within the current study area are rocks ranging from high to low sensitivity for the discovery of significant fossils. These ratings and their distributions are presented in the Resource Specialist's report in the Appendice.

- High paleontological sensitivity

  Vaqueros formation
  Topanga formation
  Monterey formation

- Moderate to high paleontological sensitivity

  Santiago formation

- Low to moderate paleontological sensitivity

  Sespe formation

- Low paleontological sensitivity

  Quaternary terrace deposits
  Recent alluvium

The assignment of a high sensitivity to the Vaqueros, Topanga, and Monterey formations is based on the discovery of abundant fossils at several locations in southern Orange County. The presence of several occurrences of abundant fossils exposed in the Topanga and Vaqueros formation within and immediately adjacent to O'Neill Park indicates that significant fossils are present in these two formations within O'Neill Park.

The moderate to high sensitivity assigned to the Santiago formation is a reflection of the abundance of fossils collected from this formation in San Diego County. These fossils were collected exclusively from man-made exposures such as road cuts or housing developments. Similar intensive development in Orange County is expected to result in similar discoveries.

An assignment of a low to moderate sensitivity is justified for the Sespe formation, because of it's limited past production of fossils and the coarse nature of the majority of the unit, which indicates that it accumulated in an environment that is not conducive to the preservation of fossils. Extension of the information from exposures outside Orange County suggests that the Sespe formation contains fossil remains. The presence of the contact between the Sespe and Vaqueros formation in the Old Park and Vedanta addition suggests that there may be some interfingering between the two formations. Where this interfingering occurs in Orange County, significant fossils have been recovered.

The low sensitivity assigned to the Quaternary terrace deposits is based on the past discoveries of "Ice Age" land animals at several localities within Orange County.

F. VISUAL AND AURAL QUALITY

VISUAL QUALITY

A variety of aesthetic resources exist within O'Neill Park. The overall dominance of a rural, natural character has been recognized as one of the most important resources the park has to offer. As is stated in EIR #463:

> The O'Neill Regional Park study area contains a variety of aesthetic resources related to geologic and landform characteristics, vegetative cover, water elements, focal attractions and local features. The aesthetic appeal of the Park lies in its natural beauty and the rural character of the surrounding area.

As an ultimate goal, any current or future urbanization around the periphery of O'Neill Regional Park including grading, structures, roads, etc. should respond to maintaining the rural, natural character of the park experience.

The following is a summary (taken from EIR #463) of significant aesthetic resources which characterize O'Neill Regional Park:

Landforms:

Live Oak Canyon - a tributary canyon to the Arroyo defined by its closed canopy oak woodland and scenic Live Oak Canyon Road entry to the Park.

Arroyo Trabuco - a well-defined drainage course and topographically enclosed landform highlighted by picturesque rock outcroppings and steep side slopes.

Upper Oso Watershed - a gently rolling to steeply dissected valley bottom containing the Upper Oso Reservoir.

Ashbury Canyon - a smaller scale tributary canyon to the Arroyo more open in character than the Arroyo.

Biotic Resources

Oak and riparian woodlands associated with the major drainages.

Wildflower displays and unusual or limited distribution natural plant species infrequently seen.

Indigenous fauna, including deer, raptors and songbirds.

Geologic Resources:

The Palisades rock outcrop system on the westerly side of the Arroyo Trabuco.

Hydrologic Resources:

Trabuco Creek, an intermittent running stream located within the Arroyo Trabuco.

Arroyo Trabuco Pond, an impounded reservoir within the Arroyo Trabuco.

Upper Oso Reservoir, a man-made impoundment of water located in the Upper Oso watershed.

Historical Resources:

San Francisco Solano and Trabuco Adobe ruins, the remnant of the second oldest structure in Orange County.

Rockery walls and recent historical buildings of O'Neill Park.

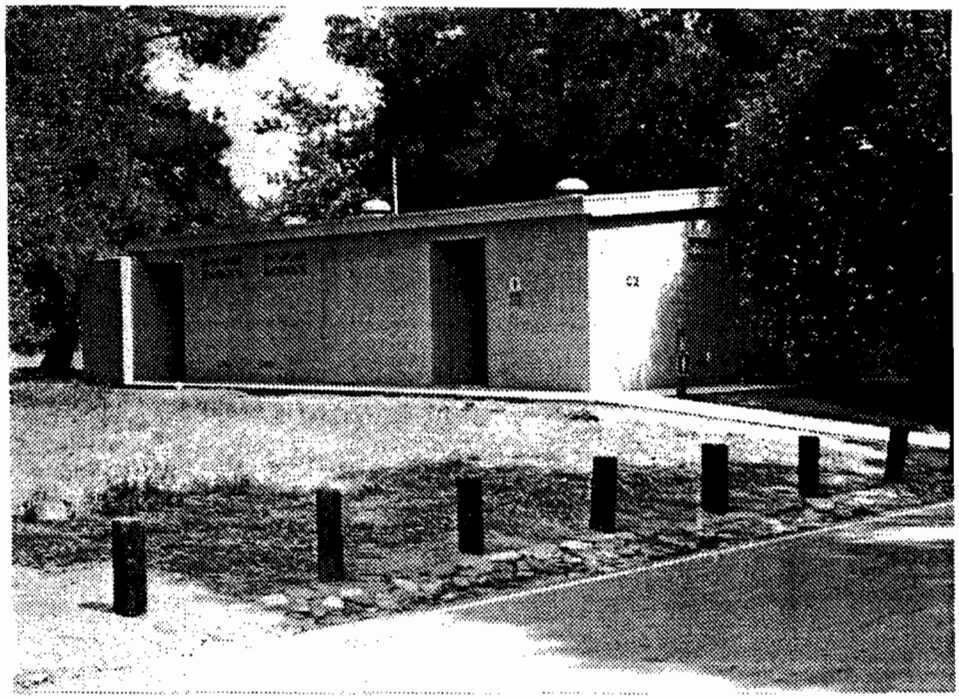
Internal Views

Currently O'Neill Park affords exceptional internal views ranging from the closed-canopy oak woodland characteristic of the West Youth Group Area to the open riparian corridor character of the Lower Arroyo. Exceptional views down into the park from on-site viewpoints include the site of the water tanks and the Mesa Bluff top. From these points, aerial views of the Arroyo, West Youth Group and portions of the Vedanta addition can be seen. One gets a wonderful overall perspective of the parkland.

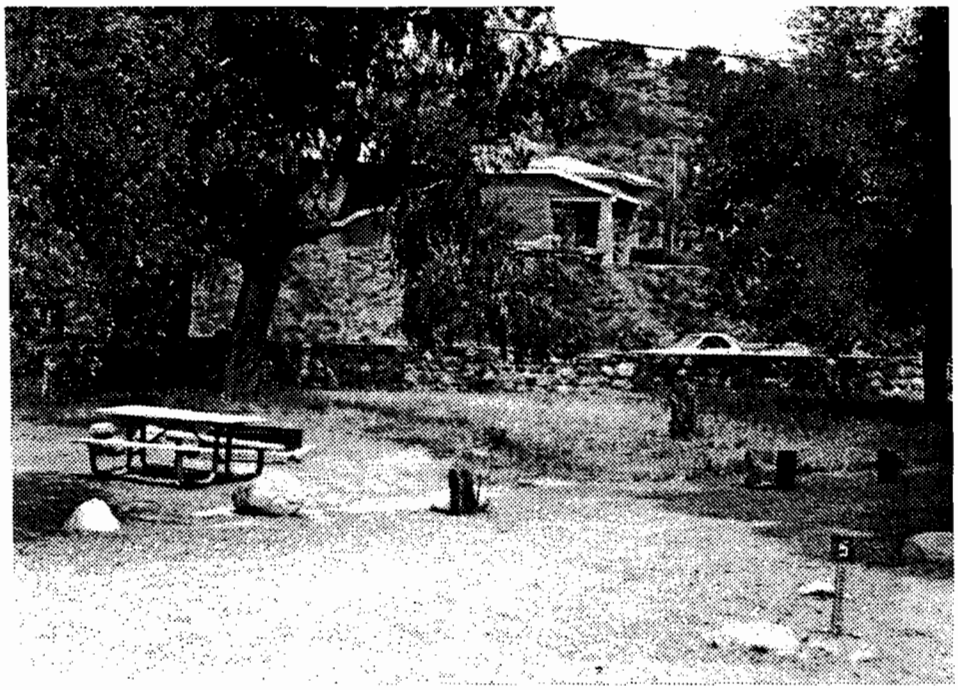
Elements of visual interest within the park include the diversity of vegetation communities, extensive rock outcrops within the Arroyo Trabuco, a variety of ponds and intermittent streams and architectural remnants of the San Francisco Solano and Trabuco Adobe ruins, O'Neill Park historical buildings and the old Hoffman Homestead. Less desirable views within the park primarily come from the lack of understory within use areas. The lack of understory also contributes to the declining nature of some of the trees. Visual quality with respect to privacy also can be attributed to the lack of understory.

Another area of concern are the existing and proposed outfall structures and the debris they discharge into the Arroyo. As with other visual impacts this will be discussed in the Impacts and Mitigation/Management Section of our report.

Park improvements offer a mixed bag with respect to aesthetic appeal. Such architectural features as the entry/gatehouse and the Trabuco Canyon entry building remain consistent with the canyon vernacular



Existing Park Restrooms
Example of Non-vernacular Architecture



Campground Interface With Live Oak Canyon Road

architecture. Other features such as restrooms, campsites and furniture in general provide an inconsistency with respect to park character.

Existing and future highway improvements not only threaten wildlife movement but also have a visual quality that is inconsistent with park character. The ultimate widths of 150' for the Foothill Transportation Corridor and 104' for Santa Margarita Parkway Bridge will represent a major break in the wilderness experience of the park.

External Views In

The current visual experience while driving the perimeter of the park is one that emphasizes views into the park. While it is desireable to preserve this experience, the conflict between the auto and park user as described earlier is an undesirable situation. A goal of park redevelopment should be to balance the desire to perceive park land and open space from the road, while protecting the park user from negative impacts such as auto noise, dust and exposure.

As development expands along park boundaries,such as Santa Margarita, views into the park will remain desirable. As has been experienced with Santa Margarita, however, park use is not always compatible with residential development. Protective measures such as vegetative screening, changes in elevation berming and ridgeline protection are of utmost importance if these two land uses are to interface successfully.

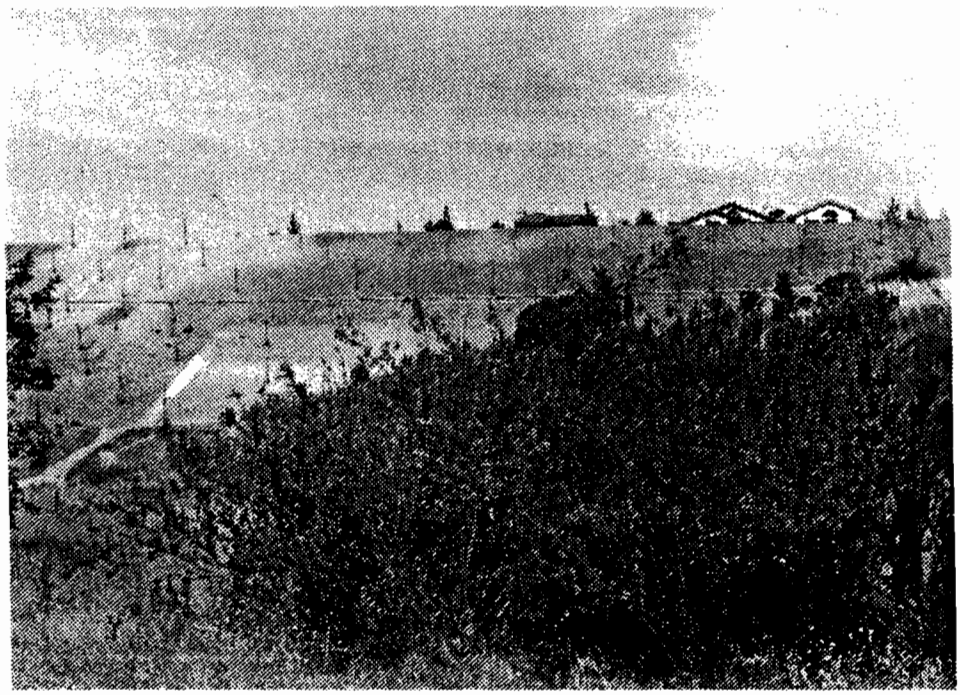
Currently Santa Margarita Parkway bridges the Lower Arroyo. While views into the park from the highway are desirable, associated noise and debris are not. Within the Impacts and Mitigation/Management Section, mitigation for the Santa Margarita Parkway and the future Foothill Transportation Corridor are discussed.

Internal Views Out

Viewpoints scattered throughout the park offer excellent distant views of the Saddleback area. These viewpoints are described in further detail in the Biological Section of this report. The viewpoints include the Ridgecrest trail, the Upper Bowl-West Youth Group Area, the water tanks site and various points in the Vedanta Addition. While these offer magnificent panoramas of the surrounding areas, many views from within the park to outside the park are less desirable.

The visual interface along the Santa Margarita edge, along the Live Oak Campground and to some degree along the West Youth Group edge are impacted by dense housing, roads or both. As described earlier, this detracts from the "natural" experience desirable to the recreation experience in O'Neill Park.

A viewshed boundary analysis can be found in Fong & Larocca's Report 1975. It states:



Visual Interface Along Mission Viejo Edge

Santa Margarita Parkway Bridge

"Lands to the south of the 232 acre Vedanta property are quite exposed to view from the upper reaches of the park. Additionally, lands within view from the future wilderness park in the Arroyo Trabuco downstream from existing O'Neill Park would also be important for consideration for land use controls."

And further states:

"As indicated in the Viewshed/Boundary analysis, the proposed boundary has been defined to generally include within the park all those surrounding hills within view from either side of the Arroyo bottom. The lines of sight indicated on the cross-sections taken at intervals through the Arroyo study area have been drawn to a point 30 feet above the existing terrain. This will allow the future construction of structures up to 30 feet in height adjacent to the park boundary and still keep them out of view from the Arroyo bottom. A major exception to this guideline of including within the park all property within view from the arroyo bottom has been made for approximately 3,000 feet along the northwestern of the proposed wilderness park in the southern sector. It is not topographically possible in this 3,000 foot long area to acquire all properties within view for the Arroyo bottom without a major acquisition of hundreds of additional acres. It is within this 3,000 foot long area, therefore, that extensive visual screening would be required in the form of drought-resistant tree planting".

and...

"the viability of the concept of a wilderness park surrounded, in the future, by new communities hinges upon the visual isolation of the wilderness park user from this eventual development." [12]

As development trends continue around the periphery of the park, internal views out should be preserved where possible and ridgelines protected from development. Where intervening topography does not adequately screen view of such development, an urban edge treatment should be implemented. These and other programs are described further in the Impacts and Mitigation/Management Section of this report.

AURAL QUALITY

O'Neill Regional Park is currently defined as a "natural regional park". Associated with this designation are the wilderness areas of the Lower Arroyo Trabuco and the Vedanta addition.

The connotations of the "natural" and "wilderness" designations are of a peaceful, serene, backwoods nature. While this type of experience will be available in some portions of the park, many existing and proposed heavy use areas are negatively impacted by noise. The traffic noise currently experienced in Live Oak campground, West Youth Campground and the Mesa Campground contradict the expectation of a

"natural" experience. This traffic noise, in the case of Live Oak and West Youth Group Campgrounds, is attributed to Live Oak Canyon Road and Trabuco Canyon Road.

"Approximately 1.9 miles of this roadway are contiguous to the park, nearly all of which is immediately adjacent to camping areas.

Indeed traffic noise on these roads has been known to exceed 5,000 vehicles per day for certain peak Sundays."[13] Roads which service the Santa Margarita development similarly impacts the Mesa Camping experience.

Increased future traffic flows will only add to this problem. Ultimate buildout of the Foothill Transportation Corridor, Santa Margarita Parkway and other surrounding arterials will also have a significant noise impact on the park experience. As the EIR #463 states:

> "The most significant noise generator at the park will be associated vehicular traffic along the Foothill Corridor. Distance to the CNEL 65 contour from the Foothill Corridor is estimated at 3,797 feet from centerline. Figure 22 depicts the noise contours from the Foothill Transportation Corridor. This exposes 505 acres of the Schematic Development Plan area to noise levels above 65 CNEL emanating from the Corridor .

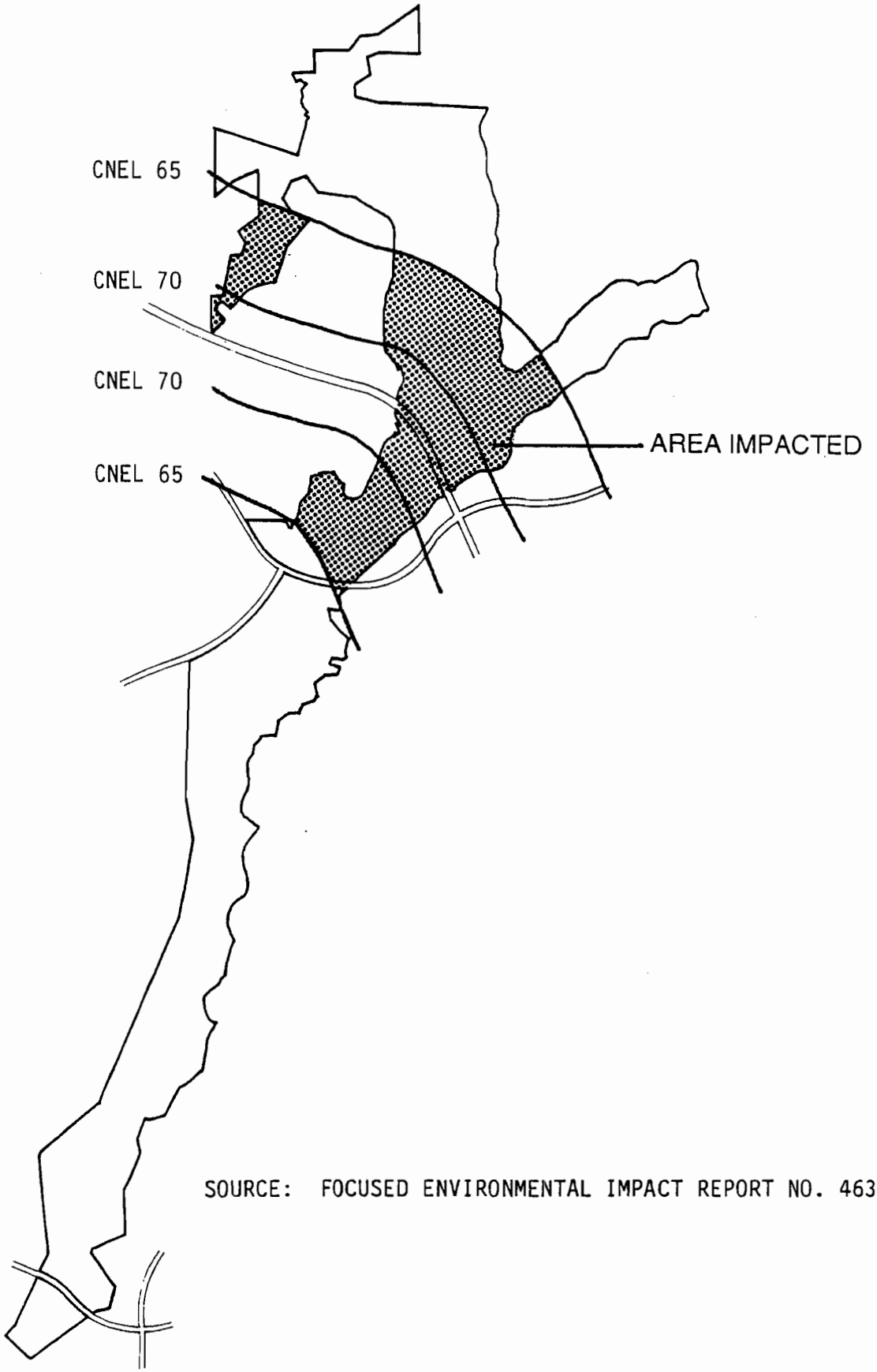
In addition:

> "The second most significant surface transportation noise generator is Santa Margarita Parkway. As shown in Table 2, distance to the CNEL is estimated at 48 acres".

And:

> "Although El Toro Road and Alicia Parkway have roughly equivalent projected traffic volumes where they proximate the Park vicinity, El Toro Road is set back adequately so as not to significantly impact Park Uses .
>
> "Conversely, Alicia Parkway borders the Park. Distance to the CNEL 65 contour is estimated at 277 feet, exposing 19 acres of parkland to noise levels above 65 CNEL". [14]

The adopted SDP by the Board of Supervisors calls for walk-in camping to occur south of the existing park boundary in the Arroyo. Compatibility of existing and proposed uses with these projected noise levels will be a subject of further discussion in the Impacts and Mitigation/Management section of this report.



SOURCE: FOCUSED ENVIRONMENTAL IMPACT REPORT NO. 463

FOOTHILL TRANSPORTATION CORRIDOR NOISE EXPOSUR

EXHIBIT

O'NEILL REGIONAL PARK

COUNTY OF ORANGE

TABLE 2

CNEL NOISE VALUES - EXISTING AND GENERAL PLAN BUILDOUT

(Distance to 60, 65[1] and 70[1] dB CNEL)

Roadway	Existing[a]	Ultimate[b]
Live Oak Canyon Road	Negligible	202/72/41
Trabuco Canyon Road	Negligible	Negligible
El Toro Road	Negligible	708/226/79
Foothill Corridor	(63.0)[2]	12,006/3,797/1201
Santa Margarita Parkway	Negligible	1,423/451/146
Alicia Parkway	Negligible	871/277/94
Oso Parkway	Negligible	939/298/100

(a) County of Orange Supplement EIR 265 - Tentative Tract 11262 - Robinson Ranch Planned Community - 1981.

(b) County of Orange - Draft EIR 320 - General Plan Amendment 82-2 - Plano Trabuco Planned Community 1982 (Technical Appendices - H - Acoustical Data).

(1) These distances do not take into account the noise from MCAS El Toro flyovers.

(2) MCAS El Toro Noise Contour used as reference since roadway does not exist.

SOURCE: FOCUSED ENVIRONMENTAL IMPACT REPORT NO. 463, P. 4.94

G. MULTIVALUE SENSITIVITY MAP

Multivalue Map and Use Guidelines

The Rating System

The Multivalue Sensitivty Map categorizes areas of the "Old Park" and Vedanta addition according to their resource sensitivity, using the system developed to categorize the resources within the Arroyo Trabuco Wilderness (see SDP appendix). Criteria used in the Arroyo and in the present study are adapted from the SDP appendix.

Highest Sensitivity (Significant Ecological Area)

1. Locales of locally or regionally rare plant species (Catalina mariposa, Douglas' sandwart, Coulter's matilija poppy, Turkish rugging, clover fern, basket rush, teasel).

2. Nesting habitat of coastal cactus wren.

3. Already impacted wildlife dispersion corridors.

High Sensitivity (Significant Ecological Area)

1. Mule deer dispersion corridors, nucleus habitat areas and bedding site.

2. Freshwater marshes, ponds and lakes. Hydrophyte habitats on the margins of creeks and cutoff oxbow ponds. Vernal pools.

3. Oak, sycamore and alder woodlands of exceptional density and structural diversity, supporting numbers of songbirds and other fauna.

4. Native grasslands.

5. Diverse and showy spring wildflower displays.

6. Mesic, shaded slopes containing ferns, succulents and a diversity of native herbs.

7. Xeric ridges, slopes and outcrop faces containing a variety of distinctive shrub, succulent, cactus, grass and forb species. Fault-line sinks.

8. Areas in proximity to but not within critical zones of nest sensitive raptors. Areas in immediate proximity of nest sites of other raptor species.

9. Species-diverse alluvial scrub.

10. Oak woodland-chaparral native savannah ecotone.

Medium Sensitivity

1. Primary raptor foraging areas, where the home ranges of numbers of raptors overlap.

2. Woodlands and woodland-savannahs, excluding those above and below.

3. Other alluvial scrub; mulefat and willow thicket.

4. Chaparral except sumac.

5. Permanent streams, excluding stream areas above.

6. Killdeer nesting areas.

7. Areas of significant cultural resource sensitivity.

Reduced Sensitivity

1. Coastal sage scrub and sumac chaparral, habitats of large extent in the project region.

2. Undisturbed but adventive-dominated grasslands.

3. Habitats within and in proximity to areas of present or past human use whose carrying capacity had been reduced because of such use, including impacted woodlands and woodland-savannahs.

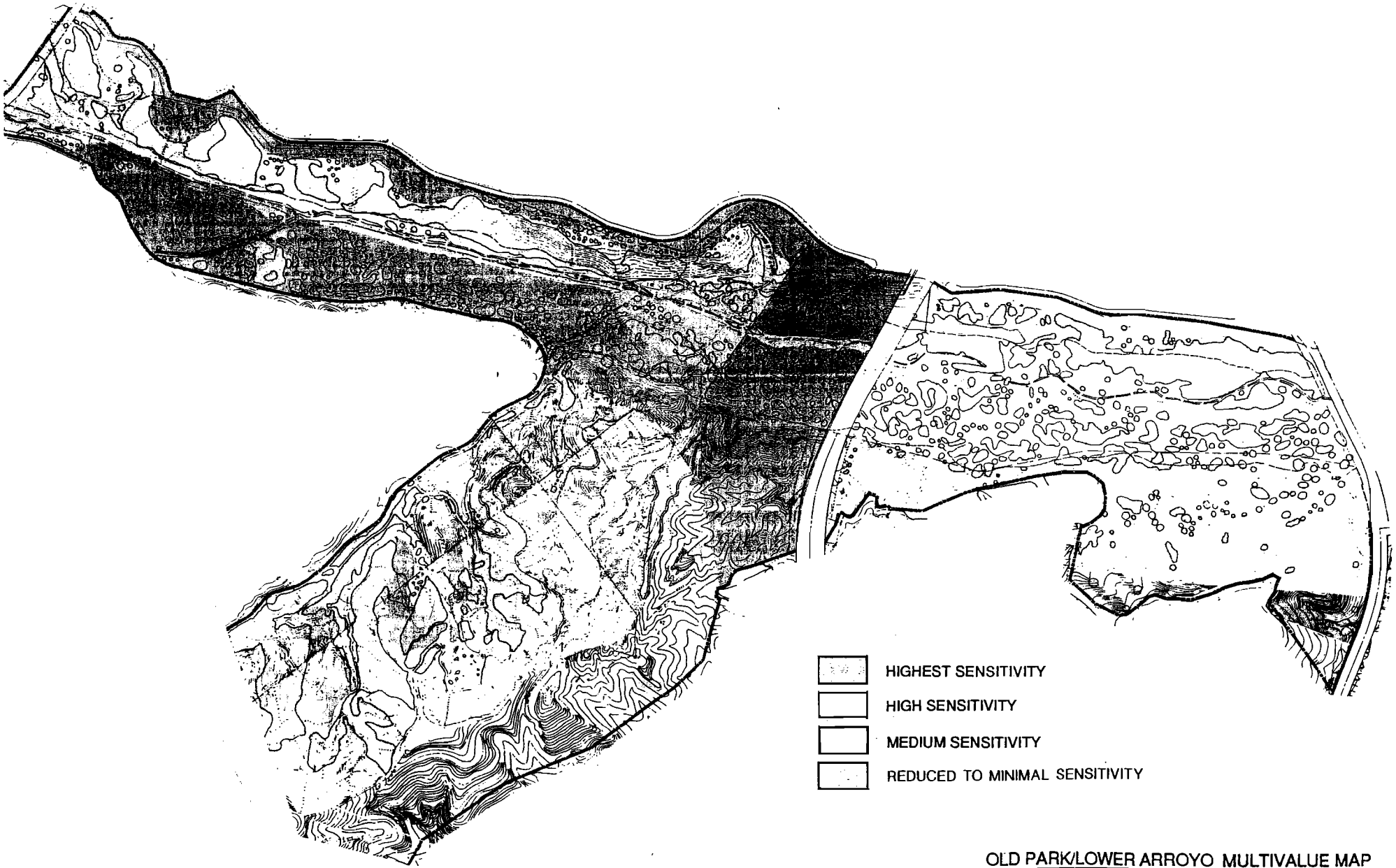
4. Habitats where the indigenous vegetation has been largely replaced by ornamental plantings.

Minimal Sensitivity

1. Disturbed mustard and artichoke-thistle infested by grasslands.

2. Grading cuts scraped areas and other low-value modified areas.

3. Areas of existing human use, where such use has largely eliminated habitat value.

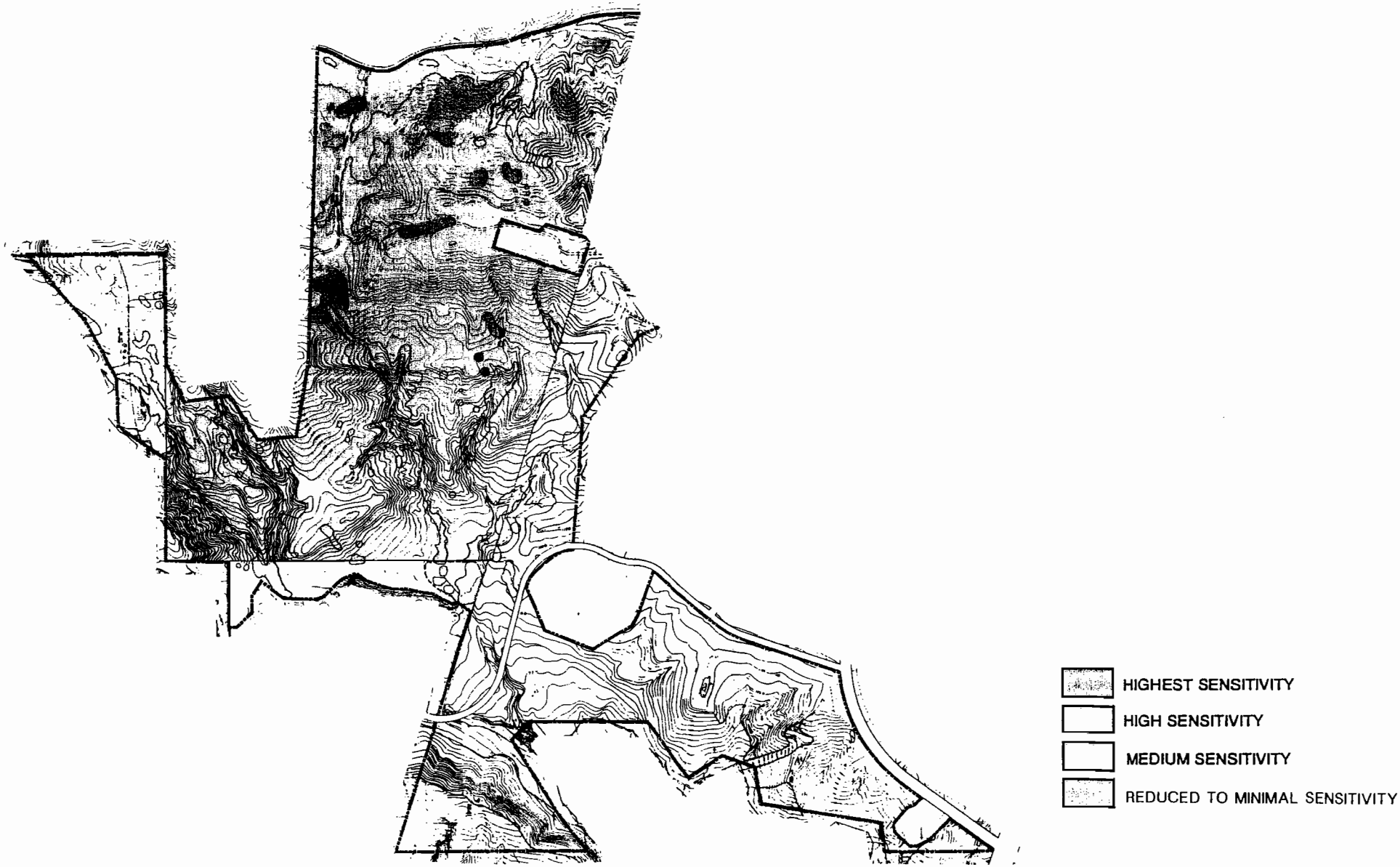


OLD PARK/LOWER ARROYO MULTIVALUE MAP

O'NEILL REGIONAL PARK
COUNTY OF ORANGE

0 200 400 800 NORTH

EXHIBIT 10



VEDANTA MULTIVALUE MAP

O'NEILL REGIONAL PARK
COUNTY OF ORANGE

EXHIBIT 11

V. IMPACTS and MITIGATION/MANAGEMENT

The following is intended to be a summary of the recommendations made by the resource specialists, Harbors, Beaches, and Parks Design, O'Neill Regional Park Staff, Harbors, Beaches and Parks Operations, and the participating public committee. Full reports and correspondence are found in the Appendices. Full resource specialists' reports are contained in the separate Supplemental Appendices.

ISSUE	LOCATION	MITIGATION/ MANAGEMENT	VEHICLE
THE BIOLOGICAL SETTING			
Deterioration of natural areas due to overuse	Camping and picnic area	Inventory biological setting and describe condition	RMP
		Redesign use area layout to minimize impacts	GDP
		Provide barriers or obstruction to limit access to sensitive areas	GDP
		Revegetate with natives	GDP
		Rehabilitate compacted soil areas by aeration and mulching	GDP and HBP Operations
		Establish monitor personnel as inspector and observer of condition of natural areas	HBP Operations
		Establish and implement woodland management techniques	HBP Operations
		Establish program of resting use areas for recovery	HBP Operations
		Establish and implement educational interpretive and signage programs	HBP Operations
Degradation of habitat due to grazing	Throughout	Remove cattle from parkland, patrol for cattle trespass	Completed
		Restore native grasslands	HBP Operations
		Conduct weed eradication operations (thistle and mustard)	GDP and HBP Operations
		Restore vernal pools	HBP Operations

ISSUE	LOCATION	MITIGATION/ MANAGEMENT	VEHICLE
Preservation and protection of sensitive ecological areas: Vernal Pools, Freshwater Marshes, Native Grasslands, Oak Woodland and Chaparral Native Grass Ecotone, Chaparral Understory, Mesic Microhabitat, Cactus Stands (Coastal Wren Habitat), Nolina Stands, Turkish Rugging, Coulter's Matilija Poppy, Douglass Sandwart, Teasel, Ridgecrest Xeric Barrens, Cliff Face Microhabitats	As identified in the biological consultants report (See Supplemental Appendices)	Identify locations as sensitive and describe conditions	RMP
		Design or redesign park improvements to limit impacts	GDP
		Establish and implement consistent management techniques	HBP Operations
		Establish and implement periodic monitoring and evaluation of area	HBP Operations
		Restore impacted areas (ie., grasslands, vernal pools, etc.)	HBP Operations
		Conduct controlled burning as described in consultant's reports	HBP Operations
		Establish and implement educational, interpretive and signage programs	HBP Operations
Invasion of aggressive ornamentals and urban weeds	Throughout	Identify and eradicate HBP operations invasive plants	RMP
		Work with adjacent planning efforts to avoid use of invasive ornamentals in plant palettes	HBP and HBP Operations
		Establish and implement program to inspect park edges and waterways for invasive plants	HBP Operations
Degradation and threat to natural habitats from adjacent urban development	Edges	Fence sensitive areas to avoid encroachment	GDP
		Generate developer performance standards for work adjacent to park	HBP

ISSUE	LOCATION	MITIGATION/ MANAGEMENT	VEHICLE
		Establish mechanism for park involvement in review of adjacent development proposals	HBP and HBP Operations
		Limit number of access points to park	GDP and Future Arroyo Planning
		Establish and implement program of patrolling and inspecting park edges for informal access, invasion of urban pests and diseases, unauthorized encroachment, ill effects of runoff	HBP Operations
		Establish and implement program of community education with respect to living near natural park	HBP Operations
WILDLIFE			
Protection of mule deer and other wildlife	Throughout	Identify deer dispersion corridors and inventory wildlife species	RMP
		Identify threatened species	RMP
		Redesign use area layout to minimize impacts	GDP
		Limit number of access points to park	GDP
		Revegetate upper Arroyo impacted corridors to provide cover	GDP
		Evaluate fences for impact on wildlife movement	GDP
		Implement deer signage program on Live Oak Canyon Road	HBP Operations

ISSUE	LOCATION	MITIGATION/ MANAGEMENT	VEHICLE
		Consider acquisition of property to link park to National Forest	HBP
		Limit trail use within corridors to designated trails and eliminate informal trail blazing	HBP Operations
		Provide additional wildlife waterers in areas where summer water is limited	GDP and HBP Operations
		Monitor surface water quality	HBP Operations and Source Contributors
		Establish mechanism to record wildlife sightings by visitors and staff	HBP Operations
		Conduct periodic inventory and evaluation by biologist	HBP Operations
		Establish and implement educational, interpretive, and signage program	HBP Operations
		Control use by domesticated animals	HBP Operations
Protection of raptor population	Throughout	Identify forage and nesting areas, inventory species	RMP
		Establish and implement habitat enhancement program (ie., grassland restoration, understory revegetation, etc.)	GDP and HBP Operations
		Preserve snags where feasible	HBP Operations

ISSUE	LOCATION	MITIGATION/ MANAGEMENT	VEHICLE
		Establish and implement yearly monitoring program	HBP Operations
		Provide owl nest boxes	HBP Operations
		Establish and implement educational and interpretive program	HBP Operations
WATER QUALITY			
Protection of Water Resources	Throughout	Establish and guide implementation of water quality monitoring program	HBP Operations
		Pursue participation of adjacent developments in water quality monitoring and mitigation	HBP
		Establish and implement mechanism for park involvement in reviewing adjacent development for water quality impacts	HBP
		Work with adjacent developments to minimize urban runoff into natural waterways	HBP
		Establish and guide implementation of groundwater monitoring program	HBP
		Limit use of pesticides, herbicides, cleaners, etc. within park	HBP Operations
		Pursue 40% flow downstream from Arroyo pond in perpetuity	HBP Operations
		Monitor Water - oriented habitats for water availability to ensure fish, plant sustenance.	HBP Operations

ISSUE	LOCATION	MITIGATION/ MANAGEMENT	VEHICLE
CULTURAL RESOURCES: **ARCHAEOLOGY**			
Protection of archaeological resources	Throughout	Description of known archaeological resources	RMP
		Design park improvements to limit impact to sensitive areas	GDP
		Establish Cultural Resources manager as described in specialist's report	HBP
		Develop cultural resource information files as described in specialist's report	HBP Operations
		Adopt mitigation matrix in specialist's report as management tool	HBP
		Establish mechanism for observation of all surface disturbing projects by archaeologist	HBP Operations
		Provide curative, educational and interpretive programs	HBP Operations
		Allow completion of research within park	HBP Operations
		Adopt qualification and performance standards for contracted professionals to conduct research as described in specialist's report.	HBP Operations
		Implement adobe fencing plan as described in Specialist's report.	HBP Operations

ISSUE	LOCATION	MITIGATION/ MANAGEMENT	VEHICLE
CULTURAL RESOURCES: **PALEONTOLOGICAL**			
Protection of paleontological resources	Throughout	Describe known paleontological resources	RMP
		Design proposed park improvements to limit impact to sensitive areas	GDP
		Establish Cultural Resources Manager as described in specialist's report	HBP Operations
		Allow collection of artifacts by paleontologists and continuing research as described in specialist's report	HBP Operations
		Establish mechanism for observation of all surface disturbing projects by paleontologists	HBP Operations
		Provide curative, educational and interpretive programs	HBP Operations
		Provide signage program to discourage informal collecting	HBP Operations
		Conduct yearly inspection of suspected localities after rains to discover exposed artifacts	HBP Operations
VISUAL AND AURAL QUALITY			
Protection of natural character at urban interfaces		Work with adjacent development to provide vegetative and/or topographical buffer	HBP Operations
		Provide native vegetation where screening is required	GDP and HBP Operations

ISSUE	LOCATION	MITIGATION/ MANAGEMENT	VEHICLE
		Work with adjacent proposed development to provide sensitive and naturalistic viewsheds as seen from park (ie., contour grading, appropriate plant material)	HBP
		Screen urban outfall structures as feasible	GDP
		Patrol edges periodically to discover deterioration of habitat due to urban influence (disease, refuse, pests, abuse)	HBP Operations
Existing nonnative plantings in natural areas of the park	Old Park	Selectively remove exotics and replant with natives	GDP
		establish policy and ensure that plantings are native	GDP and HBP Operations
Refuse accumulation	Urban outfalls	Work with adjacent development to establish preventative and ongoing trash cleanup operation	HBP
	Parkway bridge	Establish and implement road signage to discourage littering	HBP Operations
		Establish and implement regular weekly trash cleanup program under bridge	HBP Operations
	Use areas	Establish and implement educational and signage program to generate sensitivity to trash problem	GDP and HBP Operations
Noise pollution	Areas adjacent to existing and future roadways	Design park improvements to avoid impact of noise on wilderness uses	GDP
		Work with appropriate agencies to consider sound attenuation devices on bridge overpass	HBP

ISSUE	LOCATION	MITIGATION/ MANAGEMENT	VEHICLE
		Provide significant vegetative buffer	GDP
		Limit additional impact from visitor uses in wildlife sensitive areas	GDP
Inconsistency of architectural and facilities character	Throughout	Develop park concept	GDP

PARK CAPACITY

Throughout the preparation of this Resource Management Plan, there has been a great deal of discussion regarding the "over-use" of the park. The question of the actual "capacity" of the park is extremely relevant as it relates to management of the park resource.

For purposes of this discussion, "capacity" is defined as that number of people and vehicles that can be accommodated within the park, over a given period of time, without resultant damage to the park resource.

A baseline capacity for O'Neill Regional Park will be developed based on the total acreage available for recreational use. A net usable acreage will be established by the approved RMP & GDP. A capacity factor of 40 persons a day per acre for day-use facilities and 20 persons a day per acre for camping facilities (based on guidelines of the State of California) will then be used to calculate the baseline capacity of the park.

The net usable acreage for each type of facility will be developed based on gross recreational acreage <u>minus</u> sensitive habitat or resource value within that acreage. For example, a day-use facility within a sensitive resource such as an oak grove, would be adjusted from gross acreage to net acreage by subtracting the acreage within the dripline of the oak trees. The facility would then have a capacity based on the acreage outside the sensitive understory area.

Once this baseline capacity is established, park operations will enforce the capacity by monitoring park attendance and closing the park once the maximum number of persons have been admitted. In addition, on-going monitoring of the resource may indicate a need for further refinement of the capacity if damage to the resource continues to occur. This monitoring program will be key in establishing ultimate park capacities and a resting program for various park areas.

It is also important that monitoring of favorite areas and most popular individual sites be initiated. It is possible that specific areas, due to their popularity, may suffer damage even though overall park attendance is maintained within the capacity guidelines. These ares will then be programmed for additional maintenance, resting periods, or more frequent refurbishment.

INTERPRETIVE PROGRAM

Interpretation plays a key role in the management of resources in O'Neill Regional Park. Before one can live and recreate harmoniously with nature and its resources, one must understand those resources. Historically, park rangers and staff at O'Neill

Regional Park have operated and maintained a nature center and conducted various interpretive programs such as nature walks and talks.

This Resource Management Plan seeks to maintain those vital programs and supplement them with and aggressive management expansion of those programs that will enable all who benefit from the park and its resources to play an active role in its stewardship.

The following is a summary of Mitigation/Management recommendations and checklist items that are offered in the RMP as they pertain directly to the interpretive program:

1) HBP Operations shall provide a forum for scientists interested in on-going research with respect to biological, wildlife and cultural resources.

2) HBP Operations shall seek to continuously update the public through:

   - Current displays and descriptions of biological, wildlife and cultural museum artifacts.
   - Nature walks and talks with additional emphasis on park management
   - Re-establishment of pure vegetative associations.
   - Preservation of significant resource sites such as the adobe site through fencing.
   - Provide and distribute up-to-date information to park users, homeowners, schools and the scientific community through a flier program.
   - Instigate and support a Friends of O'Neill Group.
   - Upgrade existing nature walks such as the Edna Spaulding Trail with current, accurate and useful information.
   - Visit schools and local institutions with lectures and up-to-date information about the park.
   - Maintain observations and documentation of wildlife sightings by the public and park personnel.

PERMISSABLE USES WITHIN RESOURCE-SENSITIVE AREAS
(Adapted from SDP Appendix)

The determination of what levels of use habitats of varying resource sensitivity can tolerate is a subjective one. The lack of extensive research in this field and the unknowns related to human numbers and behavior within a given area of the park provide little concrete for establishing use levels. Others may disagree with the findings of this section, regarding them as either too restrictive or too permissive, one basic finding must be accepted as a given: Any use of a resource-sensitive area will adversely impact biota. This impact must be weighed against the needs of people for the outdoor experience and recreation within a natural setting.

Resource Category 1, Highest Sensitivity

These locales should be maintained as areas where human entry is prohibited, except, in the case of rare plant habitats, where guided interpretive groups may visit the sites occasionally.

Resource Category 2, High Sensitivity

Selected areas falling within this category may be destination points of spur trail, providing opportunities for nature study and interpretation, but not attracting a great deal of human use. Through trails (especially equestrian) and other improvements are not permissible, except for placement of wildlife observations. Impact on the resources being protected needs to be monitored, and trails closed if it is obvious that substantial adverse impacts are taking place.

B2 habitats which have been degraded (such as vernal pools) should be restored.

Resource Category 3, Medium Sensitivity

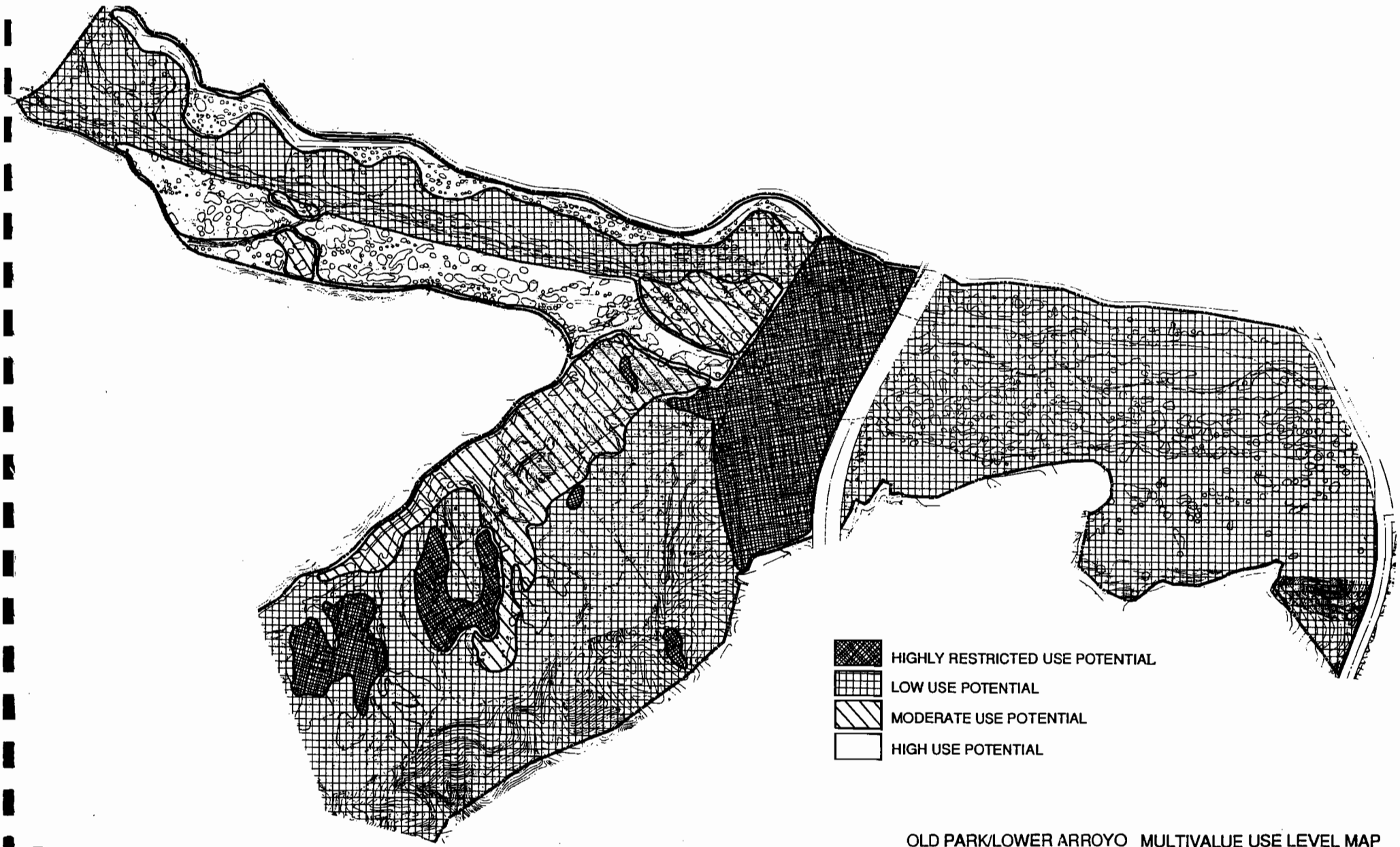
Through trails and minimal dispersed facilities development are appropriate within these habitats. Facilities may consist of small numbers of trailside picnic tables, portable restrooms or pit toilets, and drinking fountains. No motorized access except for park service and security vehicles should be allowed. A hiking or equestrian trail would be permissible. Within the Arroyo, there should be only on through trail following the existing farm road and bypassing the Narrows because of the eagle nest site there (resource category A.1.).

The through trail along the southwestern portion of the Rancho Trabuco buffer zone, and other ridgeline trails should be for hikers only, because of possibility of impact on sensitive xeric trailside vegetation (resource category B.7.) by horses.

Resource Category 4, Reduced Sensitivity

Resource Category 5, Low Sensitivity

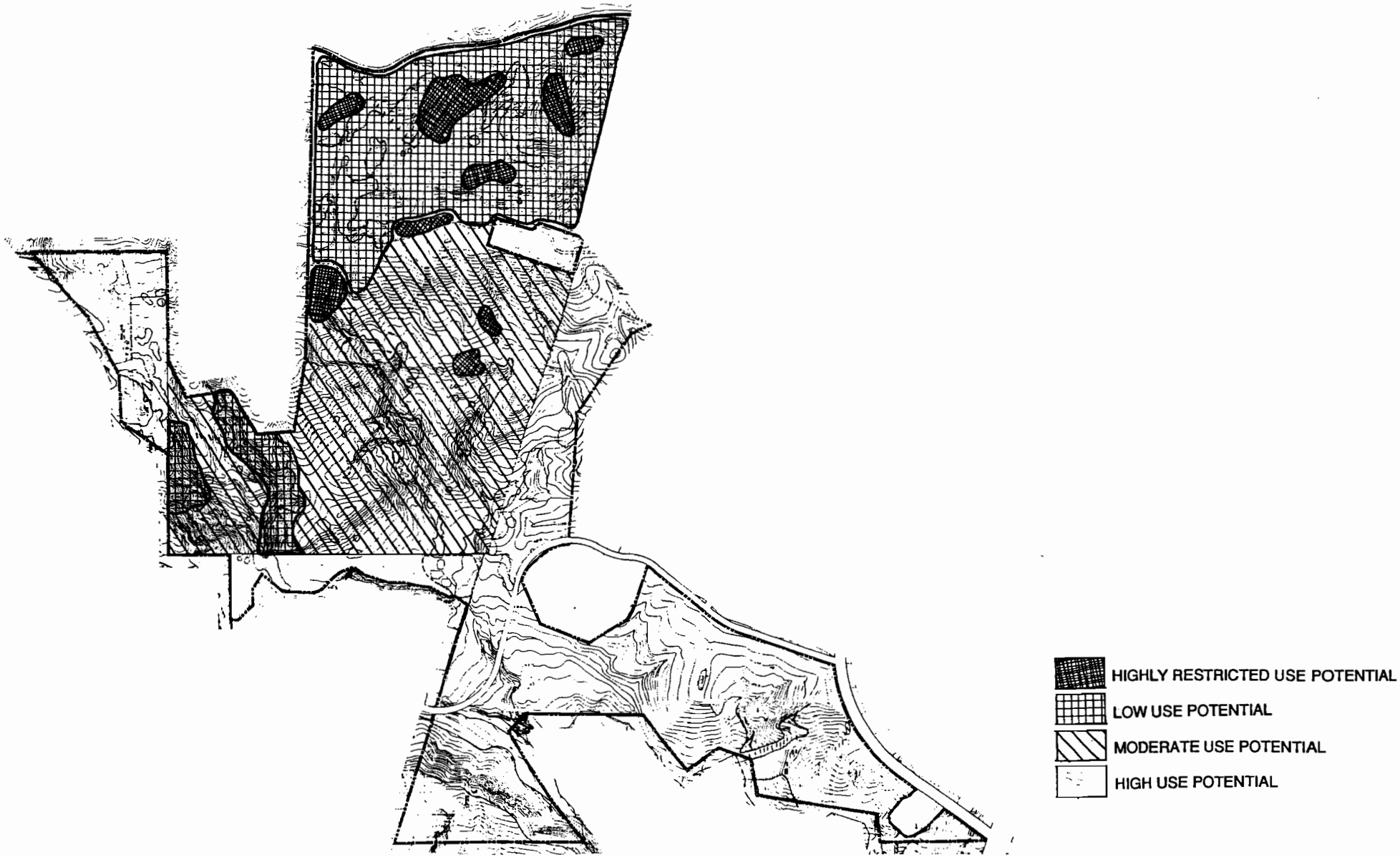
These sites may be appropriate for substantial facilities development except in areas of the Park where such development is prohibited. (Arroyo Wilderness, Vedanta Addition). In areas not to be developed, a 4 or 5 category rating indicates the need for substantial management intervention, (as to control noxious weeds and eliminate cattle trespass) and habitat restoration. The Arroyo Trabuco flood control area should be subject to habitat restoration as detailed elsewhere in this report.



OLD PARK/LOWER ARROYO MULTIVALUE USE LEVEL MAP

O'NEILL REGIONAL PARK
COUNTY OF ORANGE

EXHIBIT 12



VEDANTA MULTIVALUE USE LEVEL MAP

O'NEILL REGIONAL PARK
COUNTY OF ORANGE

EXHIBIT 13

VI. PARK MANAGEMENT CHECKLIST

The following checklist is intended to be a tool used by park operations to develop and expand the current Maintenance Index System. The park's index system identifies schedules, manpower needs, equipment needs and specific tasks and is used on a day-to-day basis. The checklist assumes that the proposed General Development Plan is implemented and that the mitigations identified in Section V, Impacts and Mitigation/Management, have been achieved. Only ongoing management of the park's resources is addressed. A separate manual has been prepared which collects together the management recommendations made by the separate resource specialists.

Critical to the success of the management program is the involvement of a qualified resource monitor. O'Neill Regional Park is valued and much used as a recreational park and now has the opportunity to become a valuable wilderness park as well. Management of a wilderness park having sensitive resources requires specialized, extensive knowledge; this task is especially complex a O'Neill park because of the use demands and the urban impacts from adjacent development which surround the park. Continual monitoring and adjustment will be required to maintain a favorable equilibrium between human impact and natural ecosystem. Options for establishing a resource monitoring position and the park include 1) training and education of park staff by resource specialists 2) hiring a new staff member already having resource management background 3) contract hire resource specialists as needed.

Additionally, a strong interpretive and educational program is recommended to go hand-in-hand with resource management efforts. Such programs foster respect and appreciation for the park and will reduce abuse and impacts, making management less difficult.

The Biological report contains an area-by-area evaluation of the park, titled: Resource Areas of the Park and Management Plans for Them. This detailed study establishes management goals and recommends specific tasks, some of which may be accomplished via General Development Plan implementation and some via ongoing park resource management. Inclusion of this study in the management program for the park would be very beneficial, and is intended to be a supplemental to the Park Management Checklist.

For all management plan references in the checklist, see the Supplemental Appendices/Consultants Reports.

;CRIPTION	LOCATION	REQUIREMENT
;PECTION/MONITORING		
;PECTION: ·kish Rugging .E.A.)	Short Canyons B and E.	1. Park Resource Monitor to formally check each location annually for condition of resource. 2. Evaluate and document extent of species. Resource Description Biological Report Section 2
;PECTION: ulter's Matilija ɔpy .E.A.)	Arroyo Trabuco, Lower Arroyo, Spalding Trail Canyon.	1. Discourage flower picking. 2. Park Resource Monitor to formally check each location annually for condition of resource. 3. Evaluate and document extent and/or number of species. Resource Description Biological Report Section 2
SPECTION: uglass Sandwort .E.A.)	Rancho Trabuco buffer above Spalding Trail	1. Park Resource Monitor to formally check each location annually for condition of resource. 2. Evaluate and document extent and/or number of species. Resource Description Biological Report Section 2
SPECTION: ·asel .E.A.)	Scout Group Camp Canyon.	1. Discourage picking of flowers if observed. 2. Park Resource Monitor to formally check each location annually for condition of resource. 3. Evaluate and document extent and/or number of species. Resource Description Biological Report Section 2

DESCRIPTION	LOCATION	REQUIREMENT
INSPECTION: Ridge Crest Xeric Barrens Microhabitat (S.E.A.)	Head of Spalding Trail Canyon, Ridge between Scout Group Camp and West Youth Group Canyon 3, Ridge above Short Canyon B, Ridges above West Youth Group Canyons.	1. Park Monitor to formally check each location annually for condition of resource. 2. Evaluate and document extent and/or nu of species. Resource Description Biological Report Section 2
INSPECTION: Vernal Pools (S.E.A.)	Pacific Bell In holding, Vedanta Highlands, Ramakrishna Monastery	1. Park Resource Monitor to formally chec each location annually for condition o resource. 2. Evaluate and document extent and/or nu of biota species. Resource Description Biological Report Section 2 Resource Description Biological Report Section 2.3
INSPECTION: Freshwater Marshes (S.E.A.)	Arroyo Trabuco Swamp Forest, Arroyo Trabuco Pond, 78" storm drain outfall, West Youth Group Canyon 4, Billy's Canyon Pond, Vedanta North panhandle.	1. Park Resource Monitor to formally chec each location annually for condition o resource. 2. Evaluate and document extent and/or nu of biota species. Resource Description Biological Report Section 2
INSPECTION: Native Grasslands (S.E.A.)		1. Park Resource Monitor to formally chec each location annually for condition c resource. 2. Evaluate and document extent and/or nu of biota species. Resource Description Biological Report Section 2 Resource Description Biological Report Section 2.3

SCRIPTION	LOCATION	REQUIREMENT
SPECTION: ctus Stands and astal Cactus an .E.A.)	Arroyo Trabuco, Upper Billy's Canyon, Vedanta Highlands.	1. Park Resource Monitor to formally check each location annually for condition of resource. 2. Evaluate and document extent and/or number of biota species. Resource Description Biological Report Section 2.3
SPECTION: lina Stands .E.A.)	West Youth Group Canyons 2,3,4; Short Canyons, Live Oak Canyon, North Billy's Canyon.	1. Park Resource Monitor to formally check each location annually for condition of resource. 2. Evaluate and document extent of species. Resource Description Biological Report Section 2.1.1.2
SPECTION: lff Face crohabitats .E.A.)	Bluff below Mesa Campground, Upper Spalding Trail Canyon, South lateral of Billy's Canyon.	1. Park Resource Monitor to formally check each location annually for condition of resource. 2. Evaluate and document extent and/or number of species. Resource Description Biological Report Section 2
SPECTION: k Woodland	Throughout Park.	1. In natural areas Park Resource Monitor to check annually for condition of resource 2. In use areas check each tree semi-annually for condition. 3. Retain dead trees and limbs unless determined hazardous or diseased. 4. Document condition of resource. Resource Description Biological Report Section 2 Arborists' Report Resource Managment Biological Report Section 2.3 Arborists' Report

DESCRIPTION	LOCATION	REQUIREMENT
INSPECTION: Native Tree Understory	All camping and picnic areas	1. Check semiannually for sufficient leaf litter coverage, for signs of high degi of use under trees, for effectiveness barriers. 2. If needed, provide additional leaf lit evaluate solution for discouraging acc Resource Management Biological Report Section 2.3 for Woodland Monitoring and Soil Aeration.
INSPECTION: Coastal Sage Scrub	Live Oak Canyon, Spalding Trail Canyon, Lower Arroyo	1. Park Resource Monitor to formally chec each location annually for condition o resource. 2. Evaluate and document extent and/or nu of biota species. Resource Description Biological Report Section 2
INSPECTION: Chaparral	Live Oak Canyon, Spalding Trail Canyon	1. Park Resourece Monitor to formally che each location annually for condition c resource. 2. Evaluate and document extent and/or nu of biota species. Resource Description Biological Report Section 2
INSPECTION: Sycamore riparian Woodland-savannah	Arroyo Trabuco	1. Park Resource Monitor to formally chec each location annually for condition c resource. 2. Evaluate and documant extent and/or nu of biota species. Resource Description Biological Report Section 2
INSPECTION: Willow and Alder Woodlands	Live Oak Creek	1. Park Resource Monitor to formally che each location annually for condition resource.

CRIPTION	LOCATION	REQUIREMENT
		2. Evaluate and document extent and/or number of biota species. Resource Description Biological Report Section 2
SPECTION: efat scrub	Vendanta Western Edge, Billy's Canyon, Arroyo Trabuco Narrows	1. Park Resource Monitor to formally check each location annually for condition of resource. 2. Evaluate and document extent and/or number of biota species. Resource Description Biological Report Section 2
SPECTION: luvial scrub	Arroyo Trabuco	1. Park Resource Monitor to formally check each location annually for condition of resource. 2. Evaluate and document extent and/or number of biota species. Resource Description Biological Report Section 2
NITORING: ldlife Encounters	Throughout	1. Frequency: as occurs. 2. Records documenting wildlife sightings by staff and public should be updated frequently. Resource Management Wildlife Report
NITORING: sh Population	As recommended by Fish and Game.	1. Frequency: as recommended by Fish and Game. 2. Park Resource Monitor to conduct sampling of fish population in conjunction with Fish and Game. Resource Management Wildlife Report
NITORING: l Nest Boxes	Where exist.	1. Park Resource Monitor to check yearly during nesting periods and document occupancy.

DESCRIPTION	LOCATION	REQUIREMENT
		2. Park Resource Monitor to check ye during non-nesting season for conditio nests.
MONITORING: Domesticated Animals	Throughout	1. Note significant occurrence of domesticated animals. 2. Coordinate with animal control elimination.
INSPECTION: Wildlife Waterers		1. Check monthly during dry summer months function.
MONITORING: Watershed Vegetation		1. Annually, prior to fire season, Resour Park Monitor to observe state of water within and adjacent Park. 2. Evaluate effects on water quality sh large widespread wildfire occur. 3. Pursue prescribed burning progran conjunction with Fish and Game Departm If need exists. Benefits are describe biological and wildlife reports. Resource Management Wildlife Report
MONITORING: New Construction		1. Cultural Resources Manager to review k sites location map for conflict prio construction. Consult reso specialists if conflict arises. 2. Cultural Resources Manager to arrange resource specialist to monitor worl progress. 3. Biological and Wildlife Resource map be reviewed for conflicts prior to (ie., sensitive ecological areas, r nests, etc). Sensitive areas adjacen construciton activity sghould be f off to avoid incidental damage. 4. Manager to observe grading worl progress for exposure of artifacts. Resource Description and Management Architectural and Paleontological Rep

SCRIPTION	LOCATION	REQUIREMENT
SPECTION: ture Trails	Edna Spaulding Creek Trail Arroyo Trails	1. Note any consistent visitor use off-trail. Provide corrective barriers, if needed. 2. Check accuracy and condition of trail guides, annually. Resource Management Biological Report Section 3.0
SPECTION: rk Edges	All edges	1. Monthly tour of park boundary to monitor: consistent unauthorized entry, permit encroachments, weed invasion, urban water runoff, proliferation of urban pests and diseases. Resource Management Biological Report Section 3.0 Arborists' Report
ISPECTION: mpsites and Picnic eas	Throughout	1. In fall, Park Resource Monitor to evaluate each campsite and picnic area for condition. 2. Refurbish DG or mulch topping 3. Evaluate and adjust barriers. 4. If necessary, perform soil rehabilitation. 5. Record evaluation for use in adjusting carrying capacity. 6. Consider resting campsite. Resource Management Biological Report Section 2.3
ONITORING: djacent Planning	Developable Areas adjacent to Park	1. Park Monitor to establish relationshi with OCEMA to participate in revie process for projects which may impact
ONITORING: nformal railblazing	All Natural Areas	1. Note if unplanned path develops. 2. Close path by distributing leaf litter providing plant or stone barrier evaluating signage to correct trail. park.

DESCRIPTION	LOCATION	REQUIREMENT
MONITORING: Invasive Ornamentals	Park edges/storm drain outfalls	1. Inspect area annually for exotic invasive vegetation. 2. Conduct eradication operations, Biological Report. Species to be remov are identified Biological Report.
CONTRACTS		
CONTRACTS: Water Monitoring	Storm drains, well Sites.	1. Semi-annual testing of water qua during low flow periods by quall hydrologist. 2. Annual documentation of water t levels within the Arroyo. 3. Operations to respond and report to HE
CONTRACTS: Sensitive Biological Resources	As described in Resource Management Plan	1. Biologist to inventory status of sensitive resources every 3 to 5 ye and file report.
INTERPRETATION/EDUCATION/ASSISTANCE		
EDUCATION: Park Brochures		1. Check locations monthly for suppl brochures. 2. Visit local schools annually to edu about responsibilities of living at edge. 3. Conduct nature walks and campfire talk 4. Continually update nature center/arbor to insure that plants and exhibits healthy and accurate.
SPECIAL PROGRAMS		
SPECIAL PROGRAMS	As Apply	1. Park Resource Monitor to evaluate nee special program implementing develop cost estimates, lobby for inclusic park budget. 2. Special programs as described in Res Specialists' reports: Vernal pool restoration Biological Report Section 2.3

SCRIPTION	LOCATION	REQUIREMENT
		Acorn planting program Biological Report Seciton 2.3
		Wildlife waterer construction
		Acquisition of adjacent properties
		Re-introduction of pronghorn antelope Biological Report Section 3.2.2
		Grassland restoration Biological Report Section 2.3
		Grassland establishment Biological Report Section 2.3
		Artichoke thistle and milk thistle eradication
		Owl nest construction
		Educational pamphlets
		Biological Filtration Basins Biological Report Section 3.4.2
		Rehabilitate/Enhance specific area per recommendations in Biological Report.

DMINISTRATION

DMINISTRATION:
ultural Resources
anager Task
escription

1. Maintain cultural resources file.
2. Supervise and coordinate work of cultural resources professionals.
3. Review proposals for new construction with respect to impacts on cultural resources.
4. Represent park on regional cultura resource issues.
5. Yearly inspection of known deposits fo change.
6. Provide clearing house for new findings sightings, etc.

DESCRIPTION	LOCATION	REQUIREMENT
		7. Develop and prepare requests for propc regarding professional cultural resou work.
		8. Organize and lead cultural resou interpretive programs.
		9. Develop curtain, cataloging registration procedure.
		10. Inspect cliff faces, eroded areas exposed artifacts annually.
		Cultural Resources Management P Supplemental Appendix

A. PUBLIC AND PARK STAFF WORKSHOP REPORTS

DATE: 11 April 1989

FROM: Kevin Sullivan

CC: Jim Dockstader, Dike/Runa, Inc.

PROJECT: O'Neill Regional Park Resource Management Plan

Job Number: 87050C

SUBJECT: Citizens Review Workshop #2

DATE: 28 February 1989

ATTENDING: Woodward Dike, Dike/Runa, Inc.
Kevin Sullivan, Dike/Runa, Inc.
Steve Farrar, HBP/O'Neill Park
Ron Bissell, RMW Paleo Associates
Rod Raschkey, RMW Paleo Associates
Karlin Marsh, Karlin Marsh Biologist
John Dourley, Horticultural Consultant
Ray Walsh, Revegetation Consultant
Jenny Stets, HBP/Design
Denton Turner, HBP/Design
Pete Bloom, Raptor Consultant
Kathie Matsuyama, HBP/Design
Steve Loe, Wildlife Consultant
Jim Thor, SACC, PRC
Virginia Chester, SEA, SAGE Autobaun

THIS ITEM/ACTION REPORT WILL BE ASSUMED ACCURATE UNLESS DIKE/RUNA, INC. IS INFORMED OTHERWISE WITHIN FIVE DAYS FROM THE DATE ABOVE.

ITEM		ACTION	
2.0	Meeting Intent	2.0	Sullivan presented agenda for meeting as follows: a. Recap meeting of 12/5/88. b. Recap 50% RMP submittal/consultants reports. c. Consultants presentations of inventory and management reports: biological, wildlife, water, cultural, visual/aural. d. Where are we going from here? e. Discussion.

11 April 1989
O'Neill Regional Park Resource Management Plan
Citizens Review Workshop #2
Page 2

ITEM		ACTION	
2.1	Biology	2.1	Marsh indicated some major emphasis of her work included: screening potentials, identification of a special nolina specie, evaluation of soil compaction identified to be a major problem in the park, evaluation of urban runoff effects.
2.2	Wildlife	2.2	Loe indicated major emphasis of his work included: maintenance of current species in the park, preservation of open movement corridors, identification of locations for 3 strand barb wire fence for wildlife movement.
2.3	Water/ Quality	2.3	Sullivan indicated the plan called for testing runoff entering the park on a periodic basis.
2.4	Archaeology and Paleontology	2.4	Bissell and Raschkey indicated a desire to acquire unrestricted access into the park for authorized local scientists. Turner indicated this could become part of the interpretive program as ongoing research and study opportunities.

DATE: 11 April 1989

FROM: Kevin Sullivan

CC: Jim Dockstader, Dike/Runa, Inc.

PROJECT: O'Neill Regional Park Resource Management Plan

Job Number: 87050C

SUBJECT: Harbors, Beaches and Parks Staff Meeting #3

DATE: 28 February 1989

ATTENDING: Woodward Dike, Dike/Runa, Inc.
Kevin Sullivan, Dike/Runa, Inc.
Steve Farrar, HBP/O'Neill Park
Ron Bissell, RMW Paleo Associates
Rod Raschkey, RMW Paleo Associates
Karlin Marsh, Karlin Marsh Biologist
John Dourley, Horticultural Consultant
Ray Walsh, Revegetation Consultant
Jenny Stets, HBP/Design
Denton Turner, HBP/Design
Pete Bloom, Raptor Consultant
Kathie Matsuyama, HBP/Design
Steve Loe, Wildlife Consultant

ITEM		ACTION	
3.0	Meeting Intent	3.0	K. Sullivan reviewed agenda for meeting as follows: a. Recap 50% RMP submittal b. Recap RMP current status c. Summary of HBP/Park personnel comments d. Review check list/special programs progress e. Discussion
3.1	Multiple Access Points	3.1	Problems with control. Operations would like to see access points limited and an increase in staffing for policing access. Turner suggests a proactive interpretation program.
3.2	Santa Marguerita Company Water Entitlement at Trabuco Creek	3.2	Farrar indicates entitlement is greater than stream capacity. RMP team would like to see 40% of stream allocation to park.
3.3	Additional Land Purchases	3.3	Team identifies that land north of park boundaries to be top priority as link to Cleveland Forest.

11 April 1989
O'Neill Regional Park Resource Management Plan
Harbors, Beaches and Parks Staff Meeting #3
Page 2

ITEM		ACTION	
3.4	Decomposed Granite	3.4	Team indicates leaf litter would be appropriate substitute for decomposed granite.
3.5	Table Anchors	3.5	Team decides anchoring tables is a good idea. Consider anchoring 4 (four) legs at sycamore locations for shade.
3.6	Trail Definitions Park Facilities	3.6	Farrar supports defining trails. RMP to to investigate appropriate method.
3.7	Signage	3.7	The team discussed possibility of tow away sign at Trabuco Road to discourage parking and trespass. This would enable fence openings for wildlife.

DATE: 6 February 1989

TO: Mr. Denny Turner-County of Orange

FROM: Mr. James Dockstader-Dike/Runa, Inc.

PROJECT: O'Neill Park Resource Management Plan
County of Orange
Job Number:87050

SUBJECT: Meeting Notes

DATE: 25 January 1989

LOCATION: O'Neill Regional Park

ATTENDING: Mr. Ron Bissell-RMW
Mr. Jim Dockstader-Dike/Runa, Inc.
Mr. Richard Dyer-County of Orange
Mr. Steve Farrar-County of Orange
Mr. Tony Gimbrone-County of Orange
Ms. Karlin Marsh-Botanist
Mr. Tim Miller-County of Orange
Mr. Rod Raschke-RMW
Ms. Jenny Stets-County of Orange
Mr. Kevin Sullivan-Dike/Runa, Inc.

THIS ITEM/ACTION REPORT WILL BE ASSUMED ACCURATE UNLESS DIKE/RUNA, INC. IS INFORMED OTHERWISE WITHIN FIVE DAYS FROM THE DATE ABOVE.

ITEM		ACTION	
1.0	Meeting Intent	1.0	Discussion of Resource Management issues with Park Staff.
1.1	Access	1.1	Items discussed as follows: A. Education of public with respect to park access point(s) is important. B. Patrol/surveillance will help in control of access. C. "Informal" or unplanned trails should be discouraged. D. Barriers for sensitive areas with easy access should be considered (fencing, planting, horizontal logs, signs).

E. Single park entry is easier to control than multiple entries.
F. In terms of wildlife corridors, only essential, planned trails should be used.
G. Fences should be evaluated to avoid disruption of wildlife corridors.
H. "Trailblazing" between Mesa and wash should be discouraged.

1.2 Archeology

1.2 Items discussed as follows:
A. Old Adobe is important sensitive area. Much information is already lost. Establishment of better boundaries and access control is recommended. With better control could nominate for National Register.
B. Report will recommend and identify sites for monitoring and provide guidelines for surveillance by staff.
C. Fencing of sensitive areas is not always effective.
D. There is possibility that sites of lesser significance could be used by student groups.

1.3 Paleontology

1.3 Items discussed as follows:
A. Upper Oso very rich (Miocene-15-20 million years old).
B. Slope faces also reveal interesting information.
C. Park records last advance of the sea (15 million years ago).
D. Recommendation is to leave park open to responsible scientists. Public impacts not too great. Brush coverage protects fossils.
E. Standard observation by paleontologist should occur during grading.
F. Recommendations for management includes:
1) Collection and analysis for baseline.
2) Specific research on selected sites.
3) Yearly monitoring of identified areas after rains.
4) Establishment of interpretive center (w/use of on-site findings and castings of museum items).

G. Acquisition of Upper Oso (Vedanta) exposures is recommended.
H. Use of less significant sites by student groups is recommended.

1.4 Visitor Impacts 1.4 Items discussed as follows:

Soil compaction

A. Some areas have been used by too many for too long, with the result in part being the decline of many oaks and sycamores. Recommendations for management/mitigation includes:
   1) redesign of use areas
   2) use of barriers (boulders, understory planting, etc.)
   3) resting of areas on a rotating bases
   4) use of turf, DG or chips to protect soil.
   5) soil restoration by ripping and mulching.

B. Buffers at park edges should be considered.
C. Need for recreation use should be balanced with protection of resources.
D. Visual access important for patrol and surveillance.

E. To reduce interface conflicts at Santa Margarita, RV group camping could be located at Mesa Campgrounds.

6 December 1988

TO: Denny Turner, County of Orange
Harbors, Beaches and Parks

FROM: Jim Docktader, Dike/Runa, Inc.

CC: Steve Loe, U.S. Forest Service
Pete Bloom, Raptor Conservationist

PROJECT: O'Neill Regional Park
Job Number: 88118

SUBJECT: Selected Citizens Review Workshop

DATE: 5 December 1988

LOCATION: O'Neill Park Meeting Rooms

ATTENDING: Karlin Marsh, Botanist
Ron Bissell, RMW
Sherry Meddick
Denny Turner, County of Orange, Harbors, Beaches and Parks
Gerhardt Bombe, C of O, Harbors, Beaches and Parks
John Markovich, Monastery
Richard Jennings, Monastery
Kathie Matsuyama, Harbors, Beaches and Parks, Design
Jenny Stets, Harbors, Beaches and Parks, Design
Steve Farrar, County of Orange, O'Neill Park
Nancy Bruland, County of Orange, O'Neill Park
John Dourley, Horticultural Consultant
Ray Walsh, Revegetation Consultant
Patricia Millan, Saddleback Valley News
Jim Thor, Saddleback Area Community Council
Jim Dockstader, Dike/Runa, Inc.
Kevin Sullivan, Dike/Runa, Inc.

THIS ITEM/ACTION REPORT WILL BE ASSUMED ACCURATE UNLESS DIKE/RUNA, INC. IS INFORMED OTHERWISE WITHIN FIVE DAYS FROM THE DATE ABOVE.

ITEM		ACTION	
1.0	Meeting Intent	1.0	Review of progress to date, discussion of scope and content of plan.
1.1	404 and 1601 Permits	1.1	As follows
		A.	Stets indicates that county has 404 and 1601 permits for project.
		B.	Meddick indicates that 404 and 1601 may require reevaluation.

		1.1	Continued
		C.	Stets to investigate.
		D.	Meddick indicates that flood control plans and RMP should be developed concurrently and coordinated.
1.2	General Development Plan (GDP)	1.2	Sullivan indicates that GDP will be revised according to findings of the RMP.
1.3	Water Quality	1.3	Sullivan indicates that RMP will identify need for study and monitoring.
1.4	Island Pasture	1.4	Turner indicates that Island Pasture area is intended to be used as a wilderness/forage area.
1.5	Table of Contents and Executive Summary	1.5	Sullivan presents proposed Table of Contents and Executive Summary Outline.
1.6	Schedule	1.6	As follows
		A.	Sullivan presents anticipated project schedule.
		B.	Meddick indicates that data recovery operations conducted solely during winter months may not result in complete inventory of vegetation and wildlife. Marsh indicates that inventory of raptor nesting sites will probably be most affected, but by the end of March, all nesting sites should be established. Sullivan indicates that if more time is needed for description of raptor sites, this information will be presented as supplementary studies and considered in the development of GDP.
1.7	Consultant Presentations	1.7	As follows
		A.	KARLIN MARSH. Marsh describes low value matrix methodology and describes her mapping based on sensitivity: high, medium, reduced, and minimal. Also noted in field work will be problems, recommended corrective methods, special vegetation, areas of effective management.
		B.	STEVE LOE (as presented by Marsh). Work inclues mapping of deer trails, consideration of adjacent uses, evaluation of problems, contacting of area residents for animal movement information.
		C.	PETE BLOOM (as presented by Marsh). Work

		1.7	Continued Includes mapping of roosting and nesting sites with establishment of "nest critical zones".
		D.	RON BISSELL. Work includes literature search (2/3 complete), "field truthing" known sites, description and update of known sites, provision of management tools, survey of portions of old park, preparation of report with mitigation matrix.
		E.	JOHN DOURLEY/RAY WALSH. Work includes identification and description of each significant tree by number; evaluation by rating system; rating for wildlife value; recording of pathogens, hazardous trees, compacted areas, understory, significant non-native trees. Work limited mainly to old park.
1.8	Bats	1.8	Bombe suggests that bats be considered in RMP.
1.9	Santa Marguerita Bridge	1.9	Meddick suggests that consultants coordinate and share information with Michael Brandman Associates with respect to widening of Santa Marguerita Bridge (Ty Garrisson contact), and EIR for that project.
1.10	Acquisitions	1.10	Meddick indicates understanding that possibility exists for land acquisition north of park connecting national forest with O'Neill. Turner indicates open space programming (Eric Jessen) would have information.
1.11	Monastery Concerns	1.11	Markovich and Jennings concerns as follows:
		A.	Use of monastery road
		B.	Extent of adjacent trails
		C.	Development of adjacent recreation areas.
		D.	Marsh indicates that cattle grazing on park grounds will be an issue addressed by RMP.
1.12	Park Capacity	1.12	Farrar indicates that park has been overused, with result being dwindling resource. Indicates desire not to spoil un-impacted areas for the purpose of reducing impact on other areas.
1.13	Urban Interface	1.13	Bruland indicates that urban interface and water quality are important issues, and that

			EIR 320 for Plano Trabuco already describes some mitigation measures.
1.14	Implementation	1.14	As follows
		A.	Sullivan presents resource matrix
		B.	Marsh suggests that mitigation money from private development could be used for special park projects.
1.15	Edge Buffer	1.15	Turner indicates that coordination is needed between County and Santa Marguerita H.O.A. for the development of appropriate buffer.

D I K E

28 November 1988

TO: Ms. Jenny Stets - Orange County E.M.A. Harbors, Beaches and Parks
(see attending)

FROM: Mr. Kevin Sullivan - Dike/Runa, Inc.

CC: Mr. Woodward Dike - Dike/Runa, Inc.
Mr. Jim Dockstader - Dike/Runa, Inc.
Mr. Kevin Sullivan - Dike/Runa, Inc.
Mr. Denton Turner - Orange County E.M.A. Harbors, Beaches and Parks

PROJECT: O'Neill Park
County of Orange
Job #88118

SUBJECT: Project Meeting #1

DATE: 16 November 1988

LOCATION: On-site

ATTENDING: Mr. Woodward Dike - Dike/Runa, Inc.
Mr. Jim Dockstader - Dike/Runa, Inc.
Ms. Jenny Stets - Orange County E.M.A. Harbors, Beaches, Parks
Mr. Kevin Sullivan - Dike/Runa, Inc.
Mr. Denton Turner - Orange County E.M.A. Harbors, Beaches and Parks

THIS ITEM/ACTION REPORT WILL BE ASSUMED ACCURATE UNLESS DIKE/RUNA, INC. IS INFORMED OTHERWISE WITHIN FIVE DAYS FROM THE DATE ABOVE.

ITEM		ACTION	
1.0	Resource Management Plan (Remap) Scope of Work	1.0	Inclusion in scope of work of lower Arroyo and Vedanta addition were discussed. Since these two areas were not a part of the "original" proposed scope of work, the remap team will limit their discussions in the remap to

			generalized mapping and policy statments. This should not pose a problem due to their "wilderness" designations.
1.1	Water Table/ Water Quantity	1.1	Remap to address need and locations for water monitoring.
1.2	Santa Margarita run-off Management Plan.	1.2	Kevin Sullivan shall contact Williamson and Schmidt to obtain copy. Sullivan to contact Barbara Altenholm of R.B.F. for information on treatment points. Test shall occur at exising outfalls and existing wells.
1.3	Proposed sand and Gravel Operation North of Park	1.3	D. Turner indicates the remap does not need to address. It is not a real project yet.
1.4	Archaeology	1.4	Dike/Runa to contact R. Bissell to look at maps at County to determine needs.
1.5	Public/Park Staff Meeting Dec. 5, 1988	1.5	Dike/Runa to produce invitation to players for County review.
1.6	Remap Schedule	1.6	K. Sullivan indicates team needs until the end of January 1989 to complete resource inventory. The entire month of February will be necessary in order to complete the remap to 90%. A 90% submittal to the County will be made the first of March. This leaves only the month of March for County review, processing, pensions HBP presentation and Board of Supervisors Presentation. Dike/Runa will follow up with adjusted schedule.

B. EMA STAFF COMMENTS

County of Orange

MEMO

DATE: January 17, 1989

TO: Distribution

FROM: Kevin Sullivan, Dike/Runa, Inc.

SUBJECT: O'Neill Regional Park Resource Management Plan Checklist

The following outline checklist is for our use in developing a management checklist for O'Neill Regional Park resources. Please give us any thoughts and/or ideas regarding these items and their management. We anticipate discussing these at the January 25, 1989 meeting. Note: Consultants to the Resource Management Plan, please make your comments with respect to your individual field of expertise.

MANAGEMENT ISSUES	MANAGEMENT ACTIONS
1. Park Access • Use Areas • Wilderness Area • Sensitive ecological/cultural areas • Etc.	1. MAINTAIN NUMBER OF CAMPSITE AT 100 WILDERNESS AREA NO CAMPING Limit to DAY USE ONLY
2. Visitor Impacts • Auto • Trash • Firewood collection • Foot traffic • Etc.	2. CONTINUE NO FIREWOOD COLLEC. Policy CHANGE SOME AREAS to RE-ROUT Foot TRAFFIC.
3. Revegetation • Habitat restoration/development • Use areas • Improvements • Etc.	3. NO TURF GRASS ADDITIONS IN THE PARK THIS WOULD ADD MANAGEMENT COSTS AND INCREASE WATER USAGE.
4. Habitat/Wilderness Protection	4. CONTINUE WITH WILDERNESS PERI EDUCATION OF PUBLIC.
5. Protection of Wildlife Dispersion Corridors and Foraging Areas	5. OPEN SOME GATED AND FENCED AREAS TO ALLOW FREE MOVEMENT.
6. Tree Care	6. SELECTIVE TREES COULD BE LOOKED AT FOR FUTURE CARE.
7. Soil Restoration/Stabilization	7. SOME POSSIBILITIES EXIST AS to FUTURE MANAGEMENT.
8. Water • Urban runoff • Watershed • Water table • Reclamation • Quality	8. PROBABLY OK IN THE DEVELOPED PARK. QUALITY WILL FALL AS ADDED DRAINS Empty into the Arroyo.

- Availability
- Etc.

9. Visual Quality
   - Viewsheds in
   - Viewsheds out
   - Interior
   - Buffer
   - Etc.

9. O.K. SOME MINOR SHR TREE PLANTINGS COULD B WORKED INTO THE G.D.P

10. Weed Control

10. SEASONAL WITH SPRAY AND MECHANICAL MOWING

11. Domesticated Animal Control

11. PROBLEM TAKEN CARE OF. DO NOT SEE FUTURE GR

12. Light Contamination

12. OK

13. Noise Contamination

13. NO PROBLEM IN THE DE PARK SOME BRIDGE TRAFFI IN THE ARROYO

14. Park Limits

14. ?

15. Park Staffing

15. O.K. BUDGET RESTRAINT NOT ALLOW ADDITIONAL PERS

16. Program Implementation
   - County EMA/HBP
   - Special interest groups
   - Monitor/Specialist needs
   - Public/Volunteer groups
   - Performance standards
   - Etc.

16. FOLLOW OPERATIONS POLI THAT ARE ESTABLISHED

17. Education
   - Interpretation
   - Historical
   - Cultural
   - Etc.

17. CONTINUE INTERPRETIVE PROGRAMS COULD BE ENLARGED WITH G.D.P. TO MAKE A LARGER FACILITY

18. Protection of Cultural Resources

18. OK

19. Flood Control
   - 404/1601
   - Revegetation
   - Land reclamation
   - Visual quality
   - Etc.

19. RIP RAP STABILIZATION OF TRABUCO CREEK CHA PLANNED

R.D.Jer O'NEILL PAR

KS:pac
9011708104076

County of Orange

MEMO

DATE: February 21, 1989

TO: Manager, Design EMA/HBP

FROM: Manager, Regional Parks Operations

SUBJECT: O'Neill Regional Park
Resource Management Plan (RMP)

The following are my comments on the subject plan. My comments are directed primarily at the "Summary of Impacts and Mitigations" section which I feel is the prime goal of the RMP.

1. Soil Compaction

   Mitigation: high use areas visually defined by DG, sand or wood chip surfacing.

   Comment: Not practical. Will take away from natural setting.

   Mitigation: Tie down picnic tables.

   Comment: Experience at Irvine Park shows this does not work. Visitors will remove "Tie Down" to move table under shade of trees.

   Mitigation: Clear and surface trails between sites and rest rooms, parking lots, etc.

   Comment: Same as above re: not practical and unnatural.

2. Oak Tree Root Zone Compaction

   Mitigation: Relocate playground at oak grove picnic area.

   Comment: Agree.

3. Introduction of discordant, non native ornamentals in"natural" areas of park.

   Mitigation: Successively remove exotics and replace with native trees and shrubs.

   Also: Retain existing exotic pines.

   Comment: These are contradictory actions. Will all exotics be removed?

4. Urban Interface: Visual Impact

   Mitigation: Use of transplanted ornamentals for screening.

Comment: Disagree. All new plantings and transplants should be native species only.

5. Deterioration of turf areas

Comment: Turf areas in final GDP should be responsibility of Construction contract not park staff. In total, turf areas should be minimized to lesson maintenance and irrigation requirements.

6. Natural Erosion Processes

Mitigation: Back fill and reinforce eroded and undercutting channel sides. Install drop structures in channels to prevent more down cutting.

Comment: Implementation responsibility should be with Contractor (GDP) as requirements beyond RPO scope.

7. Lack of knowledge on the part of Flood Control and Park Staff had lead to near eradication of sensitive alluvial scrub community.

Comment: Flood control efforts to date are a result of need for flood protection for park. Without an engineered levee Public Works/Park Staff have done what they could with available resources. Obviously, protection of the park was viewed to be of higher priority than creek vegetation. The construction of a levee during GDP implementation will eliminate need for future channel work.

8. Park perimeter fences prevent deer movement.

Comment: Agree with fence removal and openings but should receive CAO/Risk Management concurrence due to mountain lion situation.

Sensitive Resource Recognition and Protection

Turf campground expansion	Disagree
Removal of Nature Center	Disagree. Should be utilized as support to native garden.

In general, RMP is very comprehensive and has identified direction necessary for future management of O'Neill Regional Park resources. It's implementation will be timely and require a significant effort by all.

Thank you for the opportunity to review and comment.

Tim Miller

TM:er

February 21, 1989

MEMO

County of Orange

F850-123.2

:ichard Dyer, Supervising Park Ranger DEPT DIST: EMA/HB&P/O'Neill Regional Park

Steven Farrar, Park Ranger II, O'Neill Regional Park

:CT: O'Neill Park Resource Management Plan

The subject document is indeed an ambitious undertaking with which I am for the most ·t favorably impressed and supportive. It is most disturbing however, that we in parks ɜrations are afforded so little time to review and comment. By the 5:00 p.m. deadline February 22, 1989 my counterpart here at O'Neill, Ranger Nancy Bruland, will have had opportunity what-so-ever to review or comment on this document.

The short time alloted to me has not been sufficient for the review this plan deserves. ɜed upon a cursory and incomplete review I offer the following comments:

1. Oppose multiple access points to Arroyo Trabuco addition to O'Neill Park.
2. Oppose use of Arroyo Trabuco addition for any other purpose than passive day use.
3. Support proposal to create freshwater marshes at storm drain outflows.
4. Support the maintenance of 40% ambient volume downstream flow from Arroyo pond in perpetuity.
5. Support the management of the Arroyo Trabuco addition as a protected nature center with strictly limited and policed access points.
6. Support conversion of West Youth Campground to passive day use area and oppose expansion for additional youth camping.
7. Support relocation of pines from West Youth Bowl Area to other locations in park.
8. Support reexcavation of ponds.
9. Support restoration of vernal pools.
10. Continue to oppose flip-flop of park functions. (flip-flop not permitted under board approves schematice development plan #1 modified)
11. Oppose introduction of additional irrigated turf areas in park. Understand rational for proposal, but believe there must be other alternatives to achieve same objective.
12. Oppose introduction of additional active recreational opportunities in park. The rightful future of the park lies in passive recreational pursuits.
13. Support the acquisition of 27.7 acre parcel at north end of park in Live Oak Canyon.

14. Support the acquisition of Trabuco flats floodplain and lower Arroyo sand and gravel operation. Support the rehabilitation of these areas to native vegetation for passive day use and for use as wildlife corridors.

15. Enthusiastically support the denial of Trabuco sand and gravel application.

16. Thoroughly support the formalization and budgeting for a monitor to oversee implementation of E.I.R. specified mitigations. Current oversight is completely inadequate and ineffective.

17. Thoroughly support park involvement in adjacent land use planning.

cc: T. Gimbrone
T. Miller
D. Turner
J. Stets
K. Sullivan, J. Dockstader-Dike/Runa, Inc.
R.M.P. Consultants

I CONCUR WITH EACH NUMBER BUT #6 I WOULD LIKE TO KEEP THE AREA FOR YOUTH CAMPING WITH SOME CHANGES. R.DYER

County of Orange

MEMO

DATE: 2/2/89

Richard Dyer, Supervising Park Ranger DEPT/DIST: EMA/HB&P - O'Neill Regional Park

M: Steven Farrar, Park Ranger II, O'Neill Regional Park PHONE NO.:

JECT: G.D.P. Proposals For O'Neill Regional Park

At the request of several in attendance at the January 25, 1989 Resource Management Plan Meeting, I am submitting in writing my proposals for the development of O'Neill Park which I first presented to you verbally in September of 1988.

There is no disputing the conflict between the Park's individual camping function on the Mesa campground and the residential development of Rancho Santa Margarita. The great number of complaints received from residents during the Summer of 1988 provides proof of this.

In order to alleviate this conflict I propose that the Park's Reservation R.V. (Recreational Vehicle) Group Camping function be relocated to the Mesa. The Mesa campground has six areas which are well suited for this type of recreational function. With one exception these areas set back the furthest from the adjacent development and provide the greatest amount of existing vegetative screening. The one exception sets adjacent to an area of Rancho Santa Margarita reserved for places of worship. These areas are larger than the four existing R.V. Group Areas.

The proposed relocation should prove effective in reducing conflict with the adjacent development in the following respects:

1. R.V. Group Campers are historically quieter and more responsible than individual campers.
2. R.V. Group Areas when not reserved will be empty.
3. Areas of the Mesa closest to the development, not set aside for Group Camping, can be rehabilitated with native vegetation.

Relocation of the R.V. Group Camping function to the Mesa could provide some significant revenue generating possibilities. Because R.V. Groups pay a reservation fee in addition to regular fees, increasing the opportunities for this type of recreational function make sense. Providing such users with an area exclusively their own, completely separated from all other Park functions, should serve as an incentive for more frequent use in greater numbers. The view of Live Oak/Trabuco Canyons and Saddleback Mountain are certainly an inducement for group users, and design features catering to the specific needs of such patrons would serve as further inducement. The impact of camping in close proximity to development can be softened by the introduction of additional vegetative screening which is now underway, and by the enforcement of the required mitigations for the Plano Trabuco E.I.R. 320. (Landscape mounding and vegetative screening.)

With R.V. Group Camping moved to the Mesa I propose a complete rehabilitation and redesign of the Main campground area. Utilizing existing R.V. Group Areas it should be possible to design approximately 150 individual campsites into the Main campground. This area would then contain the Park's entire individual camping function. In achieving this objective I advocate the following measures:

1. Elimination of turf in existing R.V. Group Area "A".
2. Breaking up compacted soil and adding new topsoil.
3. Restoration of native understory shrubbery.
4. Planting of native trees capable of withstanding impacts of individual camping recreation (Sycamore and Cottonwood).
5. Retention of existing non-native trees.
6. Elimination of campsites in closest proximity to Trabuco Canyon Road.
7. Create vegetative screen along Trabuco Canyon Road.
8. Redesign campground so where feasible and practical, campsites will not be in close proximity to Oak trees.
9. Where feasible and practical place protective bollards around Oak tree drip lines, and prohibit tent, picnic table and barbeque placement within drip lines.

County of Orange

MEMO

DATE 2/2/89

TO: Richard Dyer, Supervising Park Ranger DEPT./DIST: EMA/HB&P - O'Neill Regional Park

FROM: Steven Farrar, Park Ranger II, O'Neill Regional Park PHONE NO.:

SUBJECT: G.D.P. Proposals For O'Neill Regional Park

10. Restore leaf litter within Oak tree drip lines and discontinue current practi of removing it.
11. Discontinue current practice of mowing inside Oak tree drip lines.
12. Discontinue current practice of removing down wood from the area. (Major trur and limbs.)

I propose that the Youth Group Camping function be eliminated from the existing West Youth Group campground and that the area be converted to Day Use. This would establish all Park property west of the Ranger Station as passive Day Use Areas. This will provide the following benefits:

1. Dramatic reduction of impact to resources heavily abused from years of over use. (Resources now recovering nicely after two years of closure.)
2. Elimination of operational problems involved with Day Use vehicles entering a Youth Group campground.
3. Optimum Day Use access to the vast majority of the Park's trail system.
4. Opportunity to rotate and rest Day Use Areas between existing and proposed.

As in other areas of the Park I advocate the discontinuance of the current practic of removing leaf litter and mowing within Oak tree drip lines. I support the proposal to break up compacted soils in Oak groves. I further support the construction of an Interpretive Center/Museum in the vicinity of the Arroyo Trabuco trailer to serve as a point of education and controlled access into the designated wilderness portion of the Park. I also advocate the installation of chain link fencing along all Park boundarie immediately adjacent to development.

To compensate in some measure for the loss of Youth Group Camping facilities in t West Area I propose that the East Youth Campground be expanded to encompass the area currently used for Equestrian camping. This will provide additional Youth Group campi while still keeping the overall numbers of such users within reasonable limits.

The Equestrian camping function should be relocated to the area where the Equestr Arena stands and the Arena should be retained. It should be possible to put in approx mately 12 pull through campsites of the kind now in existence at Caspers Wilderness Pa

I support the transition and rehabilitation of the Featherly Campground to an are of native vegetation for use as a wildlife corridor. As such it would also serve as a buffer zone between Park functions.

These proposals are all consistent with Board approved Schematic Development Plan #1 Modified. It is my belief that they offer the most cost conscious and effective approach to Park development. They concentrate the most resource impactive forms of recreation in the areas of "Old" O'Neill Park already ravaged from years of over use. They provide a reasonable solution to the rehabilitation of these heavily impacted are and a sensible approach to the protection and preservation of the Park's most valuable and vulnerable resources. These proposals would completely separate recreational func within the Park which is operationally desirable. They would further reduce overall usage levels from those experienced in 1986 and years prior which have so seriously impacted Park resources.

cc: T. Gimbrone, HB&P - Operations
T. Miller, HB&P - Operations
Jenny Stets, HB&P - Design
Kevin Sullivan, Dike/Runa Inc.
Jim Dockstader, Dike/Runa Inc.
Karlin Marsh, Botanist

O'NEILL REGIONAL PARK

N

- PASSIVE DAY USE
- INDIVIDUAL CAMPING
- R.V. GROUP CAMPING
- YOUTH GROUP CAMPING
- EQUESTRIAN CAMPING

roup area _____.

ates of _____ to _____.

O'NEILL REGIONAL PARK
P.O. BOX 372
TRABUCO CYN. CA 92678

PEAK 1492'

OCEAN VISTA POINT

CANYON ROAD

#10.11.12

#5.6.7.8.9

#14.15

PASSIVE DAY USE

WEST YOUTH GROUP AREA

LIVE OAK

#3.4

PARK ENTRY

1.2

EDNA SPALDING NATURE TRAIL

PARK OFFICE

INDIVIDUAL CAMPING

TRABUCO CANYON ROAD

MAIN ROAD CAMP GROUND #1-36

BACK ROAD MIAN CAMP GROUND #35-58

EAST AREA #1-10

HICKLEY CREEK

TO JOPLIN

EQUESTRIAN AREA

TO HOLY JIM CANYON

TO COTO DE CAZA

EQUES. CAMPING

MESA CAMPING

EAST YOUTH GROUP AREA

#106-204

RV CAMPING

TRABUCO CREEK TRAIL

PICNIC AREA

WEST LOOP #100-105

FEATHERLY AREA 70-93

COCHEL

Legend

1 C.M. "CYE" FEATHERLY TREE
2 NATURE CENTER
3 CONCESSION BLDG
4 SEWAGE DUMP STATION
5 HARRION EQUESTRIAN CAMPING AREA
6 OLD OFFICE
7 ARBORETUM
8 FIRE STATION
9 MAINTENANCE AREA
10 TRABUCO SCHOOL
11 RENTAL STABLES
12 STORE
EQUESTRIAN TRAIL
RESTROOMS
WATER TANKS
RESTAURANT
HIKING & RIDING TRAIL
A
B
C
D
GROUP AREAS

Nancy Bruland
1/24/89

Comments regarding The Resource Management Plan for O'Neill Regional Park:

1. Park Access
   Active Use - Current picnic area retained as picnic area .
   - Current campground retained as camping area.
   Why introduce increased use into an area with less disturbance?

   Passive Use - Wilderness Area - Hike-in Day Use

   No Use - Sensitive Ecological Areas (ex: nesting sites of rare bird species, archeological sites, rare plant locations, etc.)

   All access through the main gate.

2. Visitor Impacts (including autos, trash, firewoood collection, etc.)
   -more signage
   -more fencing/barriers to protect trees and sensitive resources
   -more educational pamphlets
   -more resting of areas (camping and picnicing)

3. Revegetation
   -Continual plantings with native trees and understory shrubs. As old non-natives die out , replant with natives.
   -Current campgrounds and picnic grounds need revegetation.
   -All different areas of park need to have a rest period.
   -Any park property impacted by development should be revegetated and monitor until the area is reestablished.

4. Habitat/Wilderness Protection
   -More park personnel to monitor developments effecting park, and to monitor mitigations.
   -More park personnel to patrol wilderness areas.
   -Better fencing and signs to make tresspassers aware of the sensitivity of the area. (Educate the public.)

5. Protection of Wildlife and Birds (many protected birds of prey use the park)
   -Realignment of fencing so as not to block wildlife corridors (ex: Trabuco Canyon Road at Trabuco Creek crossing).
   -Placing fencing to force deer/large mammals to follow creek corridor (ex: chain link fencing should be placed along Alicia Parkway)
   -Revegetation of grasslands with native grasses.
   -No park development of any grasslands.
   -County should purchase grasslands surrounding the park.
   (See number 4 above.)

6. Tree Care
   -Dead or dieing trees should not be removed unless a public safety hazard.
   -No mowing under Oak trees
   -No raking of leaf litter under trees
   -No sprinklers hitting Oak trees
   -No parking cars, or driving under Oak trees.
   -Strict adherence to the Oak Tree Manual.
   -Recognition and protection of Heritage Trees and Heritage tree stands
   -Locate run-off drains (associated with development) away from Oak trees.

7. Soil Restoration/Stabilization
   -Compacted soil needs to be addressed! I don't know the correct management solution.
   -Soil Stabilization Question: Is this a problem? If so, where, and what does anyone propose to do about it?
8. Water
   -Set up an urban run-off maintenance program to control debris and trash introduced into the Arroyo Trabuco
   -Set up a testing program to monitor water quality of the urban run-off
   -Require reclamation of the future Golf Course run-off water

Need to address:
   -Increased amount of water entering Trabuco Creek due to urban run-off means theincreased probability of erosion.
   -A year round water source (urban run-off) will change the ecosystem of flooding and drought patterns, and therefore the vegetation.
   -The diversion of natural spring water to holding ponds by Rancho Santa Margarita and the pumping of water from these ponds by Rancho Santa Margarita. Appropriate management action - A Fish and Game requirement to keep 40% water flow downstream from the natural spring site for perpetuity.

9. Visual Quality
   -"Landscape mounding where park areas are at the same level with development areas." Follow this and other mitigations set forth in the Plano Trabuco EIR 320.

10. Weed Control
    -A phasing out program of herbicide useage in O'Neill Park - including the "natural" as well as the "wilderness" areas.

11. Domesticated Animal Control
    -Enforce leash laws in the park.

12. Light Contamination
    -Vegetation buffers to obscure light and absorb noise. (Especially where roads and major arterials are adjacent or cross O'Neill Park.)

13. Noise Contamination
    -Strict adherence to CNELs for Parks and Open Space. (See above.)

14. Park Limits
    -Fencing that accomodates wildlife movement corridors, and signage.

15. Park Staffing
    -Needs to be increased to protect the park environment, to educate the public,

16. Program Implementation
    -Require strict adherence to the Resource Management Plan for O'Neill Park.
    -Question: How can it be ensured that the Resource Management Plan will be followed and enforced? Who will be responsible?

17. Education
    -Important to get the surrounding community involved with the park. Bring the community to the park or the park to the community - outreach programs.
    -Need a "Friends of O'Neill Park" group.
    -An improved Nature Center Facility with staffing would be an asset.

18. Protection of Cultural Resources
    -Education

19. Flood Control
    -Need to address the importance of flooding to the park environment.
    -Need to revegetate along the creek bed so it will function as a viable wildlife movement corridor.
    -Need to make any flood control as visually appealing as possible (natural looking).

County of Orange **MEMO**

DATE: February 22, 1989

TO: Manager, Design EMA/HBP

FROM: District Supervisor EMA/Wilderness Parks

SUBJECT: O'Neill Regional Park
Resource Management Plan (RMP)

Please note my comments on the submitted 50% Resource Management Plan.

I. Wildlife Resources

A. Mountain Lions

"The problem with human/lion conflicts throughout the U.S. is greatest in Orange County as judged by lion attacks on humans and close calls".

Comment: This risky statement could put us in a compromising legal position in any future litigation. It is subjective and not based on sound data. I am only aware of two lion attacks in Orange County (March 23, 1986 and October 19, 1986). I am not aware of any "close calls". I refer the author to the Dr. Lee Fitzhugh study on Mountain Lion Attacks On Humans, which covers all recorded attacks in the United States from 1820 to 1986. The problem is a long way from being the "greatest in Orange County".

II. Summary of impacts and mitigation

A. Suggestion: Tie down picnic tables.
Comment: Does not work.

B. Suggestion: Remove exotics and replace with natives.
Comment: There are some beautiful mature, ornamentals in the facility. I recommend not destroying them.

C. Suggestion: Use of ornamentals as screening.
Comment: I agree.

D. Suggestion: Turf areas.
Comment: Should be no more than existing.

E. Health and Safety Hazards

Suggestion: Vegetative screening should not disguise campsites from ranger patrol vehicles.
Comment: I strongly agree.

F. Suggestion: Remove perimeter fences to allow deer movement.
Comment: Disagree. Will allow visitors direct access to closed areas and all their inherent dangers.

G. Suggestion: Remove nature center.
Comment: Disagree. Very popular and low cost to maintain.

H. Suggestion: Expand campground turf.
Comment: Disagree. Would like to reduce it.

Thank you for the opportunity to glance at the report. In the future I would recommend allowing at least two weeks for thre review process. It's implementation will be welcome.

Tony Gimbrone

TG:er

cc: T. Miller

County of Orange

MEMO

DATE: FEB 27 1989

TO: Denton Turner, Manager, HB&P Design

FROM: Kari Rigoni, Chief, Planning/Environmental Planning, Flood/Corridor

SUBJECT: Requested Input on Draft O'Neill Regional Park Resource Management Plan

At the request of Jenny Stets, my staff has reviewed the excerpted Wildlife Management section of subject document. We are pleased to provide the following input.

Subject:

I. Mapping Requirements

The pages we have been provided (1-7 and four unnumbered pages of summary issues) do not incorporate in any way the technical mapping we must presume has already been performed. There must be a textual relationship between this section and the technical mapping in such areas as:

A. Vegetation communities

B. Wildlife corridors

C. Significant habitat elements (i.e., denning areas, rock outcrops, concentrations of down wood/snags, habitat mixtures, water sources, etc.)

D. Wildlife use-areas (i.e., fawning areas, nest sites, seasonal concentration areas, etc.)

E. Precise locations of restricted range species (i.e., significant amphibians and reptiles)

F. Precise locations of significant plant species (as identified in attached "Rare and Endangered Plants of Orange County", 1989)

G. Location of degraded habitats and enhancement recommendations specific to each locale

II. Development of Monitoring Programs

A. Planning

1. Who will be developing the content of the monitoring programs (qualifications, County staff, consultant, or ?)?

2. What are the habitat management objectives that lead to the monitoring programs content?

3. What are the specific objectives regarding each emphasis specie or group of species?

4. What current baseline data exists for the monitoring program planner to utilize (population densities, habitat quality assessments, or ?)?

5. In conjunction with current baseline data, what evaluative methodologies will be used for determining habitat quality, species use, etc.?

B. Implementation

1. What qualifications will be required of individuals responsible for monitoring and/or performing corrective measures?

2. Who will be implementing the content of the monitoring programs (County staff, consultant, full/part time, or ?)?

3. Which field methodologies for measuring habitat quality, population, etc. will be utilized for the various individual monitoring programs regarding emphasis species or specie groups?

III. Relationship to Other Planning Efforts and Programs

There needs to be textual cross-referencing in this section on the relationship between this Resource Management Plans objectives and those aspects of implementation which may have to be addressed elsewhere. Specifically this would include:

A. The County's Arroyo Trabuco Specific Plan (with regard to public usage, urban interface "buffer" definition, trail/access locations, etc.), Foothill Trabuco Specific Plan (with regard to any impacts generated by area land use changes incorporated into the plan, regulation of buffers, etc.) and Growth Management/Resource Elements (with regard to definition of urban interface buffers)

B. Iroperty's Owner's planning documents including the Trabuco Creek Sand and Gravel Reclamation Plan, Santa Margarita Company Planned Community Resource Management Plans, Mission Viejo Company plans, etc.

C. City of Mission Viejo plans (adopted and in study)

D. Environmental Documents regarding mitigation "programs" for any public works projects involved in present/future intended property limits (i.e., roads, pipelines, drainage/flood control facilities, etc.)

E. The opportunities offered by off-site mitigation requirements (in particular of "B" and "D") to upgrade one or more plant communities in the park

II. Activities in Riparian Areas

The text of this Resource Management Plan should be specific enough to regulate such County activities (conducted by County staff, contractors, or public property permittees) in riparian areas as: flood control or drainage physical improvements, flood control maintenance, fuel modification, grading, "temporary" activities, park maintenance, relandscaping, and maintenance of crossing roads, bridges, trails, pipes, etc. This regulation should be designed so that all activities will be required to comply with State Fish and Game Code Sections 1600 et. al.

Thank you for the opportunity to review the excerpt from this document. Please provide a complete copy of the next draft of this Resource Management Plan.

If you have any questions concerning this memo, please contact Cathy Nowak at 834-5069.

CN:jmhPEM01-7/9058
9022710191899

Attachment

SYNTHESIS OF RMP COMMENTS
BY
HBP/OPERATIONS

TM - Tim Miller
TG - Tony Gimbrone
NB - Nancy Bruland
SF - Steve Farrar
Comments - ( )

1. Removing Exotics

TM - RMP: Successively remove exotics and replace with native trees and shrubs, retain existing exotic pines (contradictory actions, will all exotics be removed?)

Recommendation: Selective removal of ornamental trees.

2. Urban Interface

TM - Use of transplanted ornamentals for screening (disagree: all new plantings and transplants should be native species only).

TG - (agree)

Rec: All urban interface palettes be native.

3. Deterioration of Turf Areas

TM - (In final GDP, turf areas should be responsibility of construction contract, not park staff. In total, turf areas should be minimized to lessen maintenance and irrigation requirements).

TG - (Turf areas should be no more than existing).

Rec: Retain same amount of turf or decrease.

4. Soil Compaction

TM - High use areas defined by DG, sand or wood chips - (not practical, will take away from natural setting).
TM - Clear and surface trails between sites and restrooms, parking lots (not practical and unnatural).

Rec: An effort be made to keep all trails as natural as possible.

5. Picnic Tables

TG, TM - Tie down - (does not work, visitors want to move under shade of trees).

TG - (There are some beautiful mature ornamentals in facility. Recommend not destroying them).

Rec: Locate picnic tables in shade of afternoon sun and design detail should allow tie-down without vandalism.

6. Trabuco Flood Improvements

TM - Backfill and reinforce eroded and undercutting channel sides. Install drop structures in channels to prevent more down cutting. (Implementation responsibility should be with contractor (GDP) as requirements beyond RMP scope).

NB - (Need to revegetate along creek bed so it will function as viable wildlife movement corridor).

Rec: Implementation responsibility of drop structures is construction contractor.

7. Oak Tree Root Zone

TM - Relocate playground at oak grove picnic area (agree).

Rec: Relocate playground at oak grove picnic area.

8. Revegetation

NB - (Plantings with native trees and understory shrubs, as old natives die out, replant with natives).
- (Revegetation of grasslands with native grasses)
- (Phase out program of herbicide usage).

Rec: Herbicide spraying needs to be controlled. Design will coordinate with Public Works to establish guidelines for bulldozing Trabuco Creek area.

9. Perimeter Fence Removal

TM - (Agree with fence removal and openings, but should receive CAO/Risk Management concurrence due to mountain lion situation).

TG - (Disagree with fence removal. Will allow visitors direct access to closed areas and all their inherent dangers).

Rec: Until appropriate staffing can be obtained for Arroyo, fencing shall remain. Operations will write letter for support of selected fencing to funnel deer under bridges and through wildlife corridors.

10. Fencing/Signage

NB - (Better fencing and signs to make trespassers aware of sensitivity of area).
- (Realign fencing at Trabuco Canyon Rd at Trabuco Creek crossing to encourage wildlife corridors).

Rec: Refer to number 9.

11. Park Access/Entry Points

SF - (Oppose unstaffed entry points for visitors, but encourage use of entry points as wildlife corridors).

NB - (All access through main gate).

Rec: Entry points need to be staffed. Staffing requirements needed to have trails accessible.

12. Equestrian Trails

SF - (Advocate utilization of containment rail system for all trails).

Rec: Selective containment of equestrian trails.

13. Turf Campground Expansion

TM - (Disagree)

TG - (Disagree, would like to reduce it).

Rec: Turf campground not be expanded.

14. Equestrian Concession

SF - (Oppose equestrian concession in any other area other than existing equestrian arena).

Rec: If equestrian concession being considered for generating revenue, the operation be located in equestrian arena area.

15. Nature Center

TG - (Disagree on removal. Very popular and low cost to maintain).

TM - (Disagree on removal. Should be utilized as support to native garden).

Rec: The existing nature center building be incorporated into Interpretive Program or trail system.

16. Individual Campsites

TG - Vegetative screening should not disquise campsites from ranger patrol vehicles (agree).

Rec: Control screening of campsites for ranger patrol vehicle surveillance.

17. Arroyo Trabuco

SF - (Advocate no fires be permitted in Arroyo).

Rec: No fires be permitted in Arroyo.

18. Visitor Impacts

NB - (More signage, fencing/barriers to protect trees and resources.
- (More educational pamphlets).
- (More resting of camping/picnicking areas).

Rec: In design development, look at coupling revegetation with resting of campsites.

JS:pac
9031516113122

DATE: May 4, 1989

MEMO

County of Oran

TO: Denton Turner, Manager DEPT DIST: EMA/H,B&P/Design

FROM: Richard Dyer, Supervising Park Ranger, O'Neill Regional Park

SUBJECT: Review Of O'Neill Park R.M.P.

Very well done, with expert information. What would cost of park monitor run? How long would monitor advise on resourse plan?

Park staff ready to go with G.D.P. when the R.M.P. in incorporated with it.

Respectfully,

Richard Dyer

Richard Dyer, Supervising Park Ranger
O'Neill Regional Park

cc:

RD:gj

May 06, 1989

MEMO

County of Orange

F350-123.2

Richard Dyer, Supervising Park Ranger DEPT DIST EMA/H,B&P/O'Neill Regional Park

Steven Farrar, Park Ranger II, O'Neill Regional Park

ECT: O'Neill Park Resource Management Plan

Based upon a review of the R.M.P. at 90% completion I offer the following comments:

1. The R.M.P. is an ambitious undertaking, perhaps too ambitious to be accomplished. I am concerned with the significant increase in staffing that will be required to accomplish it's goals. Current staffing is not sufficient to do so. At a time of considerable budget restraint within the County of Orange is it truly feasible to acquire the funding for staff at all envisioned entry points, for the various R.M.P. monitors/managers and for increased maintenance and patrol staff? If not the goals of the R.M.P. will be largely unobtainable and the plan will become a joke.

2. Contained in the preface under the implementation schedule heading is the following statement: "Furthermore the county responce to comments indicates: the regional park resources needs include trails, day use facilities." What does this mean??

3. The restoration of native grasslands and vernal pools, unless specifically intended for off-site mitigations, is more appropriately the function of the G.D.P.

4. I continue to be concerned with the issue of selectively removing exotic trees from the old park to be replaced with natives. The real issue here is the publics desire for shade. If shade producing exotics are removed and replaced with small natives requiring many years of growth to provide any appreciable amount of shade this will only place additional stress on mature natives already heavily impacted.

5. I support the establishment and funding for a park resource monitor position. The individual recruited for this position will need to be a thouroughly trained and qualified biologist.

6. I restate my support for "no dogs, no fires" restrictions in all designated wilderness sections of the park. This was reduced to a recommendation for no fires at last consideration.

7. I support a continuing listing for permanent protection for species of limited distribution and species listed as candidates for federal protection as recommended by the rural canyon residents association (RCRA).

8. In general I share the concerns and support the recommendations of RCRA.

9. The R.M.P. to date clearly illistrates the inappropriateness of the G.D.P. that preceded it and it has yet to establish the maximum carrying capacity of the park. This will arguably be one of the most crucial factors in the formulation of a new G.D.P. Framed within the parameters of board approved schematic development plan No.#1 modified.

: T. Gimbrone
T. Miller
D. Turner
Dike/Runa, Inc.

:gj

DATE: 5/9/89

MEMO

County of Ora

TO: Richard Dyer

DEPT DIST

FROM: Nancy Bruland

SUBJECT: Resource Management Plan, O'Neill Regional Park

Suggestions for Resource Management Plan:

I.B.2.
"Furthermore the county response to comments indicates: The regional park resourc needs include trails, day use facilities."
What does this mean - "the resources needs?"

Place Name Map Key
Separate Old Park from Lower Arroyo Northern Portion

Place Name Map
Is the placement of (I) Future Rancho Trabuco P.C. accurate?
Should (O) be Trabuco Creek?

III.C.
"It will be the responsibility of Harbors, Beaches and Parks to develop an impleme program for the Resource Management Plan..."
Who in Harbors, Beaches and Parks will do this? Can it at least be narrowed down a division of Harbors, Beaches and Parks? Would it be Design or Operations or who Without an implementation program the Resource Management Plan will mean nothing!

III.D.
It has never before been suggested to nominate the park cultural resources as a wh to the National Register of Historic Places as an Archeological District. This is extremely important. It needs to be given more emphasis.
I would strongly recommend that the Resource Management Plan include a list of reg significant plants, animals and issues which deserve special attention and more em

IV.E.
The issue of noise impact from roadways on the main campground, west youth area ar the mesa campground are over emphasized. Live Oak/Trabuco Canyon Road is not a ma freeway like Santa Margarita Parkway or the future Foothill Transportation Corrido Noise complaints in relation to traffic are rare. What is the recommended CNEL for Parks and Open Space?

IV.F.1.C.
Raptor foraging areas should be "High Sensitivity," because this habitat is dimin rapidly.

V.
I question the mitigation/management given to Harbors, Beaches and Parks Operatio Many are beyond the scope of HBP Operations (park personnel) -- either too little staffing or too little knowledge (for example: restoring vernal pools). Other mitigations/management have previously been suggested and/or could have easily be accomplished in the past but were ignored (for example: budget to restore native grasslands as part of weed eradication program, deer signage on Live Oak Canyon R Owl/Bluebird Nest boxes, and pursuing 40% flow downstream from Arroyo pond in per If these issues have been too costly, too time consuming, or frankly, ignored in past -- what/who will require that these issues are addressed in the future?
If it will be the responsibility of the implementation program, then the implemen program should become a priority of the Resource Management Plan.

5/9/89

MEMO

County of Orange

Richard Dyer DEPT DIST

Nancy Bruland

ECT: Resouce Management Plan, O'Neill Regional Park, Page 2

Suggestions for Resource Management Plan (continued):

It was discussed at the last Resource Management meeting, March 27, 1989, that some sort of notification procedure should be set up between Harbors, Beaches and Parks and Public Works so any work done in the park (especially in the creek bed) could be reviewed by HBP Operations before it was started by Public Works. This should be addressed in the Resource Management Plan. It could be under water quality or in conjunction with wildlife corridors in the Mitigation/Management section (V.).

Included with these comments is information on deer fencing. This issue was discussed at the last Resource Management meeting, March 27, 1989. In some cases there was a request to remove fencing to allow deer movement, for example at the Trabuco Creek crossing at Trabuco Canyon Road. In other cases there was a request to install permanent deer fencing to stop deer movement at the Santa Margarita Bridge site. The attached information gives examples of fencing that allows deer movement and criteria for fencing to stop deer movement. The issue of deer fencing is an important one. To block a major movement corridor is detrimental to the species as a whole. To stop deer movement on to a major freeway is not only an issue of saving individual deer, but a public safety concern. In the case of Santa Margarita Bridge, appropriate deer fencing will stop deer and funnel them under the bridge, thereby using the creekbed as the movement corridor. The Santa Margarita Bridge Widdening Project should include installation of permanent deer fencing as a mitigation requirement.

The specifics are lacking in the Mitigation/Management section of the Resource Management Plan. For example: "Work with adjacent developments to minimize urban runoff into natural waterways." It would be helpful to list specific water reclamation ideas. Or..."Work with appropriate agencies to consider sound attentuaion devices on bridge overpass." It would be helpful to list the appropriate agencies, list attenuat devices (baffles,etc.) and give CNEL standards for Parks and Open Space.

F. Park Capacity
The carrying capacity of the park for people and animals is crucial information which will guide the direction of the General Development Plan. Without preservation of the natural resources of the park there will be a zero carrying capacity. No habitat equals no animals. No habitat and no animals would make the park an unattractive place for people to visit. Proper management of the park for future generations will depend on the determination of the optimum carrying capacity of the park.

Multivalue Use Level Map
Old Park/Lower Arroyo between the future Foothill Transportation Corridor and the Santa Margarita Bridge crossing should be "Highly Restricted Use Potential" due to the high habitat value.
Vedanta Multivalue Use Level Map should all be "Low Use Potential" to "Highly Restrict Use Potential" due to the close proximity to the Monastery and the high value of the area for raptor foraging.

The priority list "in developing and implementation program for the O'Neill Regional Park Resource Management Plan."
4) "Establish structure policy for development mitigation with respect to visual interface (buffering), urban runoff" <u>and</u> <u>encroachment</u>. (add on)

DATE: 5/9/89

MEMO

County of Ora

TO: Richard Dyer

DEPT DIST:

FROM: Nancy Bruland

SUBJECT: Resource Management Plan, O'Neill Regional Park, Page 3

Suggestions for Resource Management Plan (continued):

The EIR 463 Excerpts are an important addition to the Resource Management Plan. Any appropriate recommendations from the Board Approved Schematic Development Plan #1 for O'Neill Regional Park should also be incorporated into the Resource Management Plan.

Thank you for the opportunity to comment.

cc: T. Miller
T. Gimbrone
J. Stets

County of Orange

MEMO

DATE: May 10, 1989

TO: Denton Turner, Manager, Harbors, Beaches & Parks/Design

FROM: Kari Rigoni, Chief, EMA/Environmental Planning Division, Flood/Corridor

SUBJECT: Requested Input on Draft O'Neill Regional Park Resource Management Plan 90% Completion

In response to your request for review of the subject document by our division, the following comments are offered:

IV. B. Emphasis Species

The third paragraph of this section continues to discuss emphasis species or group of species in generality. There is still no improvement to this section as suggested in our earlier memo of February 27 Section II. A. 3., 4., 5. In the consultant's report the Wildlife Resource Management Plan by Steve Loe contains inadequate management recommendations for monitoring along the lines of our previous comments. Thus, transference of the consultant's recommendations to the Park Management Checklist has resulted in inadequate descriptions and requirements for emphasis species/group of species monitoring.

IV. C. Water Quality and Hydrology

There are two important elements missing from this section. The first should be titled "Water Quantity". The discussion should include surface and groundwater flows required for maintenance of existing fish, wildlife, and vegetation resources (and any planned resource restoration/enhancement). We have attached the recommended hydrology discussion contents from the State Parks and Recreation "Guidelines for Resource Documentation". Consequently the Park Management Checklist contains inadequate discussion of requirements for water quantity monitoring.

The second missing section should address flood control improvements. Wherever there is a need to replace earthen banks or to reconstruct rip rap banks, serious consideration should be given to recent designs which are environmentally sensitive. Despite the consultant's report (Section 3.3.2.B.2.b.) even grouted rip rap will never support much more than grassy species. Suggest you investigate the use of Armorflex (see attached brochure) to allow shrubs and the possibility of small (up to 4"-5" trunk) trees on slopes and banks. Armorflex is highly recommended by U.S. Army COE Regulatory Branch, Mark Durham, Dept. of Fish & Game Wetlands Team, Mike Giusti, U.S. Fish & Wildlife Service, Dick Zemble. Ken Smith of Flood Design is familiar with this product.

IV. D. Archaeology

Table 1 should incorporate a new column that would summarize potential threats to each individual site (such as ongoing erosion, proximity to trails, pot hunting, discing, grading, structural deterioration, proposed park improvement, etc.). The consultant's report which we obtained (prepared by RMW Paleo Associates and dated January 30, 1989) implies that the consultant is aware of such impacts, which he categorizes as "natural, primary, and secondary" impacts. However, this does not provide any guidance for either the rangers (until a cultural resources manager is hired) or the future cultural resource manager, on which impacts were noted as of that date. In addition, the consultant does not make specific recommendations on a site by site basis for fencing, burial, surface planting, erosion control, etc., in his Mitigation Matrix. As a consequence, the Park Management Checklist does not provide for any monitoring or remedial actions until the manager is hired, and the baseline data deficiency will not allow the future manager to perform his Task 5, the "yearly inspection of known deposits for change".

On one site, we believe the lack of recommendations and consequent lack of remedial action in the Park Management Checklist is particularly dangerous. This is with regard to the Trabuco Adobe site which the consultant's report itself indicates has been in part destroyed by grading and pot-hunting.

IV. F. I. D. Ecological "Reduced Sensitivity"

Giving an overall reduced sensitivity rating for Coastal Sage Scrub poses a problem, given the possible presence of federal candidate species for threatened/endangered listing (including Black-tailed Gnatcatcher, San Diego Horned Lizard, Orange-throated whiptail, and Cactus Wren). Perhaps the focus here should be to establish Coastal Sage Scrub areas that would be upgraded to the medium sensitivity category and of sufficient acreage and quality to support both officially listed species and Coastal Sage Scrub dependent species such as California Quail, Greater Roadrunner, Wrentit, Bewick's Wren, Cactus Wren, Black-tailed Gnatcatcher, California Thrasher, and Rufous-sided Towhee. In order to assist in determining minimum habitat requirements for these dependent species we have attached an article entitled "Reconstructed Dynamics of Rapid Extinctions of Chaparral-Requiring Birds in Urban Habitat Islands".

V. D. Cultural Impacts and Mitigation/Management

The Paleontological Resources Section refers to discovery and collection of "artifacts". This term is not applicable to paleontological resources.

VI. B. Park Management Checklist - <u>Inspection: Oak Woodland</u>

Under Inspection: Oak Woodland, requirements 1. and 2. refer to use of the Oak Woodland Monitoring Checklist. We have reviewed the actual Checklist and find the approach inadequate in that no form has been

developed to associate the Checklist with an individual Tree Report/ Grading System; this, despite the fact that 650 oak trees in the park have been surveyed. A suggested Tree Report/Grading System is attached. In addition, the Checklist itself should note under Characteristics of a Declining Woodland mechanical damage, structural damage, insect damage (especially indications of the Oak Bark Beetle), inadequate soil moisture, etc.

The back side of the Oak Woodland Monitoring Checklist also does not include recommendations for treatment of wounds and mechanically damaged areas. A water solution including Bordeaux powder and raw linseed oil has been recommended by arborist Alden Kelly. It would probably be appropriate to also list under "What to Do" those tools that the park monitor would be required to carry into the field to inspect trees (soil probe, tree tape for measuring trunk diameter, hand lens, pruners, mallet and chisel, etc.).

In summary, we believe the Oak Woodland Monitoring Checklist cannot be used independently of an associated Tree Report/Grading System.

IV. B. Park Management Checklist - Landscaping

There is no clear discussion of the consultant's recommended work to address substrate restoration under oak trees. In the consultant's report this section appears as 3.3.5.E.2. This is an extremely complex and very important landscaping proposal which requires work proceeding at certain times of the year, involving soil aeration, fertilization, mulching, provisions for emergency watering in drought conditions and understory planting (creating a dense, thorny, and inpenetrable barrier around oak tree drip lines should be the focus of understory plant selection). We believe a separate Landscaping section under this Checklist would be appropriate.

IV. B. Park Management Checklist - Administration

We recommend a correction of the typo in requirement 6. to "clearing-house" and the addition of a new requirement 9. which would be to "Develop curation, cataloging, and registration procedures".

If you have any question concerning our review please contact Cathy Nowak at 834-5069.

CN:vm/smPM01-320/9130
9050916591067

Attachments: Hydrology Section from CA Dept. of Parks and Recreation
"Guidelines for Resource Documents"
Armorflex brochure
"Reconstructed Dynamics of Rapid Extinctions of Chaparral-Requiring Birds in Urban Habitat Islands"
Tree Report/Grading System

DATE: May 22, 1989

TO: Jenny Stets HBP/Design

FROM: Manager, Regional Parks Operations

SUBJECT: O'Neill Regional Park Resource Management Plan

Per your request, the following are my recommendations for HBP Operations mitigation responsibility as listed in the subject plan:

	Mitigation	Responsibility
Biological Setting	Establish monitor personnel as inspector and observer of condition of natural areas.	Supervising Park Ranger (SPR)
	Establish and Implement wood land management techniques.	
	Establish program of resting use areas for recovery.	
	Establish and implement educational interpretive and signage programs.	Park Ranger II's (PRII)
	Restore native grasslands.	SPR
	Conduct weed eradication operations (thistle and mustard).	SPR/Public Works
	Restore vernal pools.	Consultant
	Establish and implement consistent management techniques.	SPR
	Establish and implement periodic monitoring and evaluation of area.	SPR SPR
	Restore impacted areas (i.e., grasslands, vernal pools, etc.)	SPR
	Conduct controlled burning as described in consultant's reports.	SPR

	Mitigation	Responsibility
	Establish and implement educational, interpretive and signage programs.	SPR
	Identify and eradicate invasive plants.	PR II
	Work with adjacent planning efforts to avoid use of invasive ornamentals in plant palettes.	permit review process
	Establish and implement program to inspect park edges and waterways for invasive plants.	SPR/PR II
	Generate developer performance standards for work adjacent to park.	HBP/Program Planning/Design
	Establish mechanism for park involvement in review of adjacent development proposals.	HBP/Program Planning/Design
	Establish and implement program of patrolling and inspecting park, unauthorized encroachment, ill effects of runoff.	SPR/PR II
	Establish and implement program of community education with respect to living near natural park.	PR II
Wildlife	Implement deer signage program on Live Oak Canyon Road.	SPR/PR II
	Consider acquisition of property to link park to National Forest.	HBP/Program Planning
	Limit trail use within corridors to designated trails and eliminate informal trail blazing.	SPR/PR II/Staff/GDP
	Monitor surface water quality.	Environmental Resources or contract.
	Establish mechanism to record wildlife sightings by visitors and staff.	Program in process.

	Conduct periodic inventory and evaluation by biologist.	Consultant.
	Establish and implement educational, interpretive, and signage program.	PR II
	Control use by domesticated animals.	SPR/PR II
Raptor Population	Establish and implement habitat enhancement program (i.e., grassland restoration, understory revegetation, etc.)	SPR/PR II/GDP
	Preserve snags where feasible.	SPR/PR II
	Establish and implement yearly monitoring program	Consultant contract
	Provide Owl nest boxes	SPR/PR II/Volunteers
	Establish and implement educational and interpretive program.	PR II
	Establish and guide implementation of water quality monitoring program.	Environmental Resources/ Consultant
	Pursue participation of adjacent developments in water quality monitoring and mitigation.	Environmental Resources/ Consultant
	Establish and implement mechanism for park involvement in reviewing adjacent development for water quality impacts.	HBP Program Planning/Design
	Work with adjacent developments to minimize urban runoff into natural waterways.	County Runoff/Drainage Plan.
	Establish and guide implementation of groundwater monitoring program.	Environmental Resources
	Limit use of pesticides, herbicides, cleaners, etc. within park.	SPR/Park Staff
	Pursue 40% flow downstream from Arroyo pond in perpetuity.	HBP/Program Planning/Opns.

Cultural Resources	Develop cultural resource information files as described in specialist's report.	SPR/PR II
	Establish mechanism for observation of all surface disturbing projects by archaeologist.	SPR/PR II
	Provide curative, educational interpretive programs.	PR II
	Allow completion of research within park.	RPO Manager
	Adopt qualification and performance standards for contracted professionals to conduct research as described in specialists report.	HBP/Opns/Design
	Establish Cultural Resources Manager as described in specialists report.	HBP
	Allow collection of artifacts by paleontologists and contining research as described in specialists report.	SPR
	Establish mechanism for observation of all surface disturbing projects by paleontologists.	SPR/PR II
	Provide curative, educational and interpretive programs.	PR II
	Provide signage program to discourage informal collecting.	SPR/PR II
	Conduct yearly inspection of suspected localities after rains to discover exposed artifacts.	SPR/PR II
Visual Quality	Work with adjacent development to provide vegetative and/or topographical buffer.	Development Permit Process HBP
	Provide native vegetation where screening is required.	GDP/HBP/SPR

Work with adjacent proposed development to provide sensitive and natural looking viewsheds as seen from park (i.e., contour grading, appropriate plant material).	HBP/Program Planning
Screen urban outfall structures as feasible.	GDP
Patrol edges periodically to discover deterioration of habitat due to urban influence (disease, refuse, pests, abuse).	SPR/PR II
New plantings shall be native.	GDP/SPR/PR II
Establish and implement road signage to discourage littering.	EMA/Transportation/HBP
Establish and implement regular weekly trash cleanup program under bridge.	SPR/Park Staff
Establish and implement educational and signage program to generate sensitivity to trash problem.	PR II

Tim Miller

TM:er

cc: R. G. Fisher
T. Gimbrone
R. Dyer

C. PUBLIC COMMENTS

March 6, 1989

Ms. Jenny Stets
OCEMA/HBP Design Section
Box 4048
Santa Ana, CA 92702-4048

RE: O'Neill Park RMP

Dear Ms. Stets:

Thank you for the opportunity to comment on the aforementioned project. We appreciate the additional time granted to RCRA in order to more adequately respond. You will find our comments below.

Initial Comments

P. 11-6, "The Place", should include a 1988 reference in the 'history' of the park including the dedication of the 87 acres in the "island pasture" area. We believe the omission of this 87 acres was an oversight.

The maps of the Arroyo beginning on unnumbered p. 11-3 include notations of storm drains. Have these maps included the deletion of one of those storm drains per the settlement agreement pertaining to the Development Agreement for Rancho Santa Margarita?

P. 11-7 references the "island pastures" and this area's dedication as critical foraging habitat. Since this dedication was, be believe, not deed restricted, we believe this RMP should emphasize the retention of this area for such use. We were disturbed by the notations that indicate severe impacts to this area per construction activities in the area. Has this land been accepted for dedication? If so, this impact should cease, and impacts should require mitigation (revegetation with appropriate native grassland species).

Biological Setting

Botanical Section

We were thrilled to find such an extensive section on the botanical setting of the Park, especially the notations of some very significant species. The recommendations for permanent protection of such species

and the methods to accomplish such protection appear to be well thought out and quite appropriate.

We have, however, a question. Are any of these populations located in areas that are to be impacted by the various transportation 'improvements' planned for this area, or potentially in the path of outfalls, waterlines, etc. or potential housing development? If so, these populations should be permanently protected through an amendment to the Resources Element of the General Plan by including a category for permanent Preservation. So often species of limited distribution or species categorized as candidate species for Federal protection etc. are wiped out before they are preserved. Thus, a continuing listing for permanent protection might serve to eliminate their untimely demise.

P. V-1, Biological Setting Mitigation/Management

We have long held that the park use has been too high leading to the deterioration/degradation of the natural resources. Establishment of an "optimal use" is great mitigation, and we agree with the reduction of sites as listed. However, the "vehicle" (research of park areas) is cloudy. What criteria would be used? Who ultimately decides what is and is not overuse, underuse (if that's possible), and optimal use? How would this research be done? If the future GDP is predicated upon such research, this research should be performed now before use is changed or assigned to any given area. If this is not performed prior to use changes etc., the research is meaningless and will be ineffective. This is probably the number one problem in this park and all else hinges on this one issue.

Regarding vegetation trampling and soil compaction, clearing and surfacing trails (p. V-2, para 2) may be appropriate, but not insensitive locations. Is this advisable under oak tree canopies?

Regarding restoration of vernal pools, this is an excellent idea. Can native fish be introduced into these pools? Our only concern here is the use of Ranger time to accomplish this (will there be additional Park Staff added to accomplish this and other tasks assigned to them? It seems like an awful lot to load on Park Staff without a significant addition in Staff).

Regarding the Arroyo Trabuco Swamp Forest (p. V-3) the issue and mitigation are appropriate, however quarterly water quality monitoring should be required. In addition, when herbicides are being applied to

the golf course, etc., SM Co. should contact the park so effects can be monitored. In addition, the SM Company has contended that their herbicide applications will be within allowable herbicide application limits, etc. Considering this to be true, this does not mean that the Arroyo will be able to tolerate associated washdown effects. Working with the Company is fine, but what recommendations are readily at hand to eliminate these additions? These recommendations should be contained in this RMP, and the Consulting Biologists should be forefront in developing meaningful mitigation. Is there any way to filter the runoff from the golf course? Is there any way to clean up the water before it reenters the Arroyo? Can it be ponded and managed before it leaves the golf course?

Regarding the Arroyo Trabuco Pond, we concur that it should be restored to allow overflow for wildlife. However, the Company should indicate their willingness to do this now. Otherwise, this may not be an option, and other waterers might be necessary.

The 78" storm drain outfall appears to be the culprit regarding present water degradation (at least for the most part). Whatever natural processes can be used to clean up this degradation should be actively pursued. Who, actually, is responsible for the Arroyo water degradation? SM Co., residents???? Certainly, there should be a responsible party or parties. Perhaps the SM Co. would be willing to develop and mail a flyer to all residents once a year explaining where the chemicals they toss out actually go, what they do, and what the alternative solutions are. Education never hurts.

Regarding cattle overgrazing (p. V-4), introduction of pesticides by the EMA weedbuster team makes us a little nervous. Have such activities in the past (whether roadside or in the park) caused any problems in relation to wildlife deaths? The reintroduction of pronghorns is exciting, but we hope this would be kept very quiet so that hunters were not attracted to this area.

Regarding oak tree decline (p. V-6), who will design tree maintenance procedures and who will call for maintenance and perform maintenance? This is a sticky question as oak trees in particular are sensitive to mismanagement/poor maintenance policies.

Regarding permit encroachments etc. (p. V-11), future locations of impact should be noted such as Foothill Corridor Bridge, Oso Parkway Bridge, etc.

Regarding urban interface with wildlife (p. V-16), the recommended mitigations should be incorporated for all bridge crossings of the Arroyo as well as adjacent roadways such as Alicia Parkway. The cost of such mitigations should be incorporated into the facilities cost (especially since it is so incremental, and since the impact is directly related to these facilities).

Regarding water quality (p. V-17), monitoring should be a perpetual and on-going process. Quality can be expected to continue to degrade with upstream, and adjacent build out. Monitoring should occur more than twice a year, and especially after the golf course is built. Installation of wildlife waterers and preservation of waterers are critical to allow fresh drinking water for wildlife.

Regarding park limits (p. V-17) we concur. We also believe that at the minimum, 1000 ft. setbacks from bluff edge should be instituted, with natural plantings and native grasslands restored.

We concur with most of the mitigations under water quality and hydrology with the exception of additional rip-rap. Further, we were told that the only future flood control drop structures to be added to the Arroyo would be to mitigate the Livingston-Graham site. Supervisor Vasquez assured us that flood control protection would not continue other than this. Rip rap is ugly, and has little or no place in a park such as this.

Regarding planting knobcone pines (p. V-29), how sensitive is this species to smog?

Wildlife Section

We were pleased to see such thorough discussion of the various large mammal species within the park range, and surprised to note the presence of at least one of those species!

This section correctly notes that continued habitat viability/use of the Park area by many species is contingent upon reasonable adjacent use and consideration for the long term preservation of resources.

Lack of migration in the upper section of the Arroyo (as described in para 4, p. 5 of the Wildlife section), is probably further hampered by chain link fencing at the northern edge of the park. Perhaps some type of fencing (or other methods) could allow for animal migration but still restrict human entry (along with park patrol).

Above all, the importance of the County's acquisition of the northern section of the Arroyo (or Federal acquisition) is to be emphasized. If use of this area is considered important to the quality and quantity of mammal populations, the County should consider this area as a high priority area of acquisition. In addition, the Foothill Trabuco Specific Plan might serve as a vehicle for such acquisition, via land trades, scenic easement overlays, and conservation land use designations (CN).

In addition, County regulation might possibly be responsible for eliminating unlawful use of this area.

There is one other issue directly related to wildlife and the park—future roadways and bridges. The Santa Margarita bridge widening, recently approved by the Board of Supervisors, should include permanent deer fencing to eliminate deer and other large mammals from crossing both Santa Margarita Bridge and Santa Margarita Parkway. This fencing is critical for protection of large mammals, and also in terms of the health and safety of drivers using these facilities. Strict provisions for deer fencing should be extended to adjacent roadways, and future bridge crossings for Oso Parkway, and the Foothill Corridor, which should also include native vegetation for screening of this fencing.

In addition, mammal "attractors", such as salt licks and guzzlers, should be required as either temporary or permanent mitigation for migration disruption. In the case of Santa Margarita Bridge, the Bridge construction zone appears to impact either one or both of the northerly watering holes presently used by wildlife in the Arroyo. Thus, the Park Plan should include some type of integrated planning for such present and future construction impacts. Perhaps at least two sites for mammal attractors should be located on either side of any such bridge to facilitate continued use of the area, and to protect wildlife from associated impacts.

In addition, Park Staff might consider a monitoring program to map sightings of various species through time. Public participation in such notations might occur through something as simple as an advertised "card" they fill out and give to Park Staff noting the location of sighting, time of day, species sighted, etc. RCRA has an ongoing program similar to this and the information we have gathered from the public's participation is significant. In addition, this might also help Park Staff to determine the effects on migration due to construction, development, etc. and enable a better understanding of possible mitigation route changes through time.

Wildlife Resource: Raptor Species

We recommend (as noted in this document) continued monitoring of raptor populations. In addition, any planning which seems to result in deleterious effects upon raptor use of the Arroyo should be abandoned, and/or relocated. Perhaps camping and/or other use of the Arroyo during nesting season should be prohibited where it can be found that such use conflicts with success of nests. We would ask for careful review of this suggestion by appropriate individuals on the Biology Team responsible for this document.

In addition, we look forward to the spring update by Mr. Bloom as noted in this document.

Water Quality and Hydrology

Finally, someone has discussed the question of water quality in the Arroyo (also section 3.4.2). It was quite obvious that something was definately degrading the local surface waters, and we have long suspected urban runoff culminating from SM development and runoff from the SM Parkway Bridge.

As stated earlier in this document, this is a big problem for wildlife, especially the smaller species which are more sensitive to increased pollution. Standards for pollution are often only viewed in terms of pollution of drinking water--human standards. What about wildlife standards?

Facilities

We will not be commenting on this until all of the work is completed and we can see the whole picture more clearly.

Archeo/Paleo

We we very pleased to find that the archeo section was so well written. For the first time in a long time, the writer clearly pointed to the purpose of the archeo studies--to determine whether the site is or is not significant. Much information has been lost because of slipshod archeo work in the past. We are very glad to find that trend concluding. We look forward to the paleo section when it is completed.

These are not the full extent of our comments, but represent what we were able to comment on in a limited period of time. We will respond more fully when the document in completed.

We hope that information in this EIR will be tied into the Foothill Trabuco Specific Plan document.

Again, thank you for the opportunity to comment.

Sincerely,

Sherry Lee Meddick, President
Rural Canyon Residents Association
Box 401
Silverado, CA 92676
(714) 649-2641

SEA and SAGE AUDUBON

P. O. BOX 25 SANTA ANA, CALIFORNIA 92702

March 22, 1989

Mr. Denny Turner, Manager
Harbors, Beaches, and Parks Design
OCEMA, Box 4048
Santa Ana, CA 92702

Re: O'Neill Regional Park Resource Management Plan

Dear Mr. Turner:

We in Sea and Sage appreciate very much being asked to contribute ideas and comments on the proposed Resource Management Plan for O'Neill Regional Park. I have read the "50% document" which was distributed at the public meeting on February 28, and find it to be quite far-reaching and ambitious in scope.

My feeling is that if all the measures suggested in the plan were carried out, there would be a great improvement in the habitat and overall condition of the park. My concern is that some very desireable measures may not be implemented because of the low priority or lack of sufficient allocation of funds. These measures include such things as providing safe areas and movement corridors for wildlife, prevention of negative impacts on water quality and flow from storm drains, adequate rotation and "resting" of camping areas to allow for recovery of vegetation, retention of dead trees for cavity dependent species, acquisition and restoration of grassland forage areas for raptors, and revegetation of floodplain and creek banks cleared for flood control.

We believe it is important for the County to support a vigorous program of revegetation and habitat enhancement throughout the County Park system. An obvious benefit of improving native habitat would be the preservation of our wildlife resources. Future development in the foothill areas adjacent to the Cleveland National Forest should include adequate open space corridors for animal movement, thus ensuring diversity among the native plant and animal species.

We urge the County to increase its programs for education and interpretation because those who use the parks need to be made aware of the value and importance of park resources, and must be encouraged to use those resources appropriately.

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MAR 24 1989
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Please keep us informed as the plan reaches completion --- Sea and Sage is genuinely interested in the proper management of the unique resources of O'Neill Park and the Arroyo Trabuco.

Sincerely,

Virginia Chester

Virginia Chester, President
Sea and Sage, Audubon

cc/Leonard MacKain, Commissioner
Harbors, Beaches and Parks
501 S. Poplar
Brea, CA 92621

D. RESOURCE MANAGEMENT MATRIX

05 December 1988

O'NEILL REGIONAL PARK
REOURCE MANAGEMENT PLAN

RESOURCES TO BE PRESERVED, MANAGED, PROTECTED AND MAINTAINED

PROGRAMS FOR RESOURCE PROTECTION AND PRESERVATION (TOOLS)	HUMANS	WATER	SOIL	WILDLIFE	WILDERNESS AREAS	SIGNIFICANT ECOLOGICAL AREAS	ARCHAEOLOGICAL SITES	PALEONTOLOGICAL SITES	VIEWSHEDS	TRAILS	PLANT COMMUNITIES	NATIVE TREES	TREE UNDERSTORY	PARK FACILITIES (Camp, Day Use Arboritum, Equestrian)	O'NEILL HERITAGE	SCENIC VISTAS	SCENIC ROADS	ARROYO WETLANDS	O'NEILL CHARACTER	FUTURE PLANNING	RECREATION
1) EDUCATIONAL AND COMMUNITY INVOLVEMENT																					
2) FINANCIAL																					
3) ADVISORY																					
4) REGULATORY																					
5) PARK OPERATIONS																					

GROUPS/AGENCIES (VEHICLES)

+ Citizens/Public

x Private - Non-Profit Organizations
Form an O'Neill Park Alliance

MANAGEMENT MATRIX

E. EIR #463 EXCERPTS

The following represents recommendations as taken directly from section 7 of EIR #463 for O'neill Regional Park

Soils, Landform, Geology

- "Trails shall be graded in accordance with the Orange County Grading Code." [1]

Hydrology

- "Include vegetation within the channelized areas." [2]

CULTURAL/SCIENTIFIC RESOURCES

"Structures planned at the Trabuco Mesa Adobe site shall utilize compatible materials for aesthetic consistency." [3]

"The trail staging area shall be moved off site ORA-871."

a. "Prior to initial implementation level approvals (ie., plans and specifications), a County-certified archaeologist shall be retained by the project proponent to perform a subsurface test level investigation and surface collection for those sites which have not been previously evaluated. The test level report evaluating the sites shall include discussion of significance (depth, nature, condition, and extent of the resources) and final mitigation recommendations." [4]

b. "The County-certified archaeologist shall be consulted throughout the GDP design phase." [5]

EXISTING AND SURROUNDING LAND USE

- "Buffer the Mesa Campground camping area from surrounding existing and planned development." [6]

RELEVANT PLANNING PROGRAMS

- "Comply with appropriate California Department of Fish and Game permitting processes for the facility being implemented." [7]

BIOLOGICAL RESOURCES

EIR #463 indicates the following Biological Resources warrant inclusion into a mitigation plan:

- Wildlife Dispersion
- Raptor nesting and foraging areas
- Existing water sources
- Species of concern
- Habitat of losses

[1] - [7] EIR #463

The following are biological mitigation guidelines as identified by EIR #463:

WILDLIFE DISPERSION CORRIDORS: (Emphasis on Mule Deer)

- "Remove the boundary fences
- Institute a revegetation program to rehabilitate the banks and terrace portion of the Arroyo impacted during flood control grading.
- Remove the Featherly Campground or convert it to a day-use facility.
- To immediately maintain a deer dispersion route, low pass-through points should be placed at intervals along the cattle fence to be constructed.
- Underpasses, or pass-through culverts should be placed underneath the Foothill Transportation Corridor, Santa Margarita Parkway and Oso Parkway to maintain dispersion opportunities.
- Where feasible, raptor nest sites should be protected from line-of-sight from adjacent roadways.
- Maintain as much grassland as possible as foraging areas.
- The area of the 'Island Pasture' on the Plano should be maintained as grassland.
- Develop a rehabilitation for the eradication of milk thistle and black mustard." [1]

WATER QUALITY

- "Some means of filtration and separation of petroleum wastes from the runoff prior to entry into the creek would be desirable.
- Oak tree health should be monitored for adverse impacts due to a changing hydrologic regime.
- Carefully monitor for public access and maintain naturally the following species of concern": [2]
  - Coulter's Matilya Poppy - west side of Arroyo Trabuco benchlands between the Narrows and Live Oak Canyon.
  - Santa Monica Liveforever - The Spalding Nature Trail.
  - Raptors - Select areas within the Arroyo Trabuco.
  - Mule Deer - Transient in nature.

[1]-[2] - EIR #463

HABITAT LOSSES

"U.S. Fish and Wildlife Service has guidelines based upon their Mitigation Policy Statement that addresses habitat losses. Based upon their May 5, 1986 response to the Notice of Preparation:" [1]

"The following plant communities identified in the biological resource analysis are considered Resource Category 2 by the U.S. Fish and Wildlife Service:" [2]

- riparian woodland
- riparian forest
- freshwater marsh
- oak woodland

"Based upon this same correspondence, Resource Category 3 includes the following plant communities:" [3]

- coastal sage scrub-mixed
- mixed chaparral
- oak savannah

Resource Category 4 includes the following:

- grassland
- rock outcrop

"RESOURCE CATEGORY	CRITERIA FOR RESOURCE CATEGORY DESIGNATION	MITIGATION PLANNING GOAL
1.	Habitat is of high value for evaluation species and is unique and irreplaceable.	No loss of existing habitat value.
2.	Habitat is of high value for evaluation species and is scarce or becoming scarce.	No net loss of in-kind habitat value.
3.	Habitat is of high to medium value for evaluation species and is abundant.	No net loss of habitat value, while minimizing the loss of in-kind habitat value.
4.	Habitat is of medium to low value for evaluation species.	Minimize loss of habitat value."[4]

[1]-[4] - EIR #463

Specific Mitigation

"Specific mitigation shall be developed and incorporated into the General Development Plan for those areas of the Park designated as having Medium to Highest resource sensitivity. Said specific mitigation shall also be used to satisfy applicable Federal and State permit requirements for O'neill Regional Park." [1]

TRAFFIC/CIRCULATION

EIR #463 indicated to include the following policy statement: "The general Development Plan for O'Neill Regional Park accommodated and provides for existing and planned highways as described in the County General Plan, including the Foothill Transportation Corridor and incorporates these facilities into the overall ultimate park development concept. Therefore, implementation of these highways will be compatible with overall Park development."

AESTHETICS

EIR #463 also states:

"Prior to implementation level approvals, a final landscape plan, including a revegetation plan, shall be prepared by a licensed landscape architect. Such plan shall utilize native plant material to the extent to maintain existing aesthetic qualities in the park."

Design plans for expanded park facilities shall be consistent with the following guidelines:

- Construction of proposed facilities shall conform, to the extent feasible, to the existing landform.
- Grading shall be minimized through project design.
- Where feasible, existing vegetation shall be retained and preserved through design plans.
- To the extent feasible, construction vehicles and staging areas will be kept away from existing vegetation which is to be retained, to provide protection from vehicle emissions.
- Design of new structures shall be consistent with existing structures and aesthetic characteristics of the park."

[1] - EIR #463

F. ARMY CORPS OF ENGINEERS AND DEPARTMENT OF FISH AND GAME PERMITS

ARMY CORP. PERMIT

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
P.O. BOX 2711
LOS ANGELES, CALIFORNIA 90053-2325

REPLY TO
ATTENTION OF

August 22, 1988

Office of the Chief
Regulatory Branch

Orange County Harbors, Beaches and Parks
ATTN: Denton Turner
P.O. Box 4048
Santa Ana, California 92702-4048
(714) 834-3812

Gentlemen:

This is in reply to your application (No. 88-116-GS) dated February 1, 1988 for a Department of the Army Permit to discharge fill material in the form of concrete and rip-rap into 5.9 acres of riparian habitat to provide 100-year flood protection to the existing facilities and the current development areas of the O'Neill Regional Park.

Regulations for our permit program, published in the Federal Register, include Part 330 - Nationwide Permits (see the enclosure). Your proposed activity is covered under the nationwide permit for discharges of dredged or fill material into non-tidal rivers, streams and their lakes and impoundments, including adjacent wetlands, that are located above the headwaters, which would cause the loss or substantial adverse modification of between one and 10 acres of such waters, and where the Division Engineer determines that an individual permit is not required. (Section 330.5 (a)(26)(i)).

As long as you comply with the attached special conditions and the nationwide permit conditions (Section 330.5 (b)), an individual permit is not required. This Nationwide Permit verification is valid for a period not to exceed two years. It is incumbent upon the permittee to remain informed of any changes to Nationwide Permits.

This letter does not convey any property rights, either in real estate or material, or any exclusive privileges. Also, it does not authorize any injury to property or invasion of rights or any infringement of Federal, State, or local laws or regulations, nor does it obviate the requirement to obtain State or local assent required by law for the activity.

If you have any questions please call Gerardo Salas, Regulatory Branch, at (213) 894-5606 any workday.

Sincerely,

Charles M. Holt (for)
Richard Harlacher
Chief, Southern Section

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Enclosure

SPECIAL CONDITIONS FOR PERMIT 88-116-GS

Special Conditions for Nationwide
88-116-GS

1. No sycamore or oak trees shall be adversely impacted as a result of the permitted activity. All specimens of mulefat (Baccharis) removed as part of the permitted activity shall be replaced in kind. The permitee shall monitor the site for two years following completion of the permitted activity.

2. The permitee shall replace any failed transplanted specimens immediately during the two years following the planting.

3. The implementation of the revegetation plan shall occur concurrently with the proposed fill.

PART 330—NATIONWIDE PERMITS

Sec.
330.1 General.
330.2 Definitions.
330.3 Activities occuring before certain dates.
330.4 Public notice.
330.5 Nationwide permits.
330.6 Management practices.
330.7 Notification procedures.
330.8 Discretionary Authority.
330.9 State water quality certification.
330.10 Coastal Zone Management consistency determination.
330.11 Nationwide permit verification.
330.12 Expiration of nationwide permits.

Authority: 33 U.S.C. 401 et seq.; 33 U.S.C. 1344; 33 U.S.C. 1413.

§ 330.1 General.

The purpose of this regulation is to describe the Department of the Army's (DA) nationwide permit program and to list all current nationwide permits which have been issued by publication herein. A nationwide permit is a form of general permit which may authorize activities throughout the nation. (Another type of general permit is a "regional permit" and is issued by division or district engineers on a regional basis in accordance with 33 CFR Part 325). Copies of regional conditions and modifications, if any, to the nationwide permits can be obtained from the appropriate district engineer. Nationwide permits are designed to allow certain activities to occur with little, if any, delay or paperwork. Nationwide permits are valid only if the conditions applicable to the nationwide permits are met. Failure to comply with a condition does not necessarily mean the activity cannot be authorized but rather that the activity can only be authorized by an individual or regional permit. Several of the nationwide permits require notification to the district engineer prior to commencement of the authorized activity. The procedures for this notification are located at § 330.7 of this Part. Nationwide permits can be issued to satisfy the requirements of section 10 of the Rivers and Harbors Act of 1899, section 404 of the Clean Water Act, and/or section 103 of the Marine Protection, Research and Sanctuaries Act. The applicable authority is indicated at the end of each nationwide permit.

§ 330.2 Definitions.

(a) The definitions of 33 CFR Parts 321–329 are applicable to the terms used in this Part.

(b) The term "headwaters" means the point on a non-tidal stream above which the average annual flow is less than five cubic feet per second. The district engineer may estimate this point from available data by using the mean annual area precipitation, area drainage basin maps, and the average runoff coefficient, or by similar means. For streams that are dry for long periods of the year, district engineers may establish the "headwaters" as that point on the stream where a flow of five cubic feet per second is equaled or exceeded 50 percent of the time.

(c) Discretionary authority means the authority delegated to division engineers in § 330.8 of this part to override provisions of nationwide permits, to add regional conditions, or to require individual permit application.

§ 330.3 Activities occurring before certain dates.

The following activities were permitted by nationwide permits issued on July 19, 1977, and unless modified do not require further permitting:

(a) Discharges of dredged or fill material into waters of the United States outside the limits of navigable waters of the United States that occurred before the phase-in dates which began July 25, 1975, and extended section 404 jurisdiction to all waters of the United

States. (These phase-in dates are: After July 25, 1975, discharges into navigable waters of the United States and adjacent wetlands; after September 1 1976, discharges into navigable waters of the United States and their primary tributaries, including adjacent wetlands, and into natural lakes, greater than 5 acres in surface area; and after July 1, 1977, discharges into all waters of the United States.) (Section 404)

(b) Structures or work completed before December 18, 1968, or in waterbodies over which the district engineer had not asserted jurisdiction at the time the activity occurred provided, in both instances, there is no interference with navigation. (Section 10)

§ 330.4 Public notice.

(a) *Chief of Engineers.* Upon proposed issuance of new nationwide permits, modification to, or reissuance of, existing nationwide permits, the Chief of Engineers will publish a notice in the **Federal Register** seeking public comments and including the opportunity for a public hearing. This notice will state the availability of information at the Office of the Chief of Engineers and at all district offices which reveals the Corps' provisional determination that the proposed activities comply with the requirements for issuance under general permit authority. The Chief of Engineers will prepare this information which will be supplemented, if appropriate, by division engineers.

(b) *District engineers.* Concurrent with publication in the **Federal Register** of proposed, new, or reissued nationwide permits by the Chief of Engineers, district engineers will so notify the known interested public by an appropriate notice. The notice will include regional conditions, if any, developed by the division engineer.

§ 330.5 Nationwide permits.

(a) *Authorized activities.* The following activities are hereby permitted provided they meet the conditions listed in paragraph (b) of this section and, where required, comply with the notification procedures, of § 330.7.

(1) The placement of aids to navigation and regulatory markers which are approved by and installed in accordance with the requirements of the U.S. Coast Guard (33 CFR Part 66, Subchapter C). (Section 10)

(2) Structures constructed in artificial canals within principally residential developments where the connection of the canal to a navigable water of the United States has been previously authorized (see 33 CFR Part 322.5(g)).

(3) The repair, rehabilitation, or replacement of any previously authorized, currently serviceable, structure or fill, or of any currently serviceable structure or fill constructed prior to the requirement for authorization, provided such repair, rehabilitation, or replacement does not result in a deviation from the plans of the original structure or fill, and further provided that the structure or fill has not been put to uses differing from uses specified for it in any permit authorizing its original construction. Minor deviations due to changes in materials or construction techniques and which are necessary to make repair, rehabilitation, or replacement are permitted. Maintenance dredging and beach restoration are not authorized by this nationwide permit. (Section 10 and 404)

(4) Fish and wildlife harvesting devices and activities such as pound nets, crab traps, eel pots, lobster traps, duck blinds, and clam and oyster digging. (Section 10)

(5) Staff gages, tide gages, water recording devices, water quality testing and improvement devices, and similar scientific structures. (Section 10)

(6) Survey activities including core sampling, seismic exploratory operations, and plugging of seismic shot holes and other exploratory-type bore holes. Drilling of exploration-type bore holes for oil and gas exploration is not authorized by this nationwide permit; the plugging of such holes is authorized. (Sections 10 and 404).

(7) Outfall structures and associated intake structures where the effluent from that outfall has been permitted under the National Pollutant Discharge Elimination System program (Section 402 of the Clean Water Act) (see 40 CFR Part 122) provided that the district or division engineer makes a determination that the individual and cumulative adverse environmental effects of the structure itself are minimal in accordance with § 330.7 (c)(2) and (d). Intake structures per se are not included—only those directly associated with an outfall structure are covered by this nationwide permit. This permit includes minor excavation, filling and other work associated with installation of the intake and outfall structures. (Sections 10 and 404)

(8) Structures for the exploration, production, and transportation of oil, gas, and minerals on the outer continental shelf within areas leased for such purposes by the Department of Interior, Mineral Management Service, provided those structures are not placed within the limits of any designated separation scheme (where such limits have not been designated or where changes are anticipated, district engineers will consider recommending the discretionary authority provided by 330.8 of this Part, and further subject to the provisions of the fairway regulations in 33 CFR 322.5(1) (Section 10).

(9) Structures placed within anchorage or fleeting areas to facilitate moorage of vessels where such areas have been established for that purpose by the U.S. Coast Guard. (Section 10)

(10) Non-commercial, single-boat, mooring buoys. (Section 10)

(11) Temporary buoys and markers placed for recreational use such as water skiing and boat racing provided that the buoy or marker is removed within 30 days after its use has been discontinued. At Corps of Engineers reservoirs, the reservoir manager must approve each buoy or marker individually. (Section 10)

(12) Discharge of material for backfill or bedding for utility lines, including outfall and intake structures, provided there is no change in preconstruction bottom contours (excess material must be removed to an upland disposal area). A "utility line" is defined as any pipe or pipeline for the transportation of any gaseous, liquid, liquifiable, or slurry substance, for any purpose, and any cable, line, or wire for the transmission for any purpose of electrical energy, telephone and telegraph messages, and radio and television communication. (The utility line and outfall and intake structures will require a Section 10 permit if in navigable waters of the United States. See 33 CFR Part 322. See also paragraph (a)(7) of this section). (Section 404)

(13) Bank stabilization activities provided:

(i) The bank stabilization activity is less than 500 feet in length;

(ii) The activity is necessary for erosion prevention;

(iii) The activity is limited to less than an average of one cubic yard per running foot placed along the bank within waters of the United States;

(iv) No material is placed in excess of the minimum needed for erosion protection;

(v) No material is placed in any wetland area;

(vi) No material is placed in any location or in any manner so as to impair surface water flow into or out of any wetland area;

(vii) Only clean material free of waste metal products, organic materials, unsightly debris, etc. is used; and

(viii) The activity is a single and

(14) Minor road crossing fills including all attendant features, both temporary and permanent, that are part of a single and complete project for crossing of a non-tidal waterbody, provided that the crossing is culverted, bridged or otherwise designed to prevent the restriction of, and to withstand, expected high flows and provided further that discharges into any wetlands adjacent to the waterbody do not extend beyond 100 feet on either side of the ordinary high water mark of that waterbody. A "minor road crossing fill" is defined as a crossing that involves the discharge of less than 200 cubic yards of fill material below the plane of ordinary high water. The crossing may require a permit from the US Coast Guard if located in navigable waters of the United States. Some road fills may be eligible for an exemption from the need for a Section 404 permit altogether (see 33 CFR 323.4). District engineers are authorized, where local circumstances indicate the need, to define the term "expected high flows" for the purpose of establishing applicability of this nationwide permit. (Sections 10 and 404)

(15) Discharges of dredged or fill material incidental to the construction of bridges across navigable waters of the United States, including cofferdams, abutments, foundation seals, piers, and temporary construction and access fills provided such discharge has been authorized by the US Coast Guard as part of the bridge permit. Causeways and approach fills are not included in this nationwide permit and will require an individual or regional Section 404 permit. (Section 404)

(16) Return water from an upland, contained dredged material disposal area (see 33 CFR 323.2(d)) provided the state has issued a site specific or generic certification under section 401 of the Clean Water Act (see also 33 CFR 325.2(b)(1)). The dredging itself requires a Section 10 permit if located in navigable waters of the United States. The return water or runoff from a contained disposal area is administratively defined as a discharge of dredged material by 33 CFR 323.2(d) even though the disposal itself occurs on the upland and thus does not require a section 404 permit. This nationwide permit satisfies the technical requirement for a section 404 permit for the return water where the quality of the return water is controlled by the state through the section 401 certification procedures. (Section 404)

(17) Fills associated with small hydropower projects at existing reservoirs where the project which includes the fill is licensed by the Federal Energy Regulatory Commission (FERC) under the Federal Power Act of 1920, as amended; has a total generating capacity of not more than 1500 kw (2,000 horsepower); qualifies for the short-form licensing procedures of the FERC (see 18 CFR 4.61); and the district or division engineer makes a determination that the individual and cumulative adverse effects on the environment are minimal in accordance with § 330.7 (c)(2) and (d). (Section 404)

(18) Discharges of dredged or fill material into all waters of the United States other than wetlands that do not exceed ten cubic yards as part of a single and complete project provided the material is not placed for the purpose of stream diversion. (Sections 10 and 404)

(19) Dredging of no more than ten cubic yards from navigable waters of the United States as part of a single and complete project. This permit does not authorize the connection of canals or other artificial waterways to navigable waters of the United States (see Section 33 CFR 322.5(g)). (Section 10)

(20) Structures, work, and discharges for the containment and cleanup of oil and hazardous substances which are subject to the National Oil and Hazardous Substances Pollution Contingency Plan, (40 CFR Part 300), provided the Regional Response Team which is activated under the Plan concurs with the proposed containment and cleanup action. (Sections 10 and 404)

(21) Structures, work, discharges associated with surface coal mining activities provided they were authorized by the Department of the Interior, Office of Surface Mining, or by states with approved programs under Title V of the Surface Mining Control and Reclamation Act of 1977; the appropriate district engineer is given the opportunity to review the Title V permit application and all relevant Office of Surface Mining or state (as the case may be) documentation prior to any decision on that application; and the district or division engineer makes a determination that the individual and cumulative adverse effects on the environment from such structures, work, or discharges are minimal in accordance with §§ 330.7 (c) (2) and (3) and (d). (Sections 10 and 404)

(22) Minor work, fills, or temporary structures required for the removal of wrecked, abandoned, or disabled vessels, or the removal of man-made obstructions to navigation. This permit does not authorize maintenance dredging, shoal removal, or river bank snagging. (Sections 10 and 404)

(23) Activities, work, and discharges undertaken, assisted, authorized, regulated, funded, or financed, in whole or in part, by another federal agency or department where that agency or department has determined, pursuant to the CEQ Regulation for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR Part 1500 et seq.), that the activity, work, or discharge is categorically excluded from environmental documentation because it is included within a category of actions which neither individually nor cumulatively have a significant effect on the human environment, and the Office of the Chief of Engineers (ATTN: DAEN-CWO-N) has been furnished notice of the agency's or department's application for the categorical exclusion and concurs with that determination. Prior to approval for purposes of this nationwide permit of any agency's categorical exlcusions, the Chief of Engineers will solicit comments through publication in the **Federal Register**. (Sections 10 and 404)

(24) Any activity permitted by a state administering its own Section 404 permit program for the discharge of dredged or fill material authorized at 33 U.S.C. 1344(g)-(l) is permitted pursuant to section 10 of the Rivers and Harbors Act of 1899. Those activities which do not involve a section 404 state permit are not included in this nationwide permit but many will be exempted by section 154 of Pub. L. 94-587. (See 33 CFR 322.3(a)(2)). (Section 10)

(25) Discharge of concrete into tightly sealed forms or cells where the concrete is used as a structural member which would not otherwise be subject to Clean Water Act jurisdiction. (Section 404)

(26) Discharges of dredged or fill material into the waters listed in paragraphs (a)(26) (i) and (ii) of this section except those which cause the loss or substantial adverse modification of 10 acres or more of such waters of the United States, including wetlands. For discharges which cause the loss or substantial adverse modification of 1 to 10 acres of such waters, including wetlands, notification to the district engineer is required in accordance with section 330.7 of this section. (Section 404).

(i) Non-tidal rivers, streams, and their lakes and impoundments, including adjacent wetlands, that are located above the headwaters.

(ii) Other non-tidal waters of the United States, including adjacent wetlands, that are not part of a surface tributary system to interstate waters or

navigable waters of the United States (i.e., isolated waters).

(b) *Conditions.* The following special conditions must be followed in order for the nationwide permits identified in paragraph (a) of this section to be valid:

(1) That any discharge of dredged or fill material will not occur in the proximity of a public water supply intake.

(2) That any discharge of dredged or fill material will not occur in areas of concentrated shellfish production unless the discharge is directly related to a shellfish harvesting activity authorized by paragraph (a)(4) of this section.

(3) That the activity will not jeopardize a threatened or endangered species as identified under the Endangered Species Act (ESA), or destroy or adversely modify the critical habitat of such species. In the case of federal agencies, it is the agencies' responsibility to comply with the requirements of the ESA. If the activity may adversely affect any listed species or critical habitat, the district engineer must initiate Section 7 consultation in accordance with the ESA. In such cases, the district engineer may:

(i) Initiate section 7 consultation and then, upon completion, authorize the activity under the nationwide permit by adding, if appropriate, activity specific conditions, or

(ii) Prior to or concurrent with section 7 consultation he may recommend discretionary authority (See section 330.8) or use modification, suspension, or revocation procedures (See 33 CFR 325.7).

(4) That the activity shall not significantly disrupt the movement of those species of aquatic life indigenous to the waterbody (unless the primary purpose of the fill is to impound water);

(5) That any discharge of dredged or fill material shall consist of suitable material free from toxic pollutants (see section 307 of the Clean Water Act) in toxic amounts;

(6) That any structure or fill authorized shall be properly maintained.

(7) That the activity will not occur in a component of the National Wild and Scenic River System; nor in a river officially designated by Congress as a "study river" for possible inclusion in the system, while the river is in an official study status;

(8) That the activity shall not cause an unacceptable interference with navigation;

(9) That, if the activity may adversely affect historic properties which the National Park Service has listed on, or determined eligible for listing on, the National Register of Historic Places, the permittee will notify the district engineer. If the district engineer determines that such historic properties may be adversely affected, he will provide the Advisory Council on Historic Preservation an opportunity to comment on the effects on such historic properties or he will consider modification, suspension, or revocation in accordance with 33 CFR 325.7. Furthermore, that, if the permittee before or during prosecution of the work authorized, encounters a historic property that has not been listed or determined eligible for listing on the National Register, but which may be eligible for listing in the National Register, he shall immediately notify the district engineer;

(10) That the construction or operation of the activity will not impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights;

(11) That in certain states, an individual state water quality certification must be obtained or waived (See § 330.9);

(12) That in certain states, an individual state coastal zone management consistency concurrence must be obtained or waived (See § 330.10);

(13) That the activity will comply with regional conditions which may have been added by the division engineer (See § 330.8(a)); and

(14) That the management practices listed in § 330.8 of this part shall be followed to the maximum extent practicable.

(c) *Further information.* (1) District engineers are authorized to determine if an activity complies with the terms and conditions of a nationwide permit unless that decision must be made by the division engineer in accordance with § 330.7.

(2) Nationwide permits do not obviate the need to obtain other Federal, state or local authorizations required by law.

(3) Nationwide permits do not grant any property rights or exclusive privileges.

(4) Nationwide permits do not authorize any injury to the property or rights of others.

(5) Nationwide permits do not authorize interference with any existing or proposed Federal project.

(d) *Modification, Suspension or Revocation of Nationwide Permits.* The Chief of Engineers may modify, suspend, or revoke nationwide permits in accordance with the relevant procedures of 33 CFR 325.7. Such authority includes, but is not limited to: adding individual, regional, or nationwide conditions; revoking authorization for a category of activities or a category of waters by requiring individual or regional permits; or revoking an authorization on a case-by-case basis. This authority is not limited to concerns for the aquatic environment as is the discretionary authority in § 330.8.

§ 330.8 Management practices.

(a) In addition to the conditions specified in § 330.5 of this Part, the following management practices shall be followed, to the maximum extent practicable, in order to minimize the adverse effects of these discharges on the aquatic environment. Failure to comply with these practices may be cause for the district engineer to recommend, or the division engineer to take, discretionary authority to regulate the activity on an individual or regional basis pursuant to § 330.8 of this Part.

(1) Discharges of dredged or fill material into waters of the United States shall be avoided or minimized through the use of other practical alternatives.

(2) Discharges in spawning areas during spawning seasons shall be avoided.

(3) Discharges shall not restrict or impede the movement of aquatic species indigenous to the waters or the passage of normal or expected high flows or cause the relocation of the water (unless the primary purpose of the fill is to impound waters).

(4) If the discharge creates an impoundment of water, adverse impacts on the aquatic system caused by the accelerated passage of water and/or the restriction of its flow shall be minimized.

(5) Discharge in wetlands areas shall be avoided.

(6) Heavy equipment working in wetlands shall be placed on mats.

(7) Discharges into breeding areas for migratory waterfowl shall be avoided.

(8) All temporary fills shall be removed in their entirety.

§ 330.7 Notification procedures.

(a) The general permittee shall not begin discharges requiring pre-discharge notification pursuant to the nationwide permit at § 330.5(a)(26):

(1) Until notified by the district engineer that the work may proceed under the nationwide permit with any special conditions imposed by the district or division engineer; or

(2) If notified by the district or division engineer that an individual permit may be required; or

(3) Unless 20 days have passed from receipt of the notification by the district engineer and no notice has been

received from the district or division engineer.

(b) Notification pursuant to the nationwide permit at § 330.5(a)(28) must be in writing and include the information listed below. Notification is not an admission that the proposed work would result in more than minimal impacts to waters of the United States; it simply allows the district or division engineer to evaluate specific activities for compliance with general permit criteria.

(1) Name, address, and phone number of the general permittee;

(2) Location of the planned work;

(3) Brief description of the proposed work, its purpose, and the approximate size of the waters, including wetlands, which would be lost or substantially adversely modified as a result of the work; and

(4) Any specific information required by the nationwide permit and any other information that the permittee believes is appropriate.

(c) *District engineer review of notification.* Upon receipt of notification, the district engineer will promptly review the general permittee's notification to determine which of the following procedures should be followed:

(1) If the nationwide permit at § 330.5(a)(28) is involved and the district engineer determines either, (i) the proposed activity falls within a class of discharges or will occur in a category of waters which has been previously identified by the Regional Administrator, Environmental Protection Agency; the Regional Director, Fish and Wildlife Service; the Regional Director, National Marine Fisheries Service; or the heads of the appropriate state natural resource agencies as being of particular interest to those agencies; or (ii) the particular discharge has not been previously identified but he believes it may be of importance to those agencies, he will promptly forward the notification to the division engineer and the head and appropriate staff officials of those agencies to afford those agencies an adequate opportunity before such discharge occurs to consider such notification and express their views, if any, to the district engineer concerning whether individual permits should be required.

(2) If the nationwide permits at § 330.5(a) (7), (17), or (21) are involved and the Environmental Protection Agency, the Fish and Wildlife Service, the National Marine Fisheries Service or the appropriate state natural resource or water quality agencies forward concerns to the district engineer, he will forward those concerns to the division engineer together with a statement of the factors pertinent to a determination of the environmental effects of the proposed discharges, including those set forth in the 404(b)(1) guidelines, and his views on the specific points raised by those agencies.

(3) If the nationwide permit at § 330.5(a)(21) is involved the district engineer will give notice to the Environmental Protection Agency and the appropriate state water quality agency. This notice will include as a minimum the information required by paragraph (b) of this section.

(d) *Division engineer review of notification.* The division engineer will review all notifications referred to him in accordance with paragraph (c)(1) or (c)(2) of this section. The division engineer will require an individual permit when he determines that an activity does not comply with the terms or conditions of a nationwide permit or does not meet the definition of a general permit (see 33 CFR 322.2(f) and 323.2(n)) including discharges under the nationwide permit at § 330.5(a)(28) which have more than minimal adverse environmental effects on the aquatic environment when viewed either cumulatively or separately. In reaching his decision, he will review factors pertinent to a determination of the environmental effects of the proposed discharge, including those set forth in the 404(b)(1) guidelines, and will give full consideration to the views, if any, of the federal and state natural resource agencies identified in paragraph (c) of this section. If the division engineer decides that an individual permit is not required, and a federal or appropriate state natural resource agency has indicated in writing that an activity may result in more than minimal adverse environmental impacts, he will prepare a written statement, available to the public on request, which sets forth his response to the specific points raised by the commenting agency. When the division engineer reaches his decision he will notify the district engineer, who will immediately notify the general permittee of the division engineer's decision.

§ 330.8 Discretionary authority.

Except as provided in paragraphs (c)(2) and (d) of this section, division engineers on their own initiative or upon recommendation of a district engineer are authorized to modify nationwide permits by adding regional conditions or to override nationwide permits by requiring individual permit applications on a case-by-case basis, for a category of activities, or in specific geographic areas. Discretionary authority will be based on concerns for the aquatic environment as expressed in the guidelines published by EPA pursuant to section 404(b)(1). (40 CFR Part 230)

(a) *Activity Specific conditions.* Division engineers are authorized to modify nationwide permits by adding individual conditions on a case-by-case basis applicable to certain activities within their division. Activity specific conditions may be added by the District Engineer in instances where there is mutual agreement between the district engineer and the permittee. Furthermore, district engineers will condition NWPs with conditions which have been imposed on a state section 401 water quality certification issued pursuant to § 330.9 of this Part.

(b) *Regional conditions.* Division engineers are authorized to modify nationwide permits by adding conditions on a generic basis applicable to certain activities or specific geographic areas within their divisions. In developing regional conditions, division and district engineers will follow standard permit processing procedures as prescribed in 33 CFR Part 325 applying the evaluation criteria of 33 CFR Part 320 and appropriate parts of 33 CFR Parts 321, 322, 323, and 324. Division and district engineers will take appropriate measures to inform the public of the additional conditions.

(c) *Individual permits*—(1) *Case-by-Case.* In nationwide permit cases where additional individual or regional conditioning may not be sufficient to address concerns for the aquatic environment or where there is not sufficient time to develop such conditions under paragraphs (a) or (b) of this section, the division engineer may suspend use of the nationwide permit and require an individual permit application on a case-by-case basis. The district engineer will evaluate the application and will either issue or deny a permit. However, if at any time the reason for taking discretionary authority is satisfied, then the division engineer may remove the suspension, reactivating authority under the nationwide permit. Where time is of the essence, the district engineer may telephonically recommend that the division engineer assert discretionary authority to require an individual permit application for a specific activity. If the division engineer concurs, he may orally authorize the district engineer to implement that authority. Oral authorization should be followed by written confirmation.

(2) *Category.* Additionally, after notice and opportunity for public hearing, division engineers may decide that individual permit applications

should be required for categories of activities, or in specific geographic areas. However, only the Chief of Engineers may modify, suspend, or revoke nationwide permits on a statewide or nationwide basis. The division engineer will announce the decision to persons affected by the action. The district engineer will then regulate the activity or activities by processing an application(s) for an individual permit(s) pursuant to 33 CFR Part 325.

(d) For the nationwide permit found at § 330.5(a)(26), after the applicable provisions of § 330.7(a) (1) and (3) have been satisfied, the permittee's right to proceed under the general permit may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 325.7.

(e) A copy of all modifications or revocations of activities covered by nationwide permits will be forwarded to the Office of the Chief of Engineers, ATTN: DAEN-CWO-N.

§ 330.9 State water quality certification.

(a) State water quality certification is required for nationwide permits which may result in any discharge into waters of the United States. If a state issues a water quality certification which includes special conditions, the district engineer will add these conditions as conditions of the nationwide permit in that state. However, if such conditions do not comply with the provisions of 33 CFR 325.4 or if a state denies a required 401 certification for a particular nationwide permit, authorization for all discharges covered by the nationwide permit within the state is denied without prejudice until the state issues an individual or generic water quality certification or waives its right to do so. A district engineer will not process an individual permit application for an activity for which authorization has been denied without prejudice under the nationwide permit program. However, if the division engineer determines that it would otherwise be appropriate to exercise his discretionary authority, pursuant to § 330.8, to override the nationwide permit or permits in question, he may do so, and the district engineer may proceed with the processing of individual permit applications. In instances where a state has denied the 401 water quality certification for discharges under a particular nationwide permit, applicants must furnish the district engineer with an individual or generic 401 certification or a copy of the application to the state for the certification. If a state fails to act within a reasonable period of time (see § 325.2(b)(1)(ii)), a waiver will be presumed. Upon receipt of an individual or generic certification or a waiver of certification, the proposed work is authorized under the nationwide permit. If a state issues a conditioned individual certification, the district engineer will include those conditions that comply with 33 CFR 325.4 as special conditions of the nationwide permit (see 33 CFR Part 330.8(a)) and notify the applicant that the work is authorized under the nationwide permit provided all conditions are met.

(b) Certification requirements for nationwide permits fall into the following general categories:

(1) *No certification required.* Nationwide permits numbered 1, 2, 4, 5, 8, 9, 10, 11, and 19 do not involve activities which may result in a discharge and therefore 401 certification is not applicable.

(2) *Certification sometimes required.* Nationwide permits numbered 3, 6, 7, 13, 20, 21, 22, and 23 each involve various activities, some of which may result in a discharge and require certification, and others of which do not. State denial of certification for any specific nationwide permit in this category affects only those activities involving discharges. Those not involving discharges remain in effect.

(3) *Certification required.* Nationwide permits numbered 12, 14, 15, 16, 17, 18, 24, 25, and 26 involve activities which would result in discharges and therefore 401 certification is required.

(c) District engineers will take appropriate measures to inform the public of which waterbodies or regions within the state, and for which nationwide permits, an individual 401 water quality certification is required.

§ 330.10 Coastal zone management consistency determination.

In instances where a state has not concurred that a particular nationwide permit is consistent with an approved coastal zone management plan, authorization for all activities subject to such nationwide permit within or affecting the state coastal zone agency's area of authority is denied without prejudice until the applicant has furnished to the district engineer a coastal zone management consistency determination pursuant to section 307 of the Coastal Zone Management Act and the state has concurred in it. If a state does not act on an applicant's consistency statement within six months after receipt by the state, consistency shall be presumed. District engineers will take appropriate measures to inform the public of which waterbodies or regions within the state, and for which nationwide permits, such individual consistency determination is required. District engineers will not process any permit application for an activity which has been denied without prejudice under the nationwide permit program. However, if the division engineer determines that it would otherwise be appropriate to exercise his discretionary authority, pursuant to § 330.8, to override the nationwide permit or permits in question, he may do so, and the district engineer may proceed with the processing of individual permit applications.

§ 330.11 Nationwide permit verification.

(a) General permittees may, and in some cases must, request from a district engineer confirmation that an activity complies with the terms and conditions of a nationwide permit. District engineers will respond promptly to such requests. The response will state that the verification is valid for a period of no more than two years or a lesser period of time if deemed appropriate. Section 330.12 takes precedence over this section, therefore, it is incumbent upon the permittee to remain informed of changes to nationwide permits.

(b) If the district engineer decides that an activity does not comply with the terms or conditions of a nationwide permit, he will so notify the person desiring to do the work and indicate that an individual permit is required (unless covered by a regional permit).

(c) If the district engineer decides that an activity does comply with the terms and conditions of a nationwide permit he will so notify the general permittee. In such cases, as with any activity which qualifies under a nationwide permit, the general permittee's right to proceed with the activities under the nationwide permit may be modified, suspended, or revoked only in accordance with the procedures of 33 CFR 325.7.

§ 330.12 Expiration of nationwide permits.

The Chief of Engineers will review nationwide permits on a continual basis, and will decide to either modify, reissue (extend) or revoke the permits at least every five years. If a nationwide permit is not modified or reissued within five years of publication in the Federal Register, it automatically expires and becomes null and void. Authorization of activities which have commenced or are under contract to commence in reliance upon a nationwide permit will remain in effect provided the activity is completed within twelve months of the date a nationwide permit has expired or was revoked unless discretionary permit authority has been exercised in

accordance with § 330.8 of this Part or modification, suspension, or revocation procedures are initiated in accordance with the relevant provisions of 33 CFR 325.7. Activities completed under the authorization of a nationwide permit which was in effect at the time the activity was completed continue to be authorized by that nationwide permit.

[FR Doc. 86-25301 Filed 11-12-86; 8:45 am]
BILLING CODE 3710-08-M

FISH + GAME FORM

Notification No V-88-46 THP No. _____

AGREEMENT REGARDING PROPOSED STREAM OR LAKE ALTERATION

THIS AGREEMENT, entered into between the State of California, Department of Fish and Game, hereinafter called the Depa
d ENVIRONMENTAL MANAGEMENT AGENCY COUNTY
of ORANGE, State of CALIFORNIA, hereinafter called the operator, is as follows:

WHEREAS, pursuant to Division 2, Chapter 6 of California Fish and Game Code, the operator, on the 8th day of FEBR
1988, notified the Department that he intends to substantially divert or obstruct the natural flow of, or substantially change t
channel, or bank of, or use material from the streambed of, the following water: TRABUCO CREEK, in the Co
ORANGE, State of California, S_____ T_____ R_____.

WHEREAS, the Department (represented by R.M. SUGG #217 has made an inspection of subject are
30th day of MARCH, 1988, and) has determi
such operations may substantially adversely affect existing fish and wildlife resources including: RIPARIAN HABITAT IN A
ALONG SAID STREAM RED AVIAN NESTING SITE, MAMMALIAN FOOD SOURCES
COVER.

THEREFORE, the Department hereby proposes measures to protect fish and wildlife during the operator's work. The operato
agrees to accept the following recommendations as part of his work: Numbers 1, 2, 3, 9, 18, 20, 21, 22
from the list of recommendations on the back of this page and the following special recommendations:

1. All work in or near the stream or lake shall be confined to the period SEPTEMBER, 88 TO OCT. 15, 1989

2. THIS AGREEMENT PERTAINS TO FLOOD CONTROL ACTIVITIES WITHIN O'NEI
REGIONAL PARK IN ACCORDANCE WITH PROJECT REPORT DATED
MAY 1987 AND SPECIFIED IN A REPORT BY R.B.F. DATED JAN. 20, 198

3. NO SYCAMORE OR OAK TREES SHALL BE ADVERSELY IMPACTED A
RESULT OF OPERATIONS. ALL SPECIMENS OF MULEFAT REMOVED SHALL
REPLACED IN KIND. THE OPERATOR SHALL MONITOR THE SITE FOR
TWO YEARS FOLLOWING COMPLETION OF PROJECT.

4. OPERATOR SHALL REPLACE ANY FAILED TRANSPLANTED SPECIM
IMMEDIATELY DURING THE TWO YEARS FOLLOWING PLANTING

5. REVEGETATION SHALL OCCUR CONCURRENTLY WITH PROPOSE
PROJECT.

The operator, as designated by the signature on this agreement, shall be responsible for the execution of all elements of this a
A copy of this agreement must be provided to contractors and subcontractors and must be in their possession at the

If the operator's work changes from that stated in the notification specified above, this agreement is no longer valid a
notification shall be submitted to the Department of Fish and Game. Failure to comply with the provisions of this agreement and
pertinent Code Sections, including but not limited to Fish and Game Code Sections 5650, 5652 and 5948, may result in prosecutio

Nothing in this agreement authorizes the operator to trespass on any land or property, nor does it relieve the operator of res
for compliance with applicable federal, state, or local laws or ordinances. This agreement does not constitute or imply the issu
water right. A consummated agreement does not necessarily constitute Department of Fish and Game endorsement of the propo
tion, or assure the Department's concurrence with permits required from other agencies.

This agreement becomes effective on DATE OF OPERATORS SIGNATURE

Operator [signature] R.M. Sugg #217
Department Representative

tle MANAGER Title WARDEN

Organization EMA/HB & P DESIGN Department of Fish and Game, State of

Date 11 2 88 Date 11-2-88

Standard Park Use
permit for all users.

:NVIRONMENTAL MANAGEMENT AGENCY

Featherly Park

O'Neill Park

Caspers Park

Other: _____ NO. 588167

DATE IN	DATE OUT

:R OF PEOPLE IN PARTY: _____

_____

;ITE FEE:

ıal _____

_____

ehicle _____

specify) _____

_____

O.C.	
County	
State	
Other	

CASH
CHECK LIC. NO. _____

ed by _____ Site No. _____

ce in visible location on dash.
turn this receipt to re-register.
eckout time: 2:00 PM

IN EXPIRATION DATE

_____

NO: _____

IO. _____

BE ON CAMP POST NO. 588167
in deposit box when checking out.

74.1 (R 10/83)

No. 1175
Permit used for Mountain lion & 2 yr. stats.

O'NEILL REGIONAL PARK

PARK USE PERMIT

You are entering a park area characterized by certain inherent dangers. These dangers include mountain lions, rattlesnakes, poison oak and rugged terrain. Your safety cannot be guaranteed. Mountain lions are unpredictable and dangerous. They may attack without warning.

PARK RULES AND REGULATIONS

- Park Use Permit required of all adult visitors.
- [redacted]
- Minors (under 18 years) must be under adult control at all times.
- Do not enter closed areas.
- No hunting, firearms or fireworks.
- No motor-driven cycles.
- No ground or open fires.
- Vehicle operation restricted to designated roads.
- No alcohol.

I have read and understand all of the above information. I hereby assume all responsibility for my safety and minors under my control within O'Neill Regional Park.

INTENDED PARK USE

☐ Day Use ☐ Camping ☐ Day Use (with minors)

Number in Party: Adults _____ Minors _____

Permit Valid Date(s)

From _____ To _____

_____
Park Visitor

Vehicle License No. _____

_____
Park Employee

A copy of this permit must be in your possession at all times.

F0250-780 (2/87)

G. ESTABLISHED EIR MITIGATIONS

SUMMARY

MITIGATIONS AFFECTING O'NEILL REGIONAL PARK DIRECTLY OR INDIRECTLY INTERFACING WITH THE PARK

PROJECT DESCRIPTION	EIR#	EXHIBIT	RECOMMENDATIONS
Santa Margarita Parkway Bridge Widening Project	497	A	This project is a County project and all mitigation measures are the responsibility of OCEMA.
O'Neill Regional Park Schematic Development Plan	463	B	This project is a County project and all mitigation measures are the responsibility of OCEMA.
Alicia Parkway Route Location Study	220	C	This project is a County project and all mitigation measures are the responsibility of OCEMA.
General Plan Amendment GPA 84-3, Zone Change ZC 84-10P and Community Profile Amendment CPA 84-4 for the Morton W. Hermann property	439	D	Morton W. Hermann is responsible for mitigation measures on this project.
Santa Margarita Water District Water Delivery and Storage Facilities Program	Draft EIR	E	Santa Margarita Water Dist. is responsible for all mitigation measures on this project.
Plano Trabuco Planned Community	320	F	Rancho Santa Margarita Co. is responsible for all mitigation measures on this project.
Trabuco Planned Community	274	G	Trabuco Land & Cattle Co. is responsible for all mitigation measures on this project.
Oso Parkway & Antonio Parkway Extensions	467	H	This project is a County project and all mitigation measures are the responsibility of OCEMA.

EXHIBIT A

COMPREHENSIVE MITIGATION IMPLEMENTATION AND MONITORING PLAN

for

Final Subsequent EIR 497 -

Santa Margarita Parkway Bridge Widening

I. PURPOSE

The purpose of this Comprehensive Mitigation Implementation and Monitoring Plan for Final Subsequent Environmental Impact Report (FSEIR) 497 is to ensure compliance with provisions of the State Public Resources Code. Code Section 21086.6 requires that public agencies approving a project with an environmental impact report (EIR) adopt a program to monitor and report on the EIR mitigation measures during project implementation.

II. FSEIR 497 MITIGATION MEASURES

As part of certifying FSEIR 497 the Orange County Board of Supervisors adopted mitigation measures for the Santa Margarita Parkway bridge widening project. These mitigation measures are identified in FSEIR 497 and are listed by category of impact, in chronological order according to project implementation milestones.

III. MONITORING AND REPORTING

The County's Environmental Management Agency (EMA), as part of its overall project management role, will be responsible for ensuring that the mitigation measures are incorporated into the project during design and construction of the bridge widening project. The management group of FCPP Inc. (for the Foothill Circulation Phasing Plan) will be responsible for ensuring that the mitigation measures are satisfactorily monitored and will provide monthly monitoring reports, as needed, and a final report to the County of Orange/EMA. EMA will be responsible for reviewing the reports and determining if they are adequate.

CH:jmhPER01-4/9011
9011015252895

MITIGATION MEASURE IMPLEMENTATION CHRONOLOGY

GEOLOGY AND SOILS

TIMING	MITIGATION MEASURE	FINAL EIR PAGE REFERENCE	COMMENT
rior to issuance f grading permit	Grading and erosion control plans shall be approved by the Planning Commission prior to submittal of Plans, Specifications, and Estimates to the Board of Supervisors. These plans will be submitted to the Planning Commission concurrently with the Biological Mitigation Implementation and Monitoring Plan.	p. A-23	Grading & erosion control plans will be closely coordinated and included with Biological Mitigation & Monitoring Plan.
rior to issuance f grading permit	Prior to approval of grading permits by the Manager, Development Services, the ~~project proponent~~ shall submit an erosion control plan for his approval that shall include a discussion of measures for dust pollution and mitigation of erosion caused by wind and water. The plan shall also provide for effective planting, maintenance, irrigation, and seed germination by the project proponent prior to the rainy season in graded areas that would otherwise remain exposed in accordance with Subarticle 13 of the Grading and Excavation Code.	p. A-23	Erosion control plan will also be included in Biological Mitigation & Monitoring Plan to be approved by the Planning Commission.
rior to issuance f grading permit	Prior to approval of grading plans, the project proponent shall submit soils engineering and geologic (if appropriate due to slope conditions) studies to the Manager, Development Services for approval. These reports will primarily involve assessment of potential soil-related constraints and hazards such as slope instability, settlement, liquefaction, or related secondary impacts where determined to be appropriate by the Manager, Development Services. The report shall include evaluation of potentially expansive soil and recommended construction procedures and/or design criteria to minimize the effect of these soils on the proposed development. All reports shall recommend appropriate mitigation measures and be completed in the manner specified in the Orange County Grading Manual and State Subdivision Map Act and County Subdivision Ordinance.	p. A-22	
rior to issuance f grading permit	Prior to approval of grading permits, the project ~~proponent~~ shall provide evidence to the Director of Regulation, EMA which indicates that graded areas will be compatible with natural landform charac-	p. A-22	

GEOLOGY AND SOILS (cont.)

TIMING	MITIGATION MEASURE	FINAL EIR PAGE REFERENCE	COMMENT
ior to grading	Prior to grading, all vegetation, trash, surface obstructions, and debris resulting from any demolition shall be moved offsite. Any existing utility lines or other subsurface structures not utilized shall be removed, destroyed, or abandoned in compliance with existing county regulations and with approval from a certified soils engineer.	p. A-22	
ıring grading	Site grading shall conform to the Uniform Building Code of the County of Orange.	p. A-22	
ıring grading/ onstruction	Embankment fill or other engineered fill shall consist of approved earth material free of trash or debris, roots, vegetation, or other material.	p. A-22	

HYDROLOGY AND DRAINAGE

TIMING	MITIGATION MEASURE	FINAL EIR PAGE REFERENCE	COMMENT
or to award construction tracts	Prior to award of construction contracts, all bridge plans shall be approved by Manager, EMA/Design Division.	p. A-23	
ing construction	Maintenance of construction equipment (tune-ups, oil changes, etc.) shall not occur within the Arroyo Trabuco.	p. A-23	
er construction bridge addition	The proposed new westbound crossing of the Santa Margarita Parkway Bridge shall be designed to withstand the effects of a 100-year flood by providing adequate pier, foundation depth, and local scour protection around the piers and abutments. A program of routine maintenance and inspection shall be provided by the County of Orange as part of an existing county operations program.	p. A-23	Routine maintenance and inspection of bridge piers

BIOLOGICAL RESOURCES

TIMING	MITIGATION MEASURE	FINAL EIR PAGE REFERENCE	COMMENT
efore March 1, 1989	Surveying and tree netting of bird nesting sites shall take place prior to March 1, 1989, to prohibit nesting in the project vicinity during the construction phase, in accordance with the 1600 Agreement.	p. A-25	
rior to the pproval of S&E*	Prior to approval of Plans, Specifications and Estimates, the project proponent shall prepare and submit the Biological Mitigation Implementation and Monitoring Plan and erosion control plan for Planning Commission review and approval to ensure the adequacy of the plan.	p. A-24	
rior to the pproval of S&E	The potentially adverse effect of night lighting on habitat within the Arroyo will be mitigated by utilizing design alternatives such as lighting that is oriented away from the riparian and other vegetation within the Arroyo Trabuco and directed to the bridge pavement, as approved by Managers, Transportation and Harbors, Beaches & Parks/ Program Planning and Design.	p. A-25	
rior to the pproval of S&E	Plant species, quantity, size, location, and temporary irrigation shall be of a level sufficient to provide effective wildlife habitat and restore these areas' utility as functional wildlife corridors. The mitigation implementation program shall identify the limits of grading, haul routes, and provide measures necessary to ensure the preservation of the remaining oak, sycamore, and riparian resources. A qualified arborist shall inspect these resources on a monthly basis and provide a monthly status report to Director, EMA/Harbors, Beaches & Parks during and for a period of 18 months after project implementation and should be authorized to take those measures necessary to preserve the health of the remaining and restored resources.	p. A-25	Inspection & by a qualified arborist. Plan will specify frequency of written report submittals (e.g., once a month).
rior to the pproval of PS&E	The mitigation plan shall include provisions for a periodic 5-year monitoring program and replacement in kind of unsuccessful plantings until successful replacement of the original habitat can be assured.	p. A-25	Plan will specify frequency of written report submittals after initial 18 month monitory possibly once every 3 months.

BIOLOGICAL RESOURCES (cont.)

TIMING	MITIGATION MEASURE	FINAL EIR PAGE REFERENCE	COMMENT
ill be specified ı the Biological nplementation & onitoring Plan ior to PS&E pproval	Coast live oak and sycamore trees shall be replaced on a ratio sufficient to ensure the complete replacement of 60 trees (37 oaks and 23 sycamores), and to the approval/satisfaction of regulatory agencies. These trees shall be planted in appropriate areas such as wash banks and terraces away from the existing stream channel. The replacement ratios for oak and sycamore trees shall be subject to refinements based upon the significance of each resource being impacted. However, the following are minimum mitigation requirements: a. The replacement rate for sycamore trees exceeding 3 to 5 inches in diameter shall range from 3:1 to 10:1, utilizing 1- and 5-gallon size container stock. b. The replacement rate for oak trees greater than 3 to 5 inches in diameter shall range from 3:1 to 20:1, utilizing 1- and 5-gallon size container stock.	p. A-24	Will be dependent on negotiations with Dept. of Fish & Game.
S&E	Construction plans and specifications shall include fines or other mechanisms to ensure that no damage is done to habitat within the construction area.	p. A-25	
ior to construction	Several oak trees growing immediately adjacent to the construction zone shall be protected by fencing and flagging that shall not constitute a barrier to wildlife and will extend a minimum 15 feet beyond the dripline of these trees.	p. A-24	
rior to construction	Except in situations where safety concerns prohibit, dead and dying trees shall be retained, as they play a major role in providing nesting and breeding habitat areas for wildlife. The County of Orange EMA/Harbors, Beaches & Parks shall determine whether the trees are, or are not, a safety hazard to future visitors to the Wilderness Area.	p. A-25	

BIOLOGICAL RESOURCES (cont.)

TIMING	MITIGATION MEASURE	FINAL EIR PAGE REFERENCE	COMMENT
During construction	Watering troughs and salt licks will be placed within the Arroyo Trabuco, downstream from the bridge and at an appropriate distance from the bridge during the construction phase. The number, location, and monitoring of salt licks shall be determined by County of Orange EMA.	p. A-25	
During construction	Riparian vegetation will be preserved during bridge construction, in accordance with the 1600 agreement.	p. A-24	
During construction	Earth-moving construction equipment shall be confined to the construction zone, noted on Exhibit 8. Waste and rubble shall not be permanently deposited in the active channel of the river. After construction is complete, the entire construction vicinity shall be meticulously cleaned. All construction material, concrete spills, and litter shall be removed.	p. A-24	
When grading and construction is complete	Mitigation/replacement to offset permanently lost riparian habitat shall be at a ratio of 1 acre replaced for each acre destroyed and at an equal or greater habitat value for all riparian and oak woodland habitats impacted.	p. A-25	In accordance with negotiated Fish & Game Agreement.
When grading and construction is complete	Revegetation with local native species shall occur as soon as final grading and construction is complete, including recontouring and revegetation of the construction access road and slope.	p. A-24	
After project is complete - routine maintenance and inspection	Following major storm events, debris buildup shall be removed from around bridge support structures to prevent stream diversion or standing water accumulation. During routine inspection of piers and foundation for scour, debris monitoring and restoration will be performed by County of Orange EMA.	p. A-24	

CULTURAL AND SCIENTIFIC RESOURCES

TIMING	MITIGATION MEASURE	FINAL EIR PAGE REFERENCE	COMMENT
or to issuance grading permit	Prior to issuance of a grading permit, the project proponent shall provide written evidence to Manager, EMA/Harbors, Beaches & Parks and Parks/Historical Programs that a County-certified paleontologist and archaeologist have been retained by the project proponent to observe grading activities and salvage any resources as necessary. The paleontologist and archaeologist shall be present at the pre-grading conference, shall establish procedures for paleontological/archaeological resources surveillance, and shall establish, in cooperation with the project proponent, procedures for temporarily halting or redirecting work to permit sampling, identification, and evaluation of the fossils/artifacts as appropriate. If additional or unexpected resources are discovered, the archaeologist/paleontologist shall report such findings to the project proponent and to the Manager, EMA/Harbors, Beaches & Parks/Historical Programs. If the resources are found to be significant, the observer shall determine appropriate actions, in cooperation with the project proponent, which ensure proper exploration and/or salvage. These actions, as well as final mitigation and disposition of the resources, shall be subject to the approval by the Manager, EMA/Harbors, Beaches & Parks/Historical Programs. If significant paleontological fossils are found, the paleontologist shall submit a follow-up report for approval by the Manager, EMA/Harbors, Beaches & Parks/Historical Programs, which shall include the period of inspection, an analysis of the fossils found, and present repository of the fossils.	p. A-26	

MITIGATION MEASURE IMPLEMENTATION CHRONOLOGY

LAND USE COMPATIBILITY

TIMING	MITIGATION MEASURE	FINAL EIR PAGE REFERENCE	COMMENT
efore certifica-ion of EIR by oard of upervisors	The project proponent shall prepare a Comprehensive Mitigation Implementation and Monitoring Plan, to be reviewed by the Orange County Planning Commission.	p. A-26	

TRAFFIC

TIMING	MITIGATION MEASURE	FINAL EIR PAGE REFERENCE	COMMENT
ior to installa-on of detour	Prior to the installation of any detour, the contractor shall submit a phased construction traffic management plan prepared and signed by a registered civil or traffic engineer for approval by EMA/Traffic Engineering.	p. A-26	

MITICATION MEASURE IMPLEMENTATION CHRONOLOGY

AIR QUALITY

TIMING	MITIGATION MEASURE	FINAL EIR PAGE REFERENCE	COMMENT
During construction	Fugitive dust shall be controlled by regularly watering dirt construction roads, to meet District Rule 403. No oiling of roads will be permitted within the Construction Zone/Arroyo Trabuco.	p. A-27	
During construction	Maintaining equipment engines in proper tune.	p. A-27	
During construction	Phasing and scheduling construction activities (limiting construction hours) to minimize project-related emissions.	p. A-27	

LIGHT AND GLARE

TIMING	MITIGATION MEASURE	FINAL EIR PAGE REFERENCE	COMMENT
ior to approval PS&E	The potentially adverse effect of night lighting on habitat within the Arroyo Trabuco will be mitigated by utilizing design alternatives such as lighting that is oriented away from the riparian and other vegetation within the Arroyo Trabuco and directed to the bridge pavement, as approved by Managers, Transportation and Harbors, Beaches & Parks/Program Planning.	p. A-27	Type of lighting must be decided upon in time to include in PS&E.

PARKS AND RECREATION

TIMING	MITIGATION MEASURE	FINAL EIR PAGE REFERENCE	COMMENT
During design for inclusion in PS&E	The bridge design shall duplicate the existing structure design to the greatest extent possible to reduce visual impacts on potential future Wilderness Area visitors.	p. A-27	
Ongoing as County's MPCB is implemented	The Class II bicycle lanes proposed on the bridge shall be integrated into the park's bicycle circulation system as approved by the Environmental Management Agency/Harbors, Beaches & Parks and Transportation Planning.	p. A-27	

EXHIBIT B

SCREEN CHECK EIR	(SUBMITTED 6/5/86)
DRAFT EIR	(ACCEPTED 10/13/86)
PROPOSED FINAL EIR	(APPROVED _____)
FINAL EIR	(CERTIFIED COMPLETED ON _____)

STATE CLEARINGHOUSE NUMBER: 86040212

FOCUSED ENVIRONMENTAL IMPACT REPORT
O'NEILL REGIONAL PARK SCHEMATIC DEVELOPMENT PLAN
EIR NO. 463

Prepared by:

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COUNTY OF ORANGE
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Santa Ana, CA 92702-4048

ENVIRONMENTAL INFORMATION FOR USE BY
COUNTY OF ORANGE, CALIFORNIA

Lead Agency:

ENVIRONMENTAL MANAGEMENT AGENCY
Environmental and Special Projects Division
P.O. Box 4048, Room G23
Santa Ana, CA 92702-4048

Contact Person: Lisa J. Burke
Telephone: (714) 834-5550

Project Impacts	Mitigation Measures	Unavoidable Adverse Impacts
SOILS, GEOLOGY AND LANDFORM		
There are no significant adverse impacts to geotechnical resources due to the implementation of the project alternatives. Major grading impacts are associated with the bisecting arterials and Foothill Transportation Corridor, not Park development options.	Riding and hiking trails shall be graded in accordance with the Orange County Grading Code.	No significant adverse impacts are anticipated with the implementation of recommended mitigation measures.
HYDROLOGY		
Construction of any improvements described by the project alternatives have negligible impacts on the hydrology of the Park and adjacent watershed. Potential impacts are on a micro-scale level immediately adjacent to improvement areas.	Channelized areas in the new portions of the Park, while currently designed for no revegetation, can be redesigned to include native vegetation within the terraced areas of the channel.	Due to flood control improvements, some vegetation will be removed and maintained as such, within the immediate floodway. This action reduces some streamline vegetation ultimately impacting a few flora/faunal species and localized aesthetics. However, with mitigation, these impacts are not considered to be significant.
CULTURAL RESOURCES		
There are no significant adverse impacts under any of the SDP project alternatives with the the inclusion of recommended mitigation measures. In fact, there are some advantages as the Trabuco Mesa Adobe becomes increasingly available for public awareness. Under the HBP Commission Revised Alternative and the No Project Alternative, public access is denied to this historical site. Without mitigation, 10-12 archaeological sites may be adversely impacted.	Any additional structures planned at the Trabuco Mesa Adobe site shall utilize compatible materials for aesthetic consistency. The trail staging area shall be moved off of Site ORA-871.	No significant adverse impacts are anticipated with implementation of recommended mitigation measures.

Project Impacts	Mitigation Measures	Unavoidable Adverse Impacts
CULTURAL RESOURCES (continued)		
	Prior to implementation level approvals (i.e., plans and specifications, a County-certified archaeologist shall be retained by the project proponent to perform a subsurface test level investigation and surface collection for those sites which have not been previously evaluated. The test level report evaluating the sites shall include discussion of significance (depth, nature, condition, and extent of the resources) and final mitigation recommendations. The County-certified archaeologist shall be consulted throughout the GDP design phase to mitigate any potential archaeological impact through precise trail alignment or project redesign.	
EXISTING/SURROUNDING LAND USE		
There are no significant adverse impacts for SDP No. 2 and the modified versions of SDP No. 1 or SDP No. 2. Under SDP No. 1, the HBP Commission revised alternative and the No Project Option, the Mesa Campground and overnight camping is retained. Thus, under these alternatives there will be a loss of the "natural" camping experience for park campers and a potential for disturbance to nearby residents from noise or visual intrusion from campsites.	Should the Mesa Campground be retained for overnight camping, the General Development Plan shall examine measures to buffer the camping area from surrounding existing and planned development, to mitigate potential land use conflicts to a level of insignificance.	Significant adverse impacts will be minimized with implementation of recommended mitigation measures if adequate controls are placed within design components to buffer the visual/noise interface between Mesa Campground and surrounding planned development. However, even with mitigation, this land use conflict may persist.

Project Impacts	Mitigation Measures	Unavoidable Adverse Impacts
RELEVANT PLANNING		
Except for the No Project Option and the HBP Commission Revised Alternative, the project alternatives meets relevant planning goals. These two alternatives fail to meet or limit the possibility for the provision of additional anticipated demand for regional recreational deficiencies projected. Prior to development - related grading, the County will be required to comply with Section 1603 procedures of the Fish and Game Code.	Prior to the approval of plans and specifications for GDP proposed recreation facilities, the project proponent will comply with appropriate California Department of Fish and Game permitting processes for the facility being implemented.	No significant adverse impacts are anticipated with implementation of recommended mitigation measures. However, the No Project Option and the HBP Commission Revised Alternatives do not provide for additional anticipated demand for camping and picnicking facilities.
BIOLOGICAL RESOURCES		
Biological impacts associated with the project alternatives are not particularly significant in terms of habitat destruction. The major impacts over time are related to impacts from habitat fragmenation, noise exposure, interruption of dispersion due to bisecting thoroughfares and a decline in raptor diversity. These impacts are associated primarily with surrounding approved land uses. In terms of habitat loss, startle effects from human presence etc., the most compatible alternatives are SDP No. 1, the HBP Commission Revised Alternative, Modified SDP No. 1 and the No Project Option. Of these alternatives only the Modified SDP No. 1 alternative provides for surveillance activities in the Arroyo. SDP No. 2 and Modified SDP No. 2 have more planned activities in the Arroyo, though not particularly intensive in habitat displacement.	The mitigation guidelines outlined in Section 4.7 shall be incorporated into the final General Development Plan (GDP) for O'Neill Regional Park and the associated Resource Mitigation Plan. Specific mitigations shall be developed and incorporated into the General Development Plan for those areas of the Park designated as having Medium to Highest resource sensitivity. Said specific mitigations shall also be used to satisfy applicable Federal and State permit requirements for O'Neill Regional Park.	The project alternatives alone present few significant unavoidable adverse impacts on the environment. Either SDP coupled with existing and planned surrounding suburban land uses, arterials and the corridor will result in cumulatively significant unavoidable adverse impacts as follows: - habitat fragmentation - interruption of wildlife dispersion - decline in raptor diversity - increased noise exposure - potential localized air quality deterioration The primary differences in the project alternatives relate to less day use north of the Corridor, under SDP No. 1, and virtually no long-term occupancy south of the Corridor with the exception of equestrian and bicycle trails.

Project Impacts	Mitigation Measures	Unavoidable Adverse Impacts
BIOLOGICAL RESOURCES (continued)		
		Implementation of SDP No. 1, The HBP Commission Revised and No Project Option: Without adequate patrol and enforcement, some visitors or trespassers that would otherwise use the designated areas shown on SDP No. 2 might unknowingly harass or frighten wildlife in the more sensitive areas of the Arroyo. Implementation of SDP No. 2 and Modified SDP No. 2: Any development within the Arroyo and buffer areas will, to some degree, reduce its faunal carrying capacity.
NOISE		
There are no significant adverse noise exposure impacts from any of the project alternatives. Noise exposure increases are a result of planned arterials and the Foothill Transportation Corridor.	All construction operations shall comply with Orange County Codified Ordinance Division 6 (Noise Control).	No significant adverse impacts are anticipated with implementation of recommended mitigation measures.

Project Impacts	Mitigation Measures	Unavoidable Adverse Impacts
TRAFFIC/CIRCULATION		
There are no significant adverse transportation-related impact from the proposed project alternatives.	To ensure ongoing consistency with General Plan-approved transportation facilities, the following mitigation measures shall be included as a policy statement in the Final GDP for O'Neill Regional Park for any alternative selected: The GDP for O'Neill Regional Park accommodates and provides for existing and planned highways as described in the County General Plan, including the Foothill Transportation Corridor, and incorporates these facilities into the overall ultimate park development concept. Therefore, implementation of these highways will be compatible with overall Park development.	No significant adverse impacts are anticipated with implementation of recommended mitigation measures.
AESTHETICS		
Aesthetic impacts associated with the project alternatives are not considered significant for the project alternatives except for some brush clearing activities associated with day use facilities and camping facilities placed south of the Arroyo. These impacts occur under SDP No. 2 and to a more limited degree under Modified SDP No. 2.	Prior to implementation level approvals, a final landscape plan including a revegetation plan, shall be prepared by a licensed landscape architect. Such plan shall utilize native plant materials to the extent feasible to maintain existing aesthetic qualities in the Park and provide wildlife value.	No significant adverse impacts are anticipated with implementation of recommended mitigation measures. Some brush clearing activities are unavoidable under SDP No. 2 and Modified SDP No. 2. Brush removal and habitat simplification south of the Corridor in select areas provides a more manicured appearance.

Project Impacts	Mitigation Measures	Unavoidable Adverse Impacts
AESTHETICS (continued)	Design plans for expanded park facilities shall be consistent with the following guidelines: - Construction of proposed facilities shall conform, to the extent feasible, to the existing landform. - Grading shall be minimized through project design. - Where feasible, existing vegetation shall be retained and preserved through design plans.	

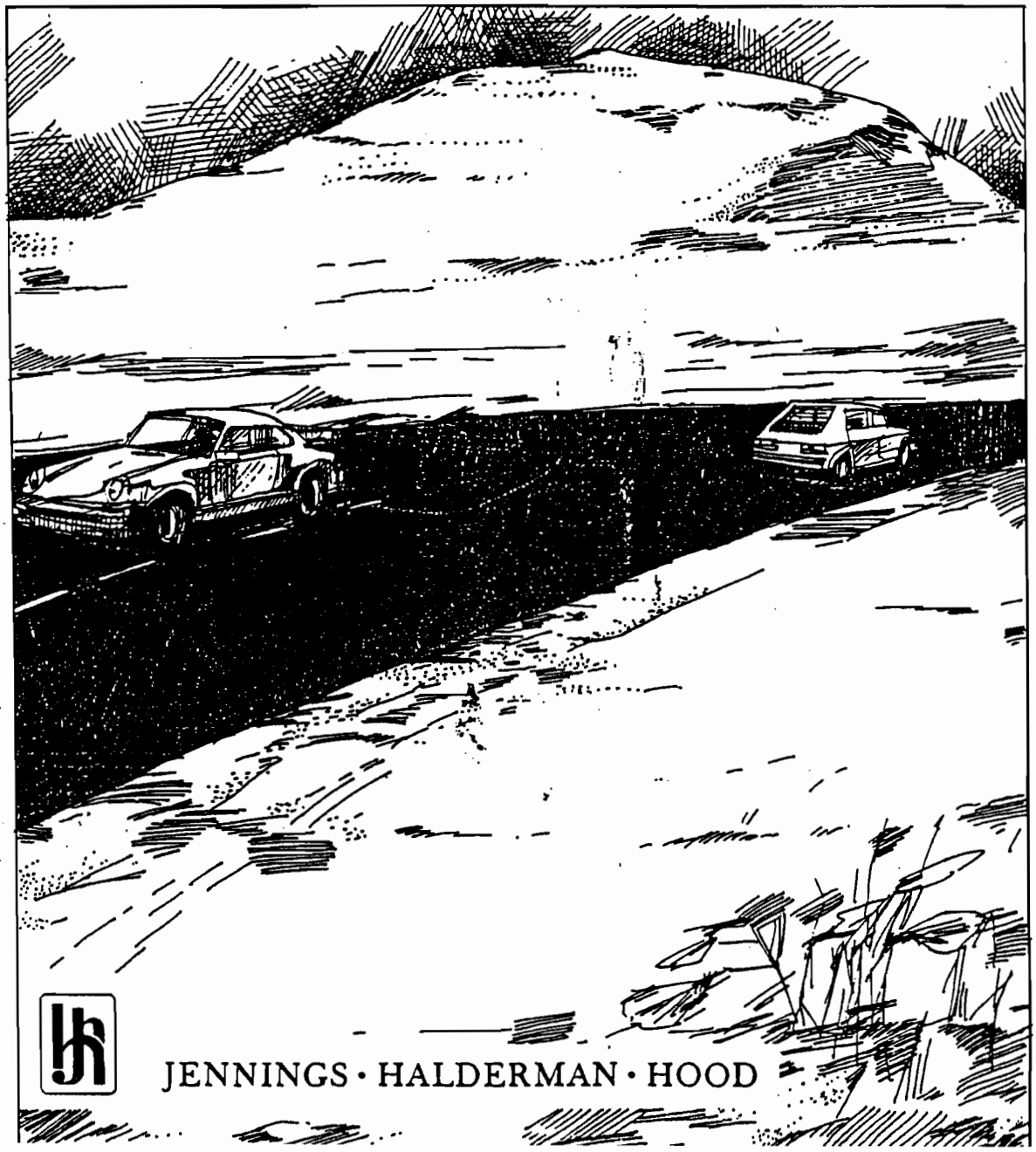
• The following matrix presents a visual summary of impacts for the various project alternatives:

EXHIBIT C

FINAL EIR FINAL EIR

ALICIA PARKWAY ROUTE LOCATION STUDY AND EIR 220

Mission Viejo Planned Community to Plano Trabuco Road



JENNINGS · HALDERMAN · HOOD

ENVIRONMENTAL SUMMARY

Existing Conditions	Impacts	Mitigation Measures
Transportation & Circulation		
Alicia Parkway is designated a Primary Arterial Highway on the Orange County Master Plan of Arterial Highways. Portola is designated a Secondary Arterial Highway north of Alicia, a Primary Arterial between the two sections of Alicia and a Commuter Arterial south of Alicia. Alicia and Portola have "Reserve" right of way status. Plano Trabuco Road is designated a Primary Arterial Highway on the MPAH.	There are four intersection configurations for Alicia Parkway and Portola Parkway, one with Alicia as the through road, three with Portola as the through road. For the alternative with Alicia as the through road, a reasonable level of service can be provided with a four lane divided highway with free right turn pockets between Portola intersections. The alternatives with Portola as the through road require a six lane divided highway with double left turn lanes between Alicia intersections. There are seven intersection alternatives at Alicia Parkway on Plano Trabuco Road. These were ranked according to volume of turning and through movements.	Regardless of which alternative is selected, traffic signals should be installed at the offset intersections of Alicia Parkway and Portola Parkway. Traffic signals are also required at the intersection of Alicia Parkway and Plano Trabuco Road for all seven alignment alternatives. Segment 20 should also include a free right turn lane to southbound Plano Trabuco Road. If an alternative is selected with Portola as the through road, the MPAH should be amended to show a major arterial highway between the two legs of Alicia Parkway and a secondary arterial highway south of Alicia Parkway.
Existing & Future Land Uses		
The current Land Use Element of the Orange County General Plan shows two uses within the study area: Exclusive Agricultural, and other Open Space. Adjacent to the study area on the east are Rural Residential, Low Density and Medium Low Density in Reserve Status. North of the study area is O'Neill Regional Park. Westerly is Mission Viejo.	There are presently proposals for expansion of recreational facilities, residential subdivisions and mining operations. Existing access to the area is already at capacity. Areas in which developments are conditioned on the extension of Alicia Parkway will be permitted to proceed since conditions for removal from "Reserve" will be met.	Future development must proceed within the confinres of established County Land Use Policies and with due consideration to environmental impacts.

Existing Conditions	Impacts	Mitigation Measures
Removal of land from "Reserve" status requires General Plan amendment based on traffic facilities which will permit access to employment and activity centers without exceeding capacity.	Development planning may also begin in agricultural areas of Plano Trabuco. Land devoted to agricultural and open space may be reduced.	
Cultural Scientific Resources Archaeology		
One Archaeological site was recorded along Segment 8. Surface artifacts indicate this site may have been an Indian Village occupied during the time of Portola's passage through the area.	Construction of Segment 8 without modification would destroy the archaeological site.	If an alignment utilizing Segment 8 is chosen, site testing and salvaging of the Archaeological site shall be accomplished prior to road construction. Unsurveyed areas within the study area should be surveyed after clearing and an archaeological monitor should be present during grading to assess the significance of any additional finds.
Paleontology		
Several paleontological localities were found in the study area, consisting of whale bone and shell fragments and land animal bone fragments.	There are no differences in alternative segments from a paleontological standpoint. Construction activities may be beneficial in uncovering fossils or adverse resulting in inadvertent destruction.	A county certified paleontologist should be present during grading to identify and salvage follis remains.
History		
No historical resources were discovered within the project boundaries.	No impacts.	If Segment 8 is selected, an historical monitor should be present during construction to evaluate and record any historical resources discovered.

Biological Resources

Plano Trabuco supports a mixture of cereal grains and wheat. The main portion of the Plano is cultivated yearly. The northerly edge of the plain supports a dense Oak Woodland. The floor of Arroyo Trabuco is occupied by an open Sycamore Riparian Woodland. The hills in the southwest sector of the Plano are populated by Coastal Sage Scrub and Chaparral. None of the species encountered are classified as rare or endangered by the California Native Plant Society.

Cattle are the main introduced animal species on the site. Great numbers of birds, reptiles and mammals continue to thrive on the plain. None of the wildlife species observed or expected to occur on the site is listed as rare or endangered by the California Department of Fish and Game. Golden Eagles and White Kites are located in the lower Arroyo Trabuco area.

Segments 1 through 5 would impact the greatest variety of plant and vegetation types and wildlife habitats since they involve the hills and Arroyo Trabuco. Major grading of the hills would destroy various shrub communities within the right of way. Oak woodland trees and shrubs would be destroyed at the bridge abutment sites.

Future development resulting from the Alicia Parkway extension may have greater biological consequences than the project itself. Continued urbanization of large natural tracts of land will eventually lead to local and regional extinction of some species.

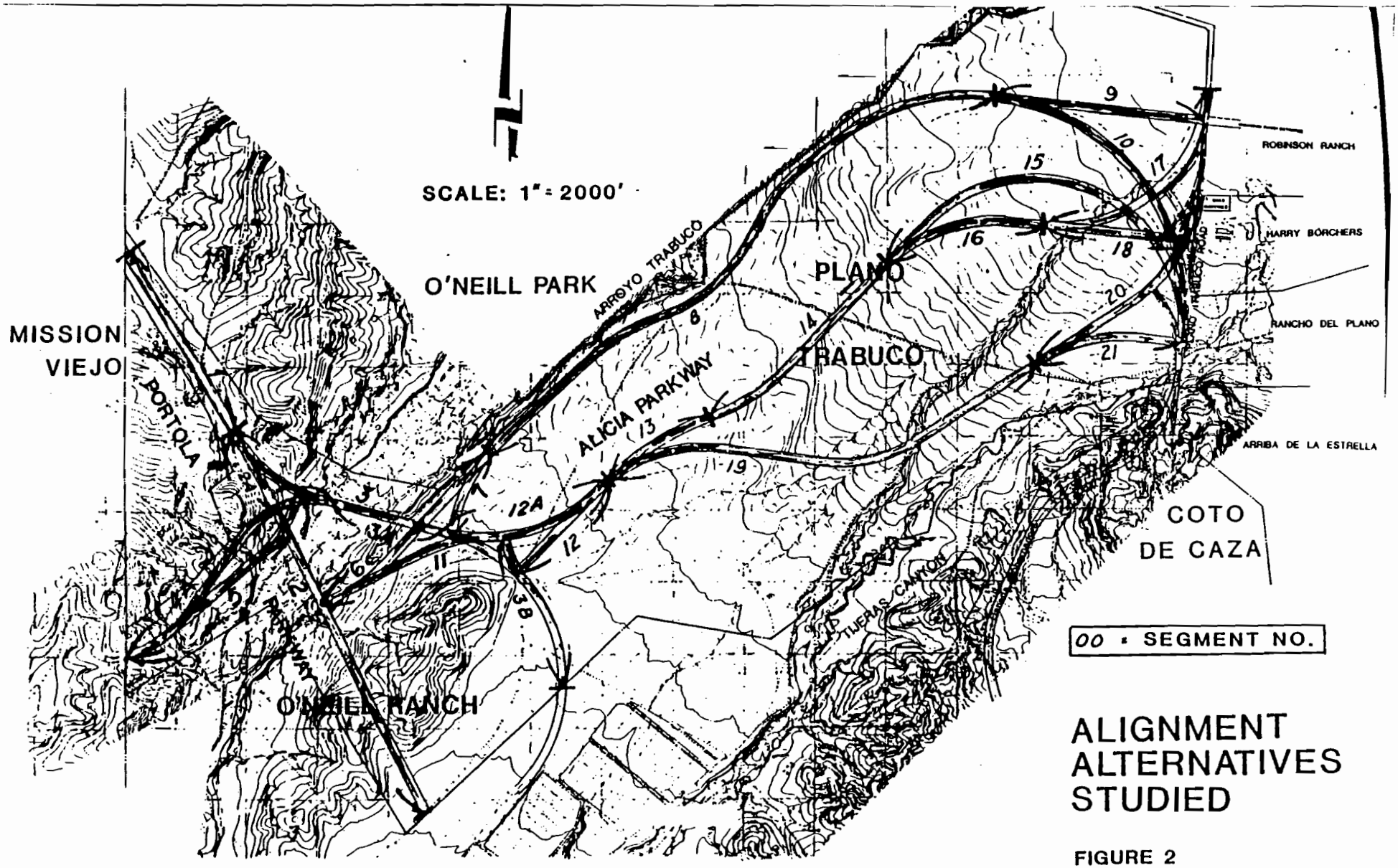
Direct impacts of the Alicia Parkway extension on the biota of the site could be reduced by selecting the route which involves the least natural vegetation and wildlife habitats.

The retention of large open tracts of land for foraging would insure the continued presence of large raptorial birds and migratory Canadian Geese.

Existing Conditions	Impacts	Mitigation Measures
Earth Resources		
The study area can be divided into three general land form units: Hill and Mountain, Creek and Flood Plain, and Terrace surface. No earthquake faults were found within the study area. A system of inactive faults lies near the area, but should have no significant effect on the project. Ground water may be encountered, but liquifaction is not considered a problem.	Stability of cut slopes, settlement beneath fills, scour within Arroyo Trabuco and runoff across Plano Trabuco are the principal features affecting the project. The area is not an area of high seismicity.	Slope stability can be mitigated by raising grades, reorienting slopes, buttressing or providing brow drains. Low density material should be removed and replaced with compacted fills. Structures can be built using normal seismic design techniques.
Water Resources		
Quality of ground water in Arroyo Trabuco varies from 500 mg/l total dissolved solids in the upper reaches of the drainage basin to 1700 mg/l south of the study area.	Grading will encounter groundwater. Recharge to Trabuco Creek could be reduced. Flooding may occur from numerous small side canyons.	Surface storm flows should be captured in storm drains designed to carry peak flows.
Parks, Recreation and Open Space Resources		
There are no parks currently within the boundaries of the study area. O'Neill Regional Park borders the northwesterly boundary of the site. Most of the study area is designated Open Space, and is in private ownership.	No existing parks or recreation areas would be displaced by the project. However, the close proximity of Segment 8 to O'Neill Regional Park would adversely affect camping and picnic areas with traffic noise and automobile exhaust. It is anticipated that use of O'Neill Regional Park would increase due to greater accessibility.	Selection of a route which uses segments other than Segment 8 would mitigate the negative impact. Proposals have been made for the expansion of O'Neill Regional Park to prevent overuse of existing areas.

esthetics		
he Arroyo Trabuco and adjacent wood-ands consists of rolling hills, deep anyons, and a flood plain over 1,000 eet wide. A steep bluff rises from he Arroyo Trabuco 100 feet to the flat lano Trabuco. On the Plano Trabuco, distinctive hill is the only feature hich interrupts the broad, flat plain.	Arroyo Trabuco must be crossed with a bridge, introducing a disruption to the natural setting. Segment 2 requires a major cut through the hill on the Plano Trabuco. Segments 3 and 3A require a lesser cut through the bluff.	The bridge crossing Arroyo Trabuco should be designed to fit the natural setting. Slope heights should be held to a minimum. Based on this, Segment 2 is an undesirable crossing.
oise		
he Community Noise Equivalent Level CNEL) metric has been specified in he Noise Element of the Orange County eneral Plan to be used in noise measure-ent. The extension of Alicia Parkway ill introduce traffic into an area ot now exposed to traffic and its ttendant noise.	There is little difference in noise impact for the various alignment alter-natives within the study area. However, Segment 8 would violate the design goal of 60 CNEL for pristine areas due to its proximity to O'Neill Region-al Park.	The impact of Segment 8 on O'Neill Regional Park can be mitigated by constructing artificial shielding between the roadway and the Park.
ir Quality		
emperature inversions often occur luring summer and fall causing stagnant ir masses and increased smog levels. ite topography, combined with daytime inds, which generally blow in from the cean, has a negative effect on air uality. Nighttime winds generally low toward the ocean to help dissipate the smog.	The average emission levels in tons per day for traffic travelling at an average speed of 45 m.p.h. for the years 1983 and 2000 are shown in the table in Figure 18. These figures are based on the ultimate projected volumes travelling from Plano Trabuco Road to Mission Viejo using a standard vehicle mix.	To the extent that the Alicia Parkway extension is consistent with growth and development assumed in the prepa-ration of the Regional Air Quality Maintenance Plan, impacts will be mitigated and Air Quality Standards met. Since the extension of Alicia Parkway provides a direct shorter access from population centers to commercial areas, it represents a mitigation in itself.

Existing Conditions	Impacts	Mitigation Measures
Public Services and Utilites		
There are no existing utilities within the study area. However, adjacent developed areas are served by several utility companies.	The extension of Alicia Parkway will have no direct impacts on existing utilities.	Design and construction of the roadway should be closely coordinated with all the utility companies serving the Mission Viejo Planned Community and the Upper Trabuco Canyon area.
Bonds were approved within the Santa Margarita Water District for expansion of its facilities based on possible future development in the Plano Trabuco area.	The extension of Alicia Parkway will permit the Capistrano Unified Schood District to service Coto de Caza, which is within its boundaries.	
Portions of the study area lie within two school districts, Capistrano Unified School District and Saddleback Valley Unified School District. Coto de Caza is located in the Capistrano Unified School District but is serviced by the Saddleback Valley Unified School District.		



ALIGNMENT ALTERNATIVES STUDIED

FIGURE 2

EXHIBIT D

SCREEN CHECK EIR (SUBMITTED April 9, 1984)
DRAFT EIR (ACCEPTED_____)
PROPOSED FINAL EIR (APPROVED_____)
FINAL EIR (CERTIFIED COMPLETED ON_____)

STATE CLEARINGHOUSE NUMBER: 84021508

FOCUSED ENVIRONMENTAL IMPACT REPORT

GENERAL PLAN AMENDMENT GPA 84-3
ZONE CHANGE ZC 84-10P
AND COMMUNITY PROFILE AMENDMENT CPA 84-4
FOR THE MORTON W. HERRMANN PROPERTY

EIR NO. 439

EIR Prepared by:

Michael L. Ahlering & Associates, Inc.
244 W. Brookdale
Fullerton, California 92632

PROJECT SPONSOR

Morton W. Herrmann
19812 El Toro Road
El Toro, California

ENVIRONMENTAL INFORMATION FOR USE BY
COUNTY OF ORANGE, CALIFORNIA

LEAD AGENCY:

ENVIRONMENTAL MANAGEMENT AGENCY
ENVIRONMENTAL ANALYSIS DIVISION
P.O. Box 4048
Santa Ana, California 92702-4048

Contact Person: Raymond H. Brantley
Telephone: (714) 834-5550

clearance for issuance of any grading and building permits. Said plan shall show how the natural scenic value of the Aliso Creek Corridor and El Toro Road Scenic Highway Corridor are to be preserved. This plan shall show how dwelling units along El Toro Road and those dwelling units projecting into the northeasterly ridge will be screened from external view or mitigated to provide minimal intrusion into the scenic corridor".

Additionally the applicant is offering to dedicate 14.3 acres or approximately a 200 foot wide swath along the eastern boundary including the three specimen oaks in the southeast corner of the property. See section 4.8 and 4.11 for specific mitigation measures.

4.7.5 Unavoidable Adverse Effects

With the mitigation measures identified, no significant adverse impacts are expected.

Recognizing this situation the County has adopted the Development Monitoring Program and requires Annual Monitoring Report for major development projects. These mechanisms are designed to carefully monitor projected growth and if necessary to defer growth until adequate resolution of infrastructure deficiencies is accomplished.

4.8.4 Mitigation Measures

In order to insure compliance with the **Master Plan of Regional Parks** the applicant is proposing to dedicate 12.2 acres, located along the eastern boundary, to the O'Neill Regional Park. The following mitigation measures has been mutually agreed to by the applicant and EMA-Open Space/Recreation Special Districts Program Office. Said dedication shall be as follows:

Concurrent with the recordation of any final subdivision map, the applicant shall irrevocably offer for dedication fee title to the O'Neill Regional Park expansion area to the County of Orange or its designee in a form meeting approval of the Director, EMA and County Counsel. Fee title to the property shall be free and clear of liens, leases, easements, encumbrances and use restrictions including any unrecorded encumbrance such as per acre assessment fees against the land for the availability of roads, bridges, water and sewer service, except those approved by the Director, EMA. Said offer shall be in a form that can be accepted for transfer of fee title at any time by the County.

Prior to the issuance of a grading plan for any portion of subject project, an open space plan shall be approved by the Director, EMA. Said plan shall address trail alignments, urban/open space edge conditions, drainage, public access, viewshed analysis, riparian enhancement and restoration, etc.

In order to insure compliance with the **Master Plan of Riding and Hiking Trails**, the following conditions have been mutually agreed to by the applicant and the EMA-Open Space/Recreation Special Districts Program Office.

Prior to or concurrent with the recordation of any final map within subject project, the applicant shall irrevocably offer a recreation easement for riding and hiking trail purposes over all designated regional riding and hiking trails with improvements to include grading, signage, landscaping, drainage devices, fencing (where appropriate), etc.,to the County of Orange or its designee in a manner meeting the approval of the Director, Public Works in consultation with the Manager, Open Space/Recreation/Special Districts Program Office.

The EMA Project Planning Division has recommended a condition with similar effect which has also been agreed to in Principle by the applicant.

Prior to the recordation of any subdivision map thereof, the

EXHIBIT E

SUBSEQUENT EIR

TO THE

SANTA MARGARITA WATER DISTRICT WATER DELIVERY AND STORAGE FACILITIES PROGRAM ENVIRONMENTAL IMPACT REPORT

(SCH. NO. 87120209)

Orange County, CA

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JUNE 13, 1988
Draft EIR

24463a/EIR21

B. ENVIRONMENTAL SUMMARY

IMPACTS

A. LANDFORM, GEOLOGY, SOILS

a. Improvement District No. 7 Water Delivery and Wastewater System Facilities

1) LANDFORM

Modification of existing topography for pipeline installation and storage tank, pump station, treatment plant and appurtenant facilities may occur, however, the majority of these facilities are proposed within the Rolling Hills/Champion Hills Development Area. Modifications include excavation within natural terrain and grading for structures. Impacts associated with pipeline installation are not anticipated to be significant in areas where installation will occur in existing roadways.

MITIGATION MEASURES

a. Improvement District No. 7 Facilities

1) LANDFORM

#1. Project pipeline grading activities will, to the extent feasible, limit disruption of natural terrain to the area necessary for facility construction to avoid landform alteration. Placement of pipelines within existing or proposed roadways will minimize landform impacts. Following grading activities, disturbed areas adjacent to the pipeline(s) will be replaced and reseeded (where appropriate) to reduce potential for erosion.

#2. Grading and landform modifications necessary for pipelines, pump stations, storage tanks, sewage lift stations and the proposed wastewater treatment plant will be conducted in conformance with Chapter 23 of the Uniform Building Code. Graded slopes will be stabilized where necessary with compacted earth fill or other suitable engineered stabilization alternatives.

UNAVOIDABLE ADVERSE IMPACTS

a. Improvement District No. 7 Facilities

1) LANDFORM

Existing terrain within proposed project areas and along roadway alignments may be modified as a result of grading and earthwork operations for the construction of the proposed pipelines, wastewater treatment plant, sewage lift stations and storage tanks.

ℓ) GEOLOGY AND SOILS

Modification and/or removal of underlying geologic material include colluvium, topsoil, weathered bedrock, landslide materials unsuitable for pipe foundation support and saturated alluvium which may cause slumping. Where groundwater is encountered, flooding of the excavation may occur which may require special grading techniques.

2) GEOLOGY AND SOILS

#3. Remedial measures will need to be considered to mitigate the potential adverse affects to the project as a result of the underlying geologic material. The actual geologic conditions, as well as mitigation measures, must be further evaluated during geotechnical design studies. Potential mitigating measures include:

a. Remove unsuitable colluvium, topsoil, highly weathered bedrock and other soft materials to suitable natural materials or replace with compacted fill beneath the proposed pipelines and replace to design grade with properly placed compacted fill.

b. Excavations exposing colluvium, highly weathered bedrock, soft or saturated materials may require temporary stabilization for trench wall support during pipeline construction. Generally, stabilization of trench walls is accomplished with properly spaced shoring.

c. Stabilization of cut slopes exposing unsupported bedding planes may be necessary in order to prevent slope failures.

#4. To prevent erosion and subsequent downstream siltation, the Contractor will be required to comply with the conditions of an erosion and sedimentation control plan approved by the Regional Water Quality Control Board.

2) GEOLOGY AND SOILS

Removal of vegetation during grading activities will expose underlying soils to short-term increased potential for erosion by surface wind and water.

2) GEOLOGY AND SOILS

Removal or modification of underlying soils or geologic materials will result within the canyon selected as the reservoir site. The ultimate effect of the project would be to inundate portions of the selected canyon with a reservoir. Potential impacts could involve reactivation of existing landslides and/or from slope instability of portions of the bedrock in or adjacent to the reservoir.

2) GEOLOGY AND SOILS

#7. Stabilize or remove any landslide debris as necessary within the foundation areas of the dam sites and treatment plant site. Please refer also to Mitigation Measure Nos. 3 and 4.

2) GEOLOGY AND SOILS

Removal of vegetation during grading activities in the reservoir area will expose underlying soils to short-term increased potential for erosion by surface wind and water.

3) FAULTING AND SEISMICITY

The project area may be affected by earthquakes on one or more of the adjacent faults. Depending upon the nature of the earth materials underlying the dam and the nature of the earthquake, overtopping of the dam or dam failure could occur in extremely large seismic events. This could then result in downstream flooding impacts.

3) FAULTING AND SEISMICITY

Please refer to Mitigation Measure No. 5.

3) FAULTING AND SEISMICITY

See above.

c. <u>Regional Water Delivery Pipeline</u>

1) LANDFORM

Landform alteration for the alternative pipeline alignments proposed for the supplemental pipeline capacity project has been addressed in the previous EIR Section IV.A., Page 80 to 85. Additional impacts associated with the additional pipeline alternatives are anticipated to be similar.

c. <u>Regional Water Delivery Pipeline</u>

1) LANDFORM

Please refer to Mitigation Measure Nos. 1 and 2. Please refer also to the water delivery and storage facilities EIR pages 80 to 85.

c. <u>Regional Water Delivery Pipeline</u>

1) LANDFORM

Existing terrain within proposed project areas and also roadway alignments may be modified as a result of grading and earthwork operations for the construction of the proposed pipeline.

IMPACTS	MITIGATION MEASURES	UNAVOIDABLE ADVERSE IMPACTS
2) GEOLOGY AND SOILS	2) GEOLOGY AND SOILS	2) GEOLOGY AND SOILS
Impacts to geology and soils associated with pipeline alignments proposed for the regional water delivery pipeline are addressed in the previous EIR Section IV.A, Page 83. All anticipated impacts have been discussed in the Water Delivery and Storage Facilities EIR, pages 65 to 86.	Refer to discussion above.	Removal of vegetation during grading activities in undeveloped portions along the proposed pipeline alignment will expose underlying soils to short-term increased potential for erosion by surface wind and water.
3) FAULTING AND SEISMICITY	3) FAULTING AND SEISMICITY	3) FAULTING AND SEISMICITY
Impacts associated with faults and seismicity to pipelines proposed for supplemental capacity are described in the previous water delivery and storage facilities program EIR, Pages 80 to 85.	Please refer to Mitigation Measure No. 5. Please refer also to the water delivery and storage facilities EIR, Pages 80 to 85.	Ground shaking can be expected to occur within the project area in response to future earthquake activity along the major fault zones throughout the Southern California region. The potential for soil liquefaction and settlement is present.

B. HYDROLOGY

a. Improvement District No. 7 Water Delivery and Wastewater System Facilities

Water Delivery Pipelines

1) DRAINAGE

The proposed water delivery pipelines will cross several drainage courses and during construction may temporarily increase the potential for damming of these surface channels with associated siltation and erosion due to the excavation for pipeline installation. This impact will occur where facilities cross natural channels, which may include Canada Chiquita, Canada Gobernadora, San Juan Creek, Cristianitos Creek, Verdugo Canyon, Gabino Canyon and La Paz Canyon

Pipelines will be constructed primarily within future road rights-of-way in Improvement District No. 7. Small portions of the non-domestic and domestic water system pipelines will traverse natural areas, with the Zone II domestic water pipeline connecting to a reservoir immediately north of Improvement District No. 7 (see Exhibits 4 and 5). However, no significant impacts have been identified, due to the limited area affected, the temporary nature of potential disruptions and mitigation measured listed below.

B. HYDROLOGY

a. Improvement District No. 7 Facilities

Water Delivery Pipelines

1) DRAINAGE

Where drainage courses are affected due to permanent or temporary alteration of their capacity or flow characteristics, appropriate precautions will be incorporated into the project design to mitigate any potential adverse impacts. Most of the impacts to existing drainage and ecological systems can be minimized by scheduling construction to coincide with periods of minimum rainfall. Excavation in the streambeds will be avoided in the rainy season, where possible. Grading will be performed in accordance with applicable County of Orange grading and excavation criteria. Pipelines will be located below the anticipated maximum scour depth of the streambed. Erosion and siltation control techniques will be utilized where necessary and during periods of precipitation (see Section IV.A).

Drainage provisions and/or specially designed materials or methods to resist corrosion will be used in areas of petroliferous seeps, acidic or saline groundwater where adverse effects are anticipated (as in high groundwater areas such as active stream channels).

B. HYDROLOGY

a. Improvement District No. 7 Facilities

Water Delivery Pipelines

1) DRAINAGE

Where subsurface stream crossings are required, temporary disturbances and increases in sedimentation may occur.

IMPACTS	MITIGATION MEASURES	UNAVOIDABLE ADVERSE IMPACTS
A wider surface disturbance will result due to construction vehicle movements. Potential impacts will be short-term, limited to temporary disruption of the natural drainage course during pipeline installation. The pipelines will be subsurface, placed below the scouring depth of the streambed, and are, therefore, not expected to significantly affect the drainage following project completion.	Where streambed excavation is required, a 1603 Streambed Alteration Agreement will be obtained from the State Department of Fish and Game. If necessary, a 404 permit will be obtained from the U.S. Army Corps of Engineers.	
The proposed facilities will result in temporary increases in sedimentation. This will be due to increased erosion where soil is exposed, including stockpiling areas along roadways and in undeveloped areas.		
2) GROUNDWATER	2) GROUNDWATER	2) GROUNDWATER
Construction of the proposed pipelines may require temporary groundwater withdrawal in high groundwater areas, particularly for trench excavation across natural drainage courses. However, groundwater withdrawal will be minimized by avoiding rainy periods during construction across natural drainage courses.	No groundwater withdrawal as part of a dewatering operation will be discharged into streambeds unless the water is first retained in sediment settling ponds (desilting basins), or unless the quality of such water meets the requirements of the appropriate Regional Water Quality Control Board. Where necessary, an NPDES discharge permit will be obtained.	None have been identified.

IMPACTS	MITIGATION MEASURES	UNAVOIDABLE ADVERSE IMPACTS
Reservoir Pipeline	Reservoir Pipeline	Reservoir Pipeline
Installation of a reservoir pipeline and appurtenant facilities will result in temporary increases in sedimentation due to grading activity.	See above.	See above.
Pump Station	Pump Station	Pump Station
No long-term hydrologic impacts have been identified as a result of pump station construction or operation.	See above.	See above.
c. Regional Water Delivery Pipeline	c. Regional Water Delivery Pipeline	c. Regional Water Delivery Pipeline
An increase in trench width and construction time may result in a slight increase in temporary sedimentation and groundwater recharge requirements as a result of the larger pipeline (see previous EIR for supplemental pipeline impacts).	See above.	See above.
C. BIOLOGICAL RESOURCES	C. BIOLOGICAL RESOURCES	C. BIOLOGICAL RESOURCES
a. Improvement District No. 7 Water Delivery and Wastewater System	The loss of biological resources resulting from construction of the pipeline, pump stations, storage tanks, sewage lift stations, wastewater treatment facility, or any of the alternative reservoir sites is an unavoidable impact of the proposed project. However, a variety of measures are available for incorporation into project design that would reduce the level of that impact on the biological resources.	a. Improvement District No. 7 Water Delivery and Wastewater System
1) WATER DELIVERY PIPELINE	The following mitigation measures are effective for all aspects of the proposed project including	1) WATER DELIVERY PIPELINE
Pipeline installation will require excavation, grading and removal of vegetation along those portions of the alignment that are outside of road right-of-ways. These impacts would not be significant since the areas to be converted are small and revegetation will be accomplished above the subsurface pipelines immediately after construction. Construction activity would disturb		The storage tanks, pump stations and sewage lift stations will result in a permanent reduction of physical habitats and loss of vegetation. In addition, construction activity would disturb all wildlife in the vicinity and many species could be expected to leave the area temporarily. However because of the small areas to be affected, the impact is not considered to be of regional

temporarily move to adjacent areas of similar habitat. Construction of the pipelines would disturb small areas of riparian habitat where they cross streams. Large oak and sycamore trees that occur close to the actual pipeline alignments may be damaged by the excavation process or heavy equipment operation near the trunks of trees.

Construction of pump stations, storage tanks and wastewater facilities. Construction will require excavation, grading and removal of vegetation. Construction will result in the permanent reduction of physical habitats and loss of vegetation. In additin, construction activity would disturb all wildlife in the vicinity.

b. Water Storage Facilities

A number of potential impacts are common to all three alternative reservoir sites. These are listed below:

Three sensitive plant species, two sensitive reptile and five sensitive bird species are thought likely to occur within the boundaries of all three alternative reservoir sites.

Each reservoir site supports significant riparian habitat. The loss of riparian habitat is inevitable upon construction of a reservoir.

and Regional Water Delivery Pipeline:

The pipeline alignments which follow existing roadways will be installed so as to deviate as little as possible from the road alignments.

The limits of construction (50 feet on either side of existing roadways for the pipeline) will be clearly marked as will vehicle and material storage areas and vehicle turn-arounds. The limits of construction for any required crossings of streambeds will be clearly marked and enforced. These impact areas will be determined in consultation with a qualified biologist in order to determine the placement with the least potential for damaging biological resources.

Any graded slopes will be landscaped as soon after construction as feasible with appropriate native species. This activity will lessen the potential for erosion and siltation problems to occur at the stream and canyon crossings.

Oaks and sycamores exceeding 5 inches in diameter to be removed as a result of project implementation will be replaced at a minimum ratio of 3:1 with 1- to 5-gallon stock by qualified personnel in appropriate locations.

The only permanent unmitigable impacts would be those associated with the wastewater treatment facility alternative. Construction activities will result in vegetation loss of larger and more significant area of vegetation.

b. Water Storage Facilities

All three of the reservoir alternatives would require loss of areas of riparian habitats, oak woodland and coastal sage scrub habitat. This loss constitutes an unavoidable adverse impact of regional significance. Each alternative may permanently disrupt or restrict wildlife movement through the canyon in which it would be constructed.

IMPACTS	MITIGATION MEASURES	UNAVOIDABLE ADVERSE IMPACTS
The construction of any reservoir would result in the loss of all oak woodlands within the site boundaries. Each reservoir plan would contribute to the ongoing loss of raptor foraging and breeding habitat in the region. The implementation of any three reservoir alternatives will permanently disrupt the movement of wildlife. Drainage restrictions by a dam structure could adversely impact downstream areas dependent on periodic flooding. Verdugo Canyon supports more coatsal sage scrub but less grasslands than the other two alternatives. Upper Gabino Canyon contains the largest grassland area of the three sites and supports the smallest areas of three habitats: the coastal sage scrub, riparian and oak woodland. Lower Gabino Canyon site supports the largests areas of riparian and oak woodland habitats.	Oaks and sycamores in the vicinity of construction activity will be protected from damage through the installation of temporary fencing at least 25 feet outside the dripline of any tree. No equipment or materials will be operated or stored within this area. Areas of natural vegetation disturbed by the pipeline installation process will be revegetated immediately after installation is complete. Any wetland authorized for removal will be replaced on an acre-for-acre basis preferably within the same watershed. The restoration, enhancement or establishment of riparian habitat will be implemented by personnel experienced in native plant revegetation procedures. The project will be monitored by the installer as part of the original contract to assure survival of at least 80 percent of plants and 100 percent ground coverage by the end of a 5 year period.	
b. Regional Water Delivery Pipeline As described previously in the SMWD Water Delivery and Storage Facilities Program EIR, the impacts resulting from installation of pipeline alignments within existing or	If determined to be significant, loss of riparian habitat will be mitigated per the recommendations of CDFG and USFWS, a process that may involve the process that may involve the restoration of degraded or disturbed habitat, the enhancement of existing habitat not affected by the proposed project, or the establishment of new habitat.	c. Regional Water Delivery Pipeline No significant unavoidable adverse impacts are anticipated to biotic resources as a result of pipeline installation.

within private property and presently not visible from existing residential or public use areas in the vicinity.

c. Regional Water Delivery Pipeline

The proposed supplemental water delivery pipeline capacity is not anticipated to result in any significant increase to the degree of impact previously identified in the SMWD Water Delivery and Storage Facilities Program EIR, pages 145-146 and pages 197-224.

implementation to retain the future aesthetic quality of the canyon.

c. Regional Water Delivery Pipeline

No impacts to land use are anticipated to be significant, therefore no mitigation measures are proposed. Mitigation measures previously identified above for the Improvement District No. 7 pipeline are also applicable for this facility.

Ornamental vegetation damaged during construction will be replaced after construction is completed.

In areas where the pipeline crosses existing natural vegetation, the area will be revegetated by hydroseeding or other equivalent methods to restore the existing vegetation (refer to Section IV.C, Biological Resources, for revegetation requirements). Completion of the pipeline, in itself, will mitigate the temporary visual impacts of the installation of the line.

c. Regional Water Delivery Pipeline

None have been identified.

following mitigation measures will be incorporated into project design to minimize potential impacts:

Pipelines

. shall be buried below scour line within streambed limits.

. shall be encased in concrete within streambed limits.

. isolation valves shall be installed on each side of stream crossing or at top and bottom of steep slopes.

. the type of pipe and joint best suited for the construction situation shall be selected during design.

. strict adherence to the District's existing practices of requiring that pipeline plans and specifications be checked by a corrosion engineer will mitigate pipeline rupture.

. strict adherence to the existing District policy of consistent system monitoring.

Pump Stations

. installation of a telemetry and alarm system.

. inclusion of standby pumps.

. inclusion of a standby energy source.

. provisions for operational flexibility.

. the station will be designed as critical structure so that if there is an equipment failure, operation can be modified in a routine manner so that service is not interrupted and failure is an inconvenience, not an emergency.

. strict adherence to the existing District policy of consistent system monitoring.

pipeline construction in those instances where undeveloped open land would be affected. The level of significance impact is dependent upon actual grading and construction procedures.

Pipeline installation will require excavation, grading and removal of vegetation along those portions of the alignment that are outside of road right of ways. In general, these impacts would not be significant since the areas to be converted are small, and revegetation will be accomplished above the subsurface pipelines immediately after construction.

The process of excavating and filling would impact areas within the project area boundaries. Heavy equipment will be needed to trench out backfill compaction. Turnaround maneuvers by earth-moving equipment could disrupt adjacent soils and vegetation. Disturbed and compacted soils are subject to greater erosion unless properly graded and revegetated.

Construction activity would disturb all wildlife in the vicinity, and many species could be expected to at least temporarily move to adjacent areas of similar habitat. Construction activity associated with the pipeline could also exert a temporary adverse impact upon the raptors presently utilizing the open lands for foraging. However, because of the relatively small areas to be affected, and because the pipelines will be installed underground, habitat loss to wildlife is not considered to be a significant long-term impact. Following construction, most species now present would return to the construction site.

Construction of the pipelines would disturb relatively small areas of riparian habitat where they cross stream channels. These crossings are to be subsurface and the removed soils will be immediately replaced so that the loss will be temporary.

In instances where construction activities would traverse watercourses, adverse effects on water quality, channel stability and aquatic life forms are possible. Negative impacts may result from increased siltation and impeded flow. Small aquatic plants and animals serve as an important component of a food chain that supports the diverse and abundant wildlife typical of streamside ecosystems.

Riparian channels are also important to wildlife as movement corridors, especially where surrounding lands are no longer available due to urbanization.

Construction in the vicinity of natural creek channels would temporarily impede the movement of animals. This impact would not continue beyond completion of the pipeline installation, however, since the lines will be subsurface.

Large oak and sycamore trees that occur close to the actual pipeline alignments may be damaged by the excavation process or heavy equipment operation near the trunks of the trees. If care is taken to align the pipelines to avoid large trees and eliminate equipment operation and storage within 15 feet of the driplines of these trees the impacts pipeline construction would have on these trees would be minimal.

No sensitive species were observed on the proposed pipeline routes or are anticipated to inhabit the immediate area due to the disturbed nature alignment (i.e., ranch road). Therefore, no sensitive species are likely to be impacted by pipeline installation.

The proposed pump stations will require an approximately one acre graded pad each. In areas of open space, this will result in the permanent reduction of physical habitats and loss of vegetation. However, because of the relatively small areas to be affected, vegetation and habitat loss to wildlife is not considered to be a significant impact.

2) Storage Tanks

A disturbance area of five acres is assumed for each of the four storage tanks proposed. The construction will require excavation, grading and removal of vegetation. In addition, construction activity would disturb all wildlife in the vicinity and many species could be expected to leave the area temporarily. However, these impacts are considered less than significant as the disturbance area is small and following construction, the tank site will return to a passive type area and most species now present would return to the construction site.

3) Wastewater Treatment Facilities

The impacts resulting from the construction of wastewater pipelines will be identical to those previously described for the water delivery pipelines.

The construction of the sewage lift stations will result in a disturbance area of approximately one acre each. The process of excavation and grading will disrupt soils and vegetation, and result in permanent reduction in habitat. However, because the area is relatively small, it is not considered a significant impact.

- Upper Gabino Canyon with a proposed reservoir surface area of 420 acres is in between the other two alternatives in total size. Yet Upper Gabino Canyon supports the smallest areas of three habitats--the coastal sage scrub, riparian and oak woodland. Upper Gabino Canyon also supports the largest grassland area of the three sites. A small man-made cattle watering pond is also on the site.

- Lower Gabino Canyon is the largest of the proposed reservoir alternatives having a proposed surface area of 525 acres. The Lower Gabino Canyon site supports the largest areas of riparian and oak woodland habitats containing more than twice as much riparian area and nearly six times as much oak woodland as either of the other two alternatives. The Lower Gabino Canyon site also supports an area of coastal sage scrub comparable to the other sites. The area of grassland in Lower Gabino Canyon is almost halfway between the other two alternatives. Lower Gabino Canyon also supports the unidentified Chorizanthe species that may be Orange County turkish rugging as well as a population of Palmer's harpagonella which is endangered in California.

c. Regional Water Delivery Pipeline

As described previously in the SMWD Water Delivery and Storage Facilities Program EIR, the impacts resulting from installation of pipeline alignments within existing or proposed roadways, pose no threat to the biotic resources of the areas beyond the impacts of the roadways themselves. However in those instances where undeveloped open land would be affected, as in the crossing of Aliso Creek proposed in Segment B of the Alignment Alternatives, temporary impacts to the natural environmental could result. The potential adverse influences of pipeline installation across undeveloped land was previously described under IMPROVEMENT DISTRICT NO. 7 FACILITIES, a) Water Delivery Pipeline.

4. MITIGATION MEASURES

..6 The loss of biological resources resulting from construction of the pipeline,
?.3 pump stations, storage tanks, sewage lift stations, wastewater treatment

ration into project design that would reduce the level of that impact on the biological resources.

The following mitigation measures are effective for all aspects of the proposed project including Improvement District No. 7 Facilities, Regional Water Delivery Facilities and Water Storage Facilities:

#16 The pipeline alignments which follow existing roadways will be installed so as to deviate as little as possible from the road alignments.

#17 The limits of construction (50 feet on either side of existing roadways for the pipeline) will be clearly marked as should vehicle and material storage areas and vehicle turn-arounds. The limits of construction for any required crossings of streambeds will be clearly marked and enforced. These impact areas will be determined in consultation with a qualified biologist in order to determine the placement with the least potential for damaging biological resources.

#18 Any graded slopes will be landscaped as soon after construction as feasible with appropriate native species. This activity will lessen the potential for erosion and siltation problems to occur at the stream and canyon crossings.

#19 Any oaks or sycamores exceeding 5 inches in trunk diameter to be removed as a result of project implementation will be replaced at a minimum ratio of 3:1 with 1- to 5-gallons stock by qualified personnel in appropriate locations.

#20 Oaks and sycamores in the vicinity of construction activity will be protected from damage through the installation of temporary fencing at least 25 feet outside the dripline of any tree. No equipment or materials will be operated or stored within this area.

#21 Areas of natural vegetation disturbed by the pipeline installation process will be revegetated immediately after installation is complete.

#22 If determined to be significant (depending upon the reservoir site selected), loss of riparian habitat will be mitigated by a program that is approved by the District, the Corps CDFG and USFWS before construction, a process that may involve the restoration of degraded or disturbed habitat, the enhancement of existing habitat not affected by the proposed project, or the establishment of new habitat.

#23 Any wetland authorized for removal will be replaced on an acre-for-acre basis, preferably within the same watershed. The restoration, enhancement or establishment of riparian habitat will be implemented by personnel experienced in native plant revegetation procedures, and will include the following:

a. Areas proposed for enhancement, and especially establishment, will be carefully examined for factors such as available moisture, water quality and soil type.

b. Plant materials will be grown from seed or cuttings obtained from local genetic stock, if possible.

c. The youngest plant materials appropriate will be utilized due to their proven higher success rate, recognizing that this often means that greater amounts of material may be required.

d. Planting will be done in winter or spring following construction.

e. The project will be monitored by the installer as part of the original contract to assure survival of at least 80% of plants and 100% ground coverage by the end of a 5 year period.

#24 Grading and excavation for the proposed wastewater treatment facility, water filtration plant, pump stations and storage tanks will be planned in a way to leave coastal sage scrub areas along portions of the periphery of the site undisturbed, where possible.

#25 Effective measures will be employed to control erosion and contain silt in runoff at the source, particularly near and along the drainage courses.

#26 Potentially adverse affects of night lighting on wildlife in woodland habitats adjacent to the wastewater treatment facility (and other proposed facilities) will be mitigated by appropriate selection among the following alternatives:

(a) low intensity lamps
(b) low elevation lighting poles
(c) shielding by internal silvering of the globe or external opaque reflectors

#27 If Dudleya multicaulis is located on the project site eventually selected the plants will be relocated to an appropriate site in the vicinity. The relocation site for the plants will be within an area that should remain natural into perpetuity.

WATER DELIVERY AND STORAGE FACILITIES
IMPACT SUMMARY

IMPACT AREA	PIPELINE SEGMENTS							RESERVOIR ALTERNATIVES		
	A	B	C	D	E	F	G	Verdugo Canyon	Upper Gabino Canyon	Lower Gabino Canyon
1. LANDFORM, GEOLOGY AND SOILS										
- Canyon Bottom Landform Surface Modification	No	No	No	No	No	No	No	Yes	Yes	
- Modification of Canyon Geologic Subsurface	Maybe	Maybe	Maybe	Maybe	Maybe	Maybe	Maybe	Yes	Yes	Yes
- Possibility of Flooding due to Seismic Destruction	No	No	No	No	No	No	No	Yes	Yes	Yes
2. HYDROLOGY										
- Temporary Diversion of Natural Drainage Patterns	No	Yes	No	Maybe	Maybe	Maybe	No	Yes	Yes	Yes
- Temporary Reduction of Downstream Water Quantity due to Construction	No	Maybe	No	Maybe	Maybe	No	No	Yes	Yes	Yes
- Impacted Immediate Downstream Areas (Temporary)	No	Maybe	No	Maybe	Maybe	No	No	Yes	Yes	Yes
- Alteration of Groundwater Levels (Temporary)	No	Maybe	No	Maybe	Maybe	No	No	Maybe	Maybe	Maybe
- Increased Temporary Downstream Sedimentation	No	Yes	No	Maybe	Maybe	No	No	Yes	Yes	Yes
- Reduced Long-Term Downstream Sedimentation		No	No	No	No	No	No	Yes	Yes	Yes
3. BIOLOGICAL RESOURCES										
- Possible Long-Term Impact to Sensitive Plant Species and Sensitive Animal Species	No	No	No	No	No	No	No	Yes	Yes	Yes
- Destruction of Riparian Habitat (Temporary)	No	Yes	No	Maybe	Maybe	No	No	Yes	Yes	Yes
- Loss of Oak Woodland Habitat (Temporary)	No	Yes	No	Maybe	Maybe	No	No	Yes	Yes	Yes
- Loss of Raptor Foraging and Breeding Habitat	No	No	No	No	No	No	No	Yes	Yes	Yes
- Adverse Impacts to Downstream Flood Dependant Areas	No	No	No	No	No	No	No	Yes	Yes	Yes
4. CULTURAL AND SCIENTIFIC RESOURCES										
- Potential Destruction of Archaeological Resources	No	No	No	No	Maybe	Maybe	No	Yes	Yes	Maybe
- Indirect Impacts to Archaeological Resources due to Human Presence	No	No	No	No	Maybe	Maybe	No	Maybe	Maybe	Maybe
- Destruction of Paleontological Resources due to Grading, Trenching and Construction Activities	No	No	No	No	Maybe	Maybe	No	Maybe	Maybe	Maybe
5. LAND USE/AESTHETICS										
- Reduction of Vegetated Open Space Areas	No	No	No	No	No	No	No	Yes	Yes	Yes
- Temporary Visual Construction Related Impacts	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Maybe	Maybe	Maybe

Arroyo crossings

JN 24463/T4

COMPILATION OF RECOMMENDED MITIGATION MEASURES EIR 320

Landform/Topography

1. Detailed grading plans (in conformance with established county procedures), further defining project earthwork requirements, will be developed during subsequent, more detailed levels of planning (i.e., site plan or tentative tract map preparation stages). These plans will reflect a balance of cut and fill material requirements.

2. Limiting the amount of development within the island pasture with only minor grading requirements will preserve the integrity of this hillform feature. Sensitive siting and grading techniques (i.e., avoiding prominent natural features such as major knolls, contouring, etc.) will be employed to the maximum extent feasible.

3. Special grading techniques (i.e., contouring) will be employed along the edges of development atop the Plano Trabuco to soften the visual appearance of graded areas from adjacent and offsite locations (see Sections 3.7 and 3.15 for further details).

Hydrology

14. The proposed storm drain system has been designed to reduce the potential impacts of increased onsite runoff volumes and velocities and avoid potential hazards of localized flooding within the development areas during storm events. This system will be studied further and design details for the various components (e.g., selection of the most appropriate energy dissipator design) will be developed during subsequent engineering investigations and the preparation of a runoff management plan for the project (see No. 19). All components of the project storm drain system will be designed in accordance with Orange County flood control and storm drain engineering construction and hydraulic design standards.

15. The provision of appropriately designed roadway crossing and stream undercrossing structures for the future alignments of the Foothill Corridor, Alicia Parkway, Antonio Parkway, Portola Parkway, and the Coto de Caza Drive connector across Arroyo Trabuco and Tijeras Canyon will avoid potential hazards of washout, and also will maintain existing channel conveyance capacities through their respective crossing locations. The dimensions of these structures will be determined during subsequent, more detailed levels of project planning (e.g., site plan or tentative tract map stages). Appropriate measures also will be developed at that time to maintain channel flow regimes during short-term crossing construction phases and other roadway construction activities in the vicinity of these streamcourses.

16. The siting of urban development outside the flood hazard limits of Arroyo Trabuco, southern Tijeras Canyon and the proposed piping improvement of the northern Tijeras Canyon channel segment will avoid potential hazards of flooding to the project during major storm events. The proposed piping of the northern Tijeras Canyon channel has been sized to maintain existing floodwater conveyance capacities through this area.

17. Erosion control measures will be developed and incorporated into final grading plans for the project to minimize potential increases in erosion and sedimentation. Such measures which could be incorporated into these plans include the timely seeding and revegetation of graded slopes, and the use of temporary erosion control measures, i.e., sandbagging. Particular attention will need to be given to the roadway stream crossing and approach areas within the Arroyo Trabuco and Tijeras Canyon floodplains where more substantive protection measures will be required. Said construction erosion and sediment control plans also will be submitted to the San Diego Regional Water Quality Control Board.

18. Appropriate stormwater pollution control plans will be developed, e.g., a street sweeping program and/or periodic cleaning of storm drain, catch basin, etc. as a means of reducing long-term impacts to study area and downstream water quality.

19. A comprehensive runoff management plan will be developed and submitted to the Director of EMA prior to recordation of the first final tract map. This plan will detail the measures for handling onsite runoff (storm drain systems) and discharge of flows to Arroyo Trabuco and Tijeras Canyon (energy dissipator design information), erosion control measures and storm water pollution control plans.[1]

20. Detailed design construction, operation and management plans for the proposed man-made lakes will be developed at the site plan or tentative tract map preparation stages for review and approval by the County of Orange.

Biological Resources

21. An open space natural area is planned to surround the Plano Trabuco development area. The open space will include the Arroyo Trabuco on the northwest and western margin and Tijeras Canyon on the southeast margin. This natural area encompasses approximately 1,210 acres and includes approximately 90 percent of the presently existing oak woodland and riparian habitat onsite.

22. In conjunction with golf course development within the oak and riparian woodland areas, a management plan will be completed which will assure the long-term health and survival of the large trees. Included in the plan should be a planting program of young trees to assure the continued presence of the resource, as natural establishment may be marginal.

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1 Note that timing for completion of this mitigation measure has been revised to be consistent with proposed conditions of project approval.

23. Any trees of five inches in diameter or greater removed as a primary or secondary result of project development will be replaced at a 3:1 ratio. Trees considered under this replacement policy include: exotic trees which have long been a component of the local environment, e.g., eucalyptus; large plants that, when smaller, are commonly considered shrubs, but when of sufficient size constitute trees, e.g., toyon, elderberry, laural sumae, scrub oak, etc., and native trees such as oaks, sycamores, alders and willows.

24. The grassland and coastal sage scrub habitat to be left on the Plano Trabuco will be that which will remain within the open space designation areas. Other larger grassland areas will remain along the Chiquita Ridge above Tijeras Creek. Those grassland slopes remaining should be maintained as open grassland, and not replaced by other forms of vegetation.

25. Where populations of the rare mariposa lily occur outside of the natural open space area, it is recommended that they be salvaged. This may best be done in the fall of the year. The lily is a bulb-producing species and can be transplanted to other appropriate native grassland areas, onsite or in the vicinity. Individuals can be located even when dormant from persistent seed pods.

26. The faunal habitats onsite within Arroyo Trabuco and the lower portion of Tijeras Canyon for the most part will remain intact. The near vertical cliffs which provide nest sites for a variety of raptors are included within the Arroyo Trabuco open space corridor. Foraging areas on the floor of the Arroyo and in Tijeras Canyon will remain as open space. To the maximum extent possible, recreational activities in the proposed Arroyo Trabuco Regional Park should be limited so as to maintain this area for wilderness purposes.

27. Revegetation will be accomplished on all graded and cut-and-fill areas where structures or improvements are not constructed. Consideration should be given to the use of drought-tolerant plant materials, especially species native to the foothills and coastal plains of southern California. Native plant materials should be derived from local stocks. Salvage of plants in areas slated to be developed should be coordinated with local native plant preservation groups.

28. Setbacks and special edge treatments adjacent to Plano Trabuco margin are proposed in the project's Features Plan. These will be of sufficient width that development on the Plano Trabuco will not be visible from within the natural open space corridors. Landscaping material used for screening will be selected from species occurring naturally in the area. Such a buffer will act to some degree to reduce the potential for invasion of natural areas by exotic species of plants and animals originating in the urban community.

29. Displaced earth from grading and soil eroded by rains will be controlled and not allowed to deposit in significant quantities in the open space corridors. Outfalls of storm drains will be designed so as to avoid creating a visual nuisance in the open space corridors. A variety of measures to control erosion, sedimentation and stream flow velocity augmentation will be implemented through development of a comprehensive runoff management plan to be submitted to the Director of EMA prior to recordation of the first final tract map (see HYDROLOGY, Section 3.3).

30. All areas of the site which are to remain in open space and undisturbed by project development should be cleared of any accumulated refuse. Signs informing the public should be placed at access points to the natural areas, describing their value and the need that they be maintained.

31. Prior to implementation of County trails within or adjacent to the Arroyo Trabuco and Tijeras Creek, the State Department of Fish and Game will be contacted and provided the opportunity for review and further comments.

Cultural and Scientific Resources

Archaeological Resources

32. CA-Ora-860 - If this site cannot be preserved through avoidance, mitigation should consist of 100-percent surface collection of all artifacts and the excavation of 2-10 excavation units.

33. CA-Ora-861 and CA-Ora-870 - If these sites cannot be preserved through complete avoidance, mitigation should be completed in two phases. Phase 1 should consist of a 100-percent surface collection and the excavation of 2-4 test pits. Based on the results of the Phase I investigation, a Phase II investigation would consist of obtaining up to 5 percent subsurface sample. Both phases of mitigation should occur prior to issuance of grading permits.

34. CA-Ora-877 - If this site cannot be preserved through avoidance, an adequate recovery program should be implemented prior to the issuance of grading permits.

35. CA-Ora-867, CA-Ora-869, CA-Ora-872 and CA-Ora 874 - No mitigation measures can be made for these sites based on the survey data. These sites should be tested to determine their individual areal extent, depth, and content prior to the formulation of a final mitigation program. Said testing and development of appropriate mitigation should occur prior to tentative subdivision maps in their proximity.

36. CA-Ora-853 - This site is being investigated currently by the archaeological consultant. A sufficient sample will be obtained in 1982 as part of this project. A 100-percent surface collection will occur prior to grading permits.

37. CA-Ora-868 and CA-Ora-875 - These sites will require 100-percent surface collection with sufficient number of units excavated to constitute an adquate subsurface sample. Surface collection should occur prior to grading permits.

38. CA-Ora-876 - The Trabuco Adobe and San Francisco Solano present in this site will be nominated to the National Register of Historic Places, and preserved intact. Prior to nominating the historic portions of this site to the National Register, further investigations are recommended for the prehistoric deposit. Specifically, a better definition of areal extent, continuity of deposit and content should be determined prior to final recommendations. Said testing and development of appropriate mitigation should occur prior to approval of a tentative subdivision map which may effect the site.

Paleontological Resources

39. The County of Orange standard measures (on file with EMA, Environmental Analysis Division) calling for 1) paleontological testing and reporting, and 2) paleontological grading observation shall apply to those areas of impact.

40. Areas in and around the presently recognized MAR and JDC localities should be collected prior to the issuance of grading permits in the vicinity of the sites.

41. A qualified paleontologist should be in attendance at all pre-grade conferences and should coordinate an appropriate program of monitoring/salvaging with the developer and grading contractor.

Historical Resources

42. Because of the uncertainty of the existence of the "unnamed historical site," a qualified historical monitor should be present during grading; the monitor should be empowered to halt grading temporarily pending evaluation and appropriate mitigation. Additionally, should the remains of additional adobes be discovered, an historian shall be notified and allowed sufficient time to evaluate, scientifically record and/or recover the resource(s).

43. It is recommended that the Trabuco Adobe and San Francisco Solano be nominated to the National Register of Historic Places and preserved intact and offered for dedication to the County of Orange as part of the Arroyo Trabuco Regional Park. It is also recommended that the roof structure protecting the Trabuco Adobe be screened in order to prevent birds from damaging the fragile ruin. These measures should be implemented prior to the approval of the first tentative subdivision map. Prior to the approval of a subdivision map effecting the Trabuco Adobe and San Fransciso Solano, a plan shall be submitted to the Director of EMA indicating the proposed method and extent of preservation for these historical resources.

Surrounding Land Uses

44. Design guidelines for the proposed project will be implemented through the Feature Plan to minimize visual impacts to O'Neill Regional Park and Arroyo Trabuco Regional Park. These design guidelines will include:

    - Carefully sited planting masses with controlled height characteristics placed between structure and the top of slopes to allow views out of the site while restricting views from within the Arroyo Trabuco.

    - Edge treatments and grading practices that will minimize views to the project site from the existing and proposed park locations.

    - Structures should be set-back and/or buffered with landscaped berms away from viewsheds of adjacent public recreation facilities including the O'Neill Regional Park, the Arroyo Trabuco Regional Park and other public recreational trails.

    - Stepping back of floor levels away from the Plano edge the degree necessary to eliminate potential visual impacts of multistory structures.

    - Use of earth tones and other colors to coordinate with the existing landscape, as well as utilization of architectural styles with conceptual themes and forms which lessen the visual impacts of architectural edges.

    - In many locations, overhead tree cover in the Arroyo Trabuco restricts views up to the study area. In specific areas of the park where views of developed areas might be unrestricted, overhead tree cover will be introduced or strengthened as necessary by the project proponent.

45. To minimize light and glare, street and sign lighting shall be oriented toward the site to avoid spillover into adjacent properties, particulary into the regional parks.

46. An irrevocable offer of dedication will be made to the County of Orange for the Arroyo Trabuco Regional Park. Until such time as the offer is accepted, the developer and/or his successors will be responsible for the care and maintenance of the irrevocably offered open space areas. Park land and/or open space improvements requested in association with this project should be determined in conjunction with Feature Plan review.

47. Faunal migration to less urbanized areas is an unavoidable adverse impact; however, the faunal habitats within the Arroyo Trabuco and the lower portion of Tijeras Canyon, for the most part, will remain intact. The near vertical cliffs which provide nest sites for a variety of raptors are included within the Arroyo Trabuco open space corridor. Forgaging areas in the floor of the Arroyo and in Tijeras Canyon will remain as open space.

48. The County of Orange and project proponent currently are investigating the feasibility of alternative campground locations for the existing O'Neill Regional Park campgrounds.

Relevant Planning Programs

Land Use Element

49. The County of Orange and project sponsor currently are developing a mixed used designation for the proposed Town Center and Business Park mixed use areas. Development of a new "6.0-Urban Activities Center" LUE designation will be presented to the Planning Commission and Board of Supervisors concurrent with the proposed Plano Trabuco GPA.

Housing Element

50. The proposed project will comply fully with the County's Inclusionary Housing Program by providing a minimum of 25% of all dwelling units in the County-defined affordable range.

51. An Affordable Housing Implementation Program will be developed and appproved by the County of Orange before the submittal of a tentative tract map.

Transportation Element

52. Amend the Master Plan of Arterial Highways, both on and offsite to that shown in Exhibit 30.

53. The project proponent will comply fully with the County of Orange in providing the necessary regional bikeways within the study area. Easements for bicycle lanes will be offered irrevocably and in perpetuity to the County of Orange. Said trails will be improved by the developer consistent with county guidelines and standards. Until such time as the county accepts the offer of dedication the developer and/or his successors and assigns (e.g., Master Community Association) shall be responsible for care and maintenance.

54. The project proponent will comply fully with the Scenic Highways Element. Special design treatments within the right-of-way will consider the following:

- Use of trees and shrubs to frame desirable foreground and surrounding landscape views.
- Special landscape and grading treatment to "naturalizing" adjacent steep manufactured slopes.
- Increased setbacks of structures on adjacent bluff tops and stepping back of building heights.
- An emphasis on the use of native plant materials.

l. Specially designed structures and appurtenances reflecting the scenic character of the area.

Recreation Element

55. An irrevocable offer of dedication shall be made to the County of Orange for the portions of this project shown as Natural Open Space (Exhibit 9) to facilitate public access and/or park expansion. Maintenance responsibility for such lands shall be the project sponsor's or their assigns until the County of Orange shall accept such dedication. The County of Orange may accept such dedication in total or in part at its discretion without jeopardizing this offer.

56. An edge treatment/viewshed analysis will be submitted to the County of Orange for review and approval at each incremental phase of development, which demonstrates that both O'Neill Regional Park and Arroyo Trabuco Regional Park have been buffered adequately with the intent of minimizing to the greatest extent possible potential conflicts resulting from structural encroachment, unauthorized entry, vandalism, the air of exclusivity, potential erosion of the bluffs, etc.

57. An "Open Space/Public Facilities Maintenance" matrix depicting long-term maintenance responsibility of the project has been prepared in conjunction with the Feature Plan.

58. Ultimate development of the project will comply with local park code requirements as specified in the Feature Plan. Additionally, a Master Local Park Implementation Plan shall be submitted to the Manager, EMA, Open Space/Recreation/Special Districts Program Office for review and recommendation to the Subdivision Committee concurrent with/or prior to the approval of the first tract map for the Plano Trabuco Planned Community. Said plan will identify the phasing of local parks in relation to residential uses.

59. Easements for the regional riding and hiking trails will be offered irrevocably and in perpetuity to the County of Orange subject to the approval of the Director EMA/Planning.

60. The County of Orange and project proponent currently are investigating the feasibility of alternative campground locations for the existing O'Neill Regional Park Campgrounds.

61. Easements for the Arroyo Trabuco and Tijeras Creek Regional Trails should be situated along existing truck trails where feasibile; this will work to reduce improvement costs for said trails.

Open Space Element

62. The project proponent will submit a conceptual landscape plan to the County EMA as part of the Feature Plan package. Said plan shall include guidelines, edge and slope treatments and screening of proposed urban environments from preserved natural areas. In addition, the plant palette should include tree and shrub species

associated with the riparian resources of Trabuco Creek as well as exotic species long since a part of the foothill area.

63. The design of the Portola Parkway, Antonio Parkway, Alicia Parkway, Coto de Caza Drive Connector and the Foothill Transportation Corridor will be designed to minimize impacts to the natural resources in Tijeras Canyon.

Conservation Element

64. Trees exceeding five inches in diameter shall be preserved to the greatest extent possible. Those trees impacted will be replaced at an acceptable ratio of 3 to 1 in the undisturbed areas of the Arroyo Trabuco and Tijeras Canyon. Since adequate data does not exist at this time to determine precise location or size, trees subject to removal and replacement will be identified prior to each tentative tract map approval.

Safety Element

65. A detailed fuel modification program as outlined in the Feature Plan will be developed at the tentative tract level of planning and approved by the County Fire Marshal; this program will minimize onsite fire hazard.

Trabuco Creek Specific Plan

66. Future site specific planning efforts will coordinate with the guidelines in the Trabuco Creek Corridor Specific Plan.

Federal Aviation Administration Regulation Part 77

67. At least 30 days prior to the issuance of building permits, the project proponent will submit FAA Form 7460-1, "Notice of Proposed Construction or Alteration," to the Chief, Air Traffic Division, of the appropriate FAA regional office. The project proponent will comply fully with all appropriate FAA standards and requirements.

68. The findings of the FAA shall be submitted to the County of Orange EMA prior to the application for building permits.

69. The project shall not emit excessive glare or light nor produce or cause steam, smoke, dust, or electronic interference so as to endanger aeronautical operations.

208 Water Quality Plan and San Diego Regional Water Quality Control Board

70. The proposed project shall adhere to the appropriate construction erosion and sedimentation and urban runoff measures to mitigate any potential degradation of water quality as specified by the San Diego RWQCB and the County of Orange.

(20) Parks shall be sound attenuated where necessary to be less than 65 dB(A) CNEL in all usable portions.

126. The option of locating the 66 KV lines underground in an arterial right-of-way joint-use agreement with the County of Orange should be pursued by SCE and the project proponent.

- Use mulch extensively in all landscaped areas. Mulch applied on top of the soil will improve soil water holding capacity by reducing evaporation and soil compaction (enhances and maintains soil permeability).

- Utilize stored rainwater or household gray water for individual lot irrigation purposes. There are potential water quality and health hazard limitations associated with these systems. If found feasible for the project, these systems will be subject to the approvals from the appropriate regulatory agencies including SMWD, the County of Orange Health Department, the San Diego Regional Water Quality Control Board, and possibly the State Health Department.

Wastewater

140. Studies currently in progress for the 5.0 mgd expansion of the SERRA treatment plant (and the taking of action on this proposal) and/or further pursuit of the Project Committee No. 12 planning program will lead to the development of the most feasible option for balancing the management of project flows not allocated to the Oso Creek Wastewater Reclamation Plant. Implementation of the project's later phases is contingent upon finalization of plans in this regard.

141. The status of more detailed, ongoing and subsequent wastewater planning efforts for the project, including preparation of the revised Plan of Works will be reviewed at the tentative tract map stage of processing.

142. Utilization of water conservation technology to the extent feasible, as mentioned previously, will also work toward reducing expected project wastewater demands.

Aesthetics

143. Local parks will be provided in accordance with county policies.

144. Landscaping will be provided throughout the proposed planned community and adjacent to roadways to soften the visual impacts of development and to enhance the aesthetic character of the community.

145. Approximately 48 percent of the study area, including the Arroyo Trabuco and the southern portion of Tijeras Creek, will be retained in open space uses.

146. Edge treatments consisting of the following elements will be implemented pursuant to the Feature Plan along the bluff edge adjacent to the Arroyo Trabuco and O'Neill Regional Park campgrounds:

- Setbacks from the top of slope which have a relationship to the canyon viewshed can minimize structure visibility from below.

- Carefully sited planting masses placed in the canyon to screen views of the Arroyo Trabuco users from development impacts.

- Landscape mounding where park areas are at the same level with development areas.

- Introduction of a scenic drive between the bluff edge and thr proposed development would increase the width of the development setback and maximize the public's visual access to the aesthetic resources of the Arroyo Trabuco.

  Stepping back of floor levels away from the top of slope minimizing the visual impact of multi-story structures.

- Use of earth tones and other colors coordinated with the existing landscape, as well as architectural styles utilizing conceptual themes and forms, lessen the visual impacts of architectural forms.

- In many locations, overhead tree cover in the Trabuco Creek and O'Neill Park restrict views up to the Plano Trabuco site. In specific areas of the park or creek where views of developed areas might be unmitigated, overhead tree cover will be introduced or increased.

147. So as to minimize aesthetic impacts associated with fuel modification, a program will be developed which, to the maximum extent feasible, utilizes selective pruning and irrigation practices.

148. To maintain continuity between natural open space and urbanized areas, as well as minimize impacts to animal and bird populations, it is recommended that the introduced landscaping palette include species native to Orange County riparian communities.

149. Existing trees exceeding five inches in diameter displaced by development will be replaced pursuant to Orange County standards (3:1 ratio).

150. Prior to tentative tract maps affecting the eucalyptus trees, the project sponsor should submit a plan to the Director of EMA addressing the disposition of onsite eucalyptus windrows.

151. Potential aesthetic impacts associated with the future Foothill Transportation Corridor can be minimized with the following:

- Landscape plantings adjacent to the corridor, in medians and at interchanges;

- Below-grade design and implementation of the corridor as it crosses the Plano Trabuco;

- Revegetation of graded slopes with natural, drought tolerant species; and
- Use of bridge stuctures, where possible, for stream crossings.

A natural gas demand of approximately 320.7 million cubic feet per year will be required upon completion of the project, thus increasing the demand for finite energy resources.

- Telephone:

  The demand for phone service will increase; therefore necessitating construction of additional facilities.

15. Aesthetics

- Upon buildout, the study area will be transformed from a primarily rural environment to a predominantly urban residential community.

- Intermittent creeks located onsite will be replaced with underground stormflow systems.

- Existing noise, light, and glare levels will be increased as development progresses affecting those portions of the site which will remain as open space and other recreational usage in the area (i.e., O'Neill Regional Park and the proposed Arroyo Trabuco Regional Park).

- Existing fauna which inhabit or visit the study area will be largely displaced by the future planned community.

8.1 COMPILATION OF MITIGATION MEASURES

1. Landform/Topography

- Detailed grading plans, further defining the extent of earthwork requirements (i.e., road cuts through the canyons, etc.) for the project will be developed during subsequent, more detailed levels of project planning (i.e., at area plan, site plan or tentative tract map stages). These plans will be in accordance with stated grading concepts and will reflect a balance of cut and fill material requirements.

- Specialized cut slope treatments proposed to be incorporated in future grading and site plans will include:

  . To the extent possible, contouring and landscaping of graded slopes in a natural manner will be utilized to minimize a monotonous or engineered appearance.

  . Major side slopes are proposed to have an undulating form, and where they meet ridgelines and slope bases, the intersections will be rounded to create a form natural in appearance.

  . Terrace drains will be incorporated using County standards, with all slopes engineered and constructed in a manner which minimizes slide potential (see Section 3.2, GEOLOGY/SOILS).

  . Manufactured slopes will be owned and maintained by either the adjacent homeowner or respective homeowners association.

- All grading operations will be conducted in accordance with the County of Orange Grading Ordinance.

2. Geology/Soils

- Removal of the upper portions of colluvium, alluvium, topsoil or landslide debris will be required prior to placement of fill in areas of these materials. Specific grading recommendations for removal depths will be determined as part of future more detailed geotechnical studies (see No. 4 below).

- Areas of artificial fill should undergo detailed stability evaluations and/or regrading.

- Further slope stability investigations, as recommended by the geotechnical consultant, required future geotechnical studies, for the mapped landslide areas and areas of potential slope instability within the proposed limits of development. Should

unfavorable slides or potential slide conditions be encountered, they may be removed during grading or stabilized by means of buttressing or reorientation of slope direction.

- A detailed geotechnical and soils engineering report will be prepared subsequent to development of preliminary design layouts and final grading plans (e.g., at the tentative tract map preparation stages). This report will provide further, more detailed measures for treatment of excavation (ripping) difficulties, cut and fill slopes, expansive soils, faults and liquefaction potential.

- All structures will be designed in accordance with Orange County building codes to ensure safety in the event of an earthquake.

- Erosion potential can be reduced by planting, replacement with cohesive soils not subject to erosion and/or treatment with soil cement.

3. Hydrology

- The proposed storm drain system has been designed to reduce the potential impacts of increased onsite runoff volumes and velocities and avoid potential hazards of localized flooding within the development areas during storm events.

- The provision of appropriate bridges with adequately sized culvert undercrossing structures for the proposed alignments of Alicia Parkwya and the Foothill Corridor across Arroyo Trabuco will avoid potential hazards of washout, and will maintain the existing conveyance capacities of these stream channels at the proposed crossing locations. The bridge and culvert dimensions will be determined during subsequent, more detailed levels of project planning (e.g., area plan, site plan or tentative tract map stages).

- The siting of urban development outside the flood hazard limits of the major study area drainage courses, and proposed improvements

to those streams which extend through development areas (Oso Creek and Arroyo Trabuco) will avoid potential hazards of flooding during major storm events.

- Erosion control measures should be developed and incorporated into final grading plans for the project to minimize potential increases in erosion and sedimentation. Such measures which could be incorporated into these plans include the timely seeding and revegetation of graded slopes, and the use of temporary erosion control measures, i.e., sandbagging.

- Development of appropriate stormwater pollution control plans, e.g., a street sweeping program and/or a program of periodic stormdrain, catch basin, etc. cleaning merits consideration as a means of reducing long-term impacts to the study area and downstream water quality.

4. Biology

- Oak woodland will be preserved in Cochise Canyon, except where slated for removal for the proposed construction of the Foothill Transportation Corridor. Some oak woodland will also be retained in the mid and lower (southern) portions of Ashbury Canyon near its confluence with Arroyo Trabuco. One or two stands will probably reamin west of the central portion of Ashbury Canyon. Some additional woodland will remain on the northern boundary of the property.

- Approximately 45% of the project area will remain in some form of open space. (239.4 acres are designated as Community Association Open Space/Fuel Modification and 343.9 acres are designated as Natural Open Space.) Sites to remain undeveloped include substantial areas presently vegetated by introduced grassland and by coastal sage scrub. Resident populations of the locally rare desert plant species, odora, will remain in the eastern portion of the site, which additionally serves as a buffer between development and the adjacent O'Neill Park. Agricultural uses in the 65 CNEL will also be retained.

- A small portion of this comparatively rare habitat type due west of the central part of Ashbury Canyon will remain in open space. It is not known whether any Catalina mariposa lilies occur on the higher slope native grassland in the open space area, as the species is usually found concentrated on lower slopes, closer to the margin of the adjacent drainage.

- Foraging areas on the western margins of the project area will remain as open space.

- Consideration should be given to the conduct of a raptor use assessment by a qualified raptor specialist. If possible, determination should be made of present locations of principal foraging areas for species nesting in the Arroyo Trabuco drainage system. It should be determined if suitable foraging sites are available outside of planned development areas on or offsite but within the 1 to 1-1/2-mile radius from the nest area beyond which most species will not hunt. Appropriate measures should be developed to suggest how development could be planned to accommodate existing raptor populations.

- Consideration should be given to the feasibility of limiting grading activities during the raptor nesting season, i.e., February to May.

- Populations of the rare Catalina mariposa lily not included in the open space areas should be salvaged in the fall of the year. This is a bulb-producing species and can be transplanted to other appropriate native grassland areas, onsite or in the vicinity. Individuals can be located even when dormant from persistent seed pods. Native grassland slopes remaining in open space should be maintained in their present condition whenever possible, and not replaced by other forms of vegetation.

5. Cultural and Scientific Resources

Archaeological Resources

- The following measures from the Orange County Board of Supervisors Resolution 77-866 "Archaeology/Paleontology Policy in Land Development Proposed Policies" should be implemented:

  . perform subsurface surveys as deemed necessary to further determine significance and extent;
  . schedule observation during grading by professional archaeologists; and
  . foster preservation by a combination of:
    a. maintaining in an undisturbed condition, and
    b. excavation and salvage in a scientific manner.

- The County of Orange standard measures calling for 1) archaeological testing and 2) archaeological/paleontological grading observation (on filed with EMA, Environmental Analysis Division) shall apply to these areas of impact.

- Additionally, the Arroyo Trabuco and the adjacent bluff edge of the Plano Trabuco have been identified as areas containing significant aracheological resources. Although not a part of the study area, it is recommended, as land development plans proceed for the Plano Trabuco, that consideration be given to establishing an archaeological-ecological easement which includes the Arroyo Trabuco and a small portion of the Plano bluff edge. This and other long-term cultural/scientific resource concerns for the Plano Trabuco area should be addressed in a resource management plan.

Paleontological Resources

- Plans for future development in these sensitive areas will include provisions for a comprehensive program of paleontologic surveillance/monitoring.

- A qualified paleontologist should be in attendance at all pre-grade conferences and should coordinate an appropriate program of monitoring/salvaging with the developer and grading contractor.

- The Upper Oso localities should remain available to continued collecting and analysis by qualified scientists under the direction of personnel from the Natural History Museum of Los Angeles County.

- It is recommended that fossils collected in the future be donated to the most appropriate education/research institution as dictated by the level of significance of the fossils.

6. Existing Land Uses

Intensified urbanization is a largely unavoidable adverse impact should the project be implemented. No mitigation measures are proposed.

7. Existing and Planned Surrounding Land Uses

- Intensified development pressures are an unavoidable adverse impact; however, even without the proposed project, considerable pressures would exist. As a partial mitigation, the residential land uses are proposed to be compatible with the surrounding planned land uses and further the County's and state's housing goal of providing affordable housing.

- Design guidelines for the proposed project will be implemented through the Feature Plan to minimize visual impacts to O'Neill Regional Park and Arroyo Trabuco Regional Park. These design guidelines will include:

  - Carefully sited planning masses with controlled height characteristics placed between structure and the top of slopes to allow views out of the site while restricting views of structures from below.

- Edge treatments and grading practices that will minimize views to the project site from the existing and proposed park locations.

- Setbakcs from the tope of slope which have a relationship to building height to lessen structure visibility from below.

- Stepping back of floor levels away from the top of slope to lessen the visual impact of multistory structures.

- The use of earth tones and other colors to coordinate with the existing landscape, as well as the utilization of architectural styles with conceptual themes and forms which lessen the visual impacts of architectural edges.

- In Many locations, overhead tree cover in O'Neill Park restricts views up to the study area. In specific areas of the park where views of developed areas might be unrestricted, overhead tree cover will be introduced or strengthened as necessary.

- To minimize light and glare, street and sign lighting shall be oriented towards the site to avoid spillover into adjacent properties.

- To discourage residents from trespassing on the Starr Ranch Audubon Sanctuary and the Ramakrishna Monastery, the properties could be posted with "No Trespassing" signs. Residents could also be made aware of the private status of the properties through brochures, etc. at the residential sales office.

- It is advised that the proposed project be reviewed by the Harbors, Beaches and Parks Commission for recommendations regarding the proposed Arroyo Trabuco Regional Park acreage and improvements. If determined appropriate, that portion of the proposed

Arroyo Trabuco Park located within the project's proposed 5.0 open space area should be offered for dedication at the time of approval of the Feature Plan. Park land improvements requested in association with this project should be determined in conjunction with Feature Plan review.

8. Relevant Planning

Orange County General Plan

Land Use Element

Approval of the proposed project necessitates an amendment to the land use element. No mitigation measures are recommended relevant to the LUE.

Housing Element

- The proposed project will conform to the requirements set forth in the County's Inclusionary Housing Program in providing 25% (approximately 939 units assuming full development of the 3,756 proposed units) of the total housing within the specified affordable ranges.

Circulation Element/MPAH

- The project proponent will participate in the Plano Trabuco Area Road Fee Program for the construction of Alicia Parkway and other specific roadway improvements.

- The Alicia Parkway right-of-way will be dedicated as part of this project.

- The Foothill Corridor right-of-way will be dedicated and initial phase of construction (four lanes) completed as part of the initial phase of this project and other improvements as determined necessary at later phases. The project sponsor and the County of Orange should continue discussions regarding Foothill Corridor construction and phasing in that such committments have not been made as yet by the project sponsor.

EXHIBIT H

FINAL ENVIRONMENTAL IMPACT REPORT #467

OSO/ANTONIO PARKWAYS EXTENSIONS

STATE CLEARINGHOUSE #86110509

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April 10, 1987

CUMULATIVE EFFECTS

The process of regional urbanization of which these projects are a part has resulted in significant adverse cumulative effects on the local environment. Landform and streambed alteration, loss of cultural, biological and agricultural resources, increased traffic, air pollutants, noise levels and demand for public services and a diminution of aesthetic quality are unavoidable adverse cumulative effects associated with the projects in conjunction with ongoing development.

A summary of existing conditions, project impacts and mitigation measures is provided in the following summary table.

PROJECT SUMMARY

The environmental assessment contained in this EIR provides baseline impact and mitigation measures discussion for twelve major issues. The following provides a concise summarization of the major findings for each of the topical issues discussed.

EXISTING CONDITIONS	PROJECT IMPACTS	MITIGATION MEASURES
GEOLOGY AND SOILS (SECTION 3.1)		
The project area, located in the western foothills of the Santa Ana Mountains, is underlain by near-surface tertiary marine and nonmarine sedimentary rock materials ranging in age from Eocene through Pliocene. Principal geotechnical units mapped include nonmarine terrace deposits, Capistrano formation, Monterey formations, San Onofre breccia, Vaqueros and Sespe formations.	Monterey formations to be exposed in the major cuts for Oso Parkway between Felipe Road and Arroyo Trabuco will result in the need for corrective grading. Additionally, corrective grading will be required to buttress west and northwest facing cut slopes within the San Onofre, Vaqueros and Sespe formations in the hillside areas of the proposed Antonio Parkway.	Standard grading techniques will be employed in accordance with the requirements of the County Grading and Excavation Ordinance. Grading plans shall include an erosion, siltation and dust control plan. A determination of the need for corrective grading to buttress cut slopes will be made at the detailed design phase of the roadways.
Numerous areas of ancient and recent landslide debris are present in slope areas along the proposed roadway alignments. The thickness of landslide debris was observed to range from 6 feet to greater than 67 feet. Earthquake effects likely to influence grading or construction within, or adjacent to the project would be elastic ground vibration or landsliding.	Slope stability related hazards as a result of project implementation include landslides, mud debris flow, rockfill and soil flow and creep.	Detailed geotechnical and soils engineering reports will be provided prior to detailed design level planning to outline more detailed measures for treatment of excavatorial difficulties, cut/fill slopes and slope instabilities, expansion soils and liquefaction hazards (influencing roadway stream crossing design).
HYDROLOGY (SECTION 3.2)		
Storm water in the project area flows along the terrain's natural drainage courses and ultimately flows into the Arroyo Trabuco, Tijeras Canyon and Canada Chiquita Creeks.	Development of Oso Parkway, Antonio Parkway and the bridges crossing the two creeks will increase water runoff and alter existing drainage patterns; however, these impacts are expected to be minimal because culverts are planned along the existing drainage courses to bypass the roadways.	The final design and construction documents for the implementation of the preferred alignments and bridges shall incorporate measures to limit removal of natural vegetation, protect construction areas from storm flows, revegetate disturbed areas and protect manufactured slope embankments from erosion.

EXISTING CONDITIONS	PROJECT IMPACTS	MITIGATION MEASURES
HYDROLOGY (SECTION 3.2) (continued)		
Water flow in the creeks currently produces an insignificant amount of streambed erosion; however, during less frequent storms such as 100-year flood more erosion is produced.	Development of the piers for the bridges over Tijeras Creek and Arroyo Trabuco Creek is anticipated to have an insignificant impact on stream flow characteristics when the piers are oriented parallel to the streambed.	The piers for the bridges over Tijeras Creek and Arroyo Trabuco Creek shall be oriented parallel to the streambed to minimize the impact on stream flow.
CULTURAL RESOURCES (SECTION 3.3)		
Archaeological		
There are 22 archaeological sites that have been recorded within one mile of the project area.	Six archaeological sites will be indirectly or directly impacted by the project. Four sites are located along the preferred alternative for Antonio Parkway while two sites are located along the preferred alternative for Oso Parkway.	The project proponent shall retain a county-certified archaeologist to perform a subsurface test level investigation and surface collection on the six sites prior to development approval.
Paleontological		
The project area is underlain by sedimentary rocks that has the potential for yielding fossils. The rocks are mapped as the Sespe Formation, Vaqueros Formation, Topanga Formation and Monterey Formation. The Sespe Formation has a low potential for yielding significant fossils while the Vaqueros, Topanga and Monterey formations have a very high potential for yielding significant fossils.	The Vaqueros and Sespe formations are located along the preferred alignment of Antonio Parkway while the Monterey, Topanga and Sespe formations are located along the preferred alignment of Oso Parkway.	Prior to issuance of a grading permit, the project proponent shall retain a county-certified paleontologist. During grading the paleontologist shall observe grading activities and salvage fossils as necessary.

EXISTING CONDITIONS	PROJECT IMPACTS	MITIGATION MEASURES
CULTURAL RESOURCES (SECTION 3.3) (continued)		
Historical		
The project are contains two significant historical resources that were recorded as one archaeological site. The site consists of the San Francisco Solano which is where Portola and his men made camp in 1769 and the Trabuco Adobe which was originally a Mission San Juan Capistrano building.	The historical site is not expected to be impacted by the implementation of the two preferred alignments.	No mitigation measures are necessary.
LAND USE PLANS AND POLICIES (SECTION 3.4)		
The proposed project is located within an area of unincorporated Orange County that consists mostly of open space currently designated by the County of Orange as Planned Community (PC) and, until recently, was devoted primarily to agricultural and open space uses. A transition to developed uses is now underway, with completion of Santa Margarita Parkway (formerly Portola Parkway) in 1983, development of the Rancho Santa Margarita Planned Community, Coto de Caza, Rancho Trabuco and Robinson Ranch. Other surrounding land uses include O'Neill Regional Park, Rancho Mission Viejo Agricultural Preserve and the Trabuco unit of the Cleveland National Forest. The Orange County general plan elements depict a variety of trails (hiking, riding and bicycle) and scenic designations (including landscaping) for or adjacent to the road alignments.	The proposed alignments for the extension of Oso/Antonio Parkways is consistent with the MPAH. Implementation will impact some planned community goals by introducing heavier traffic flows through residential areas of Mission Viejo considered rural and suburban in character. The project plans incorporate provisions for those trail systems that traverse or intersect the road extensions. Project implementation will adversely affect aesthetic values within O'Neill Regional Park. Current law is unclear as to whether roads are a permitted use within agricultural preserves.	Connections will be provided with designated trail systems as approved by OCEMA. Provisions for landscaping corridor and scenic highway treatment shall be incorporated into project design. A determination shall be made regarding roads within agricultural preserves and, if needed, corrective action taken.

EXISTING CONDITIONS	PROJECT IMPACTS	MITIGATION MEASURES
BIOTIC RESOURCES (SECTION 3.5)		
The area of the proposed project contains a variety of vegetative communities including native grassland, introduced and native grassland, coastal sage scrub, riparian and oak woodland. The riparian and oak woodland found within the Arroyo Trabuco and southern reach of Tijeras Creek provide regionally significant habitat for wildlife, especially raptor species. The Arroyo Trabuco is a significant wildlife movement corridor. The only sensitive floral species in the vicinity of the proposed project are the Orange County turkish rugging and many-stemmed dudleya. Several avian species afforded special status by the federal government and state or National Audubon Society are present in the area.	Implementation of the proposed Oso Parkway will require the conversion of approximately 30 acres of grassland, 80 acres of coastal sage scrub, 4.5 acres of riparian habitat, 2 acres of willow woodland and 7 acres of chaparral. Implementation of Antonio Parkway will require conversion of approximately 81 acres of grassland, 77 acres of coastal sage scrub and 6 acres of riparian habitat. Approximately 40 acres of citrus groves will also be impacted. The project will also reduce raptor foraging habitat on the Plano Trabuco, thus impacting bird population nesting in the Arroyo Trabuco.	Measures to reduce impacts to biological resources include a tree replacement program, erosion and sediment control plans, and introductionof a landscaping palette compatible with surrounding natural open space.
AIR QUALITY (SECTION 3.6)		
Despite its relatively low intensity development, south Orange County has a significant ambient air quality problem. Pollutants that exceeded state and/or federal standards for the period between 1981 and 1985 oxidants and total suspended particulates.	Emissions produced during grading and construction activities could be significant in spite of the incorporation of wetting procedures during project implementation. Assuming buildout in 2010, daily projected mobile source emissions are anticipated to account for 0.3 percent of the countywide total and 2.3 percent of the total emissions generated in Source Receptor Area 19.	Prescribed water techniques will be employed to mitigate partially the impact of construction-generated dust particles. The most significant reductions in regional air pollutant emissions will be attained through programs that reduce the vehicular travel associated with the various approval land uses and compliance with suggested AQMP measures.

EXISTING CONDITIONS	PROJECT IMPACTS	MITIGATION MEASURES
NOISE (SECTION 3.7)		
Short-term community noise measurements were conducted at two sites in the vicinity of the proposed project. Lmax levels of 80.2 were recorded at the current southern terminus of Antonio Parkway, resulting from a combination of general residential, local residential, traffic, and distant aircraft flyovers. Lmax noise levels of 64.9 at the end of Oso Parkway were due to automobiles and trucks on nearby roadways.	The proposal project will increase the ambient noise level affecting existing and approved future land uses through short-term construction activities and long-term use of the aubomobile-projected urban noise levels are anticipated to be within acceptable county standards for residential land uses. The Arroyo Trabuco Regional Park can be expected to experience varying levels of noise with implementation of the proposed project. Levels exceeding 70 CNEL in the park can be expected at the Oso Parkway bridge.	Future development in the vicinity of the proposed project will be designed with adequate setbacks and barriers to meet county attenuation requirements. Standard county mitigation measures will be implemented at subsequent tentative tract or site development and permit levels of planning.
TRANSPORTATION/CIRCULATION (SECTION 3.8)		
Oso Parkway is currently designated as a major arterial highway westerly of its current terminus at Felipe Road. The MPAH shows Oso Parkway extending easterly from Marguerite Parkway as a proposed major arterial highway to intersect with Antonio Parkway, the Foothill Transportation Corridor and continue on to align with Coto de Caza Drive. Past the Foothill Transportation Corridor, Oso is shown as a secondary highway on the MPAH. Antonio Parkway is a proposed major arterial highway on the MPAH that will extend from its existing terminus southerly to its eventual connection with the proposed Foothill Transportation Corridor. The proposed project alignment, however, will terminate at the intersection with the proposed Oso Parkway extension.	The proposed alignments for the extension of Oso/Antonio Parkways are consistent with the MPAH. Implementation of the proposed project will have a significant adverse effect with specific reference to the segment of Oso Parkway between Marguerite Parkway and I-5.	Implementation of the proposed project itself is a mitigation measure to help alleviate congestion on existing arterials by implementing another component of the MPAH. Phasing of the project shall be formulated in conjunction with the annual monitoring report, thus utilizing the development monitoring program to assist in appropriate project phasing. Installation of traffic signals at the intersection of oso Parkway and Felipe Road and Oso Parkway at Marguerite Parkway at such time as traffic signal warrants indicate the need.

EXISTING CONDITIONS	PROJECT IMPACTS	MITIGATION MEASURES
TRANSPORTATION/CIRCULATION (SECTION 3.8) (continued)		
Both roadways have been identified as potential candidates for public transportation.	The proposed design of Oso and Antonio Parkways is consistent with standards for use by public transit vehicles.	The county will determine whether and where bus turnouts should be located along the roadways.
PUBLIC SERVICES AND UTILITIES (SECTION 3.9)		
Police Services		
Police services in the vicinity of the proposed project are provided by Capistrano Division of the California Highway Patrol and the Orange County Sheriffs Department. Response times along both alignments by the two departments would be within five minutes.	No direct impacts to the Highway Patrol or the Sheriffs Department are anticipated from the project. Indirect impacts as a result of the project would occur due to opening areas to public access that were formerly not accessible.	No mitigation measures are necessary for direct impacts to the two police departments. The proposed medians along the preferred alignments shall have sufficient breaks to allow access to both sides of the roadway by emergency equipment.
Electricity		
The project area is within the Southern California Edison Company (SCE) and San Diego Gas and Electric (SDGE) service areas. SCE has two sets of transmission lines (66 kV and 220 kV) extending across the Oso alignment.	The proposed project will impact SCE electrical towers and transmission lines along the western end of the planned alignment of Oso Parkway.	The project proponent shall work with SCE to relocate the electrical towers and transmission lines that the alignments would impact.
Natural Gas		
The project area is within the jurisdiction of the Southern California Gas Company (SCG). SCG currently does not have facilities or rights-of-way encroaching the proposed alignments.	No impacts to SCG will result from project implementation.	No mitigation measures are necessary.

EXISTING CONDITIONS	PROJECT IMPACTS	MITIGATION MEASURES
PUBLIC SERVICES AND UTILITIES (SECTION 3.9) (continued)		
Water Facilities		
The project area is located within the Santa Margarita Water District. There are no existing facilities encroaching the preferred alignments. The district plans to install water lines along the parkway extensions.	No impacts to existing water facilities will occur as a result of project development; however, water facilities are planned along both alignments.	Prior to final design, the project proponent should consult with the Santa Margarita Water District regarding the installation of proposed water facilities.
Sewer Facilities		
The project area is located within the Santa Margarita Water District's jurisdiction for providing sewer service. The Plano lift station is located north of the proposed Antonio Parkway Bridge and approximately 100 feet east of the preferred alignment of Antonio Parkway.	Construction of Antonio Parkway will impact the accessway for the Plano lift station and an area where maintenance vehicles currently use to turn around will be impacted.	An adequate accessway and turnaround area shall be provided to the Plano lift station.
The Santa Margarita Water District is planning to install a sewer line along the Oso Parkway extension	The construction of Oso Parkway will need to be in conjunction with the planned construction of sewer facilities in roadway.	Prior to final design, the project proponent shall consult with the Santa Margarita Water District regarding the installation of proposed sewer facilities.
AESTHETICS (SECTION 3.10)		
The proposed extensions of Oso and Antonio Parkways are adjacent to an important visual landscape element, the 1,592-acre O'Neill Regional Park and wilderness area.	Due to the relatively flat terrain between the park and the proposed alignment of Antonio Parkway, automobile headlights, stop lights and street lights may cause visual impacts to visitors at O'Neill Park. In addition, daily traffic along Antonio Parkway will result in a visual impact to residents of Santa Margarita, Coto de Caza and Mission Viejo.	Landscape plantings and scenic corridor treatments shall be provided consistent with county requirements.

EXISTING CONDITIONS	PROJECT IMPACTS	MITIGATION MEASURES
AESTHETICS (SECTION 3.10) (continued)		
The viewshed for residences adjacent to the proposed project currently consists of mostly open space, rolling hills, deep canyons and woodlands in some areas.	Both alignments are planned along steep slopes and valleys that will require significant corrective grading. The presence of both bridges will create a significant visual impact.	Slope rounding and landscaping with a variety of plant forms shall be incorporated into the specific design of both roadways. Cut and fill volumes for construction of the proposed bridges shall be minimized as far as bridge design will permit.
SOCIOECONOMICS (SECTION 3.11)		
The project area is contained within RSA 43 and CAA 59. SCAG forecasts indicate that population in RSA 43 will double from 100,000 to 203,000 between 1984 and 2000, the greatest anticipated increase in the county. CAA 59 is expected to increase in population from 4,075 to 39,791 between 1984 and 2000. Similar to population, housing in RSA 43 is expected to more than double between 1984 and 2000 by increasing from 35,000 to 80,000. CAA 59 is projected to increase from 1,332 dwelling units in 1984 to 15,039 dwelling units by 2000. Employment data for RSA 43 indicates that employment between 1984 and 2000 will be on the order of 33,400 new jobs. Employment between 1984 and 2000 is expected to increase from 21,800 to 54,400, representing a 9.3 percent average annual increase.	The proposed extensions of Oso/Antonio Parkways will have a minor indirect impact on population,, housing and employment characteristics. Additional access will facilitate growth in a presently undeveloped section of southeastern Orange County.	No mitigation measures are necessary.

EXISTING CONDITIONS	PROJECT IMPACTS	MITIGATION MEASURES
PUBLIC SAFETY (SECTION 3.12)		
There are currently no designated hazardous waste routes in the vicinity of the project. In addition there are some farmlands in the vicinity of the project that might currently transport agricultural chemicals and pesticides; however, these chemicals do not need a permit to be transported and may utilize any street for their route.	Implementation of the preferred alignments may provide an access route for hazardous materials in the future.	If hazardous waste is generated in the vicinity of the project in the future, hazardous waste routes shall be designated by the County of Orange.
Between 1944 and 1956, the southerly portion of the Plano Trabuco land (Rancho Santa Margarita Planned Community) was used by the United States Marine Corps (USMC) as a practice range for target markers to be dropped from aircraft. Some of the target markers did not ignite on impact. In 1984, the USMC conducted a field investigation and a removal operation on the property.	Development of the two parkways will increase the potential for safety hazards.	During grading of the proposed roadways in locations near the Plano Trabuco, adequate safety procedures shall be required and implemented to protect workers from potential hazards related to the discovery of unignited target markers. Procedures shall be developed in consultation with the USMC and a qualified expert in the field of aircraft-borne practice devices. Any recovered target markers will be collected and returned to the USMC for proper disposal.

FOOTNOTES

[1] - Dike/Runa, Inc., Draft, 1988. O'Neill Regional Park General Development Plan. Prepared for Environmental Management Agency, Orange County California.

[2] - Dike, Woodward and Associates, 1985. O'Neill Regional Park Schematic Development Plan. Prepared for the County of Orange, EMA Parks.

[3] - Dike/Runa, Inc., Draft, 1988. O'Neill Regional Park General Development Plan. Prepared for Environmental Management Agency, Orange County California.

[4] - Dike, Woodward and Associates, 1985. O'Neill Regional Park Schematic Development Plan. Prepared for the County of Orange, EMA Parks.

[5] - Dike, Woodward and Associates, 1985. O'Neill Regional Park Schematic Development Plan. Prepared for the County of Orange, EMA Parks.

[6] - Dike, Woodward and Associates, 1985. O'Neill Regional Park Schematic Development Plan. Prepared for the County of Orange, EMA Parks.

[7] - Dike, Woodward and Associates, 1985. O'Neill Regional Park Schematic Development Plan. Prepared for the County of Orange, EMA Parks.

[8] - Dike, Woodward and Associates, 1985. O'Neill Regional Park Schematic Development Plan. Prepared for the County of Orange, EMA Parks.

[9] - Williamson and Schmid, 1984. Plano Trabuco Planned Community Urban Runoff Management Plan.

[10] - Dike, Woodward and Associates, 1985. O'Neill Regional Park Schematic Development Plan. Prepared for the County of Orange, EMA Parks.

[11] - Williamson and Schmid, 1984. Plano Trabuco Planned Community Urban Runoff Management Plan.

[12] - Fong & LaRocca Associates, 1977. A General Development Plan for O'Neill Regional Park. Prepared for County of Orange EMA Harbors, Beaches and Parks District.

[13] - Fong & LaRocca Associates, 1977. A General Development Plan for O'Neill Regional Park. Prepared for County of Orange EMA Harbors, Beaches and Parks District.

[14] - PRC Engineering, 1986. Focused Environmental Impact Report No. 463. Prepared for the County of Orange.

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PRC Engineering, 1986. Focused Environmental Impact Report No. 463. Prepared for the County of Orange.

Williamson and Schmid, 1984. Plano Trabuco Planned Community Urban Runoff Management Plan.