Historic Biological Reports
Scan Control Sheet

County Project Number(s): GPA 87-3

Report Type (check one):
- ☐ Initial Study
- ☐ Species Inventory/Survey
- ☐ Focused Study
- ☒ EIR
- ☐ Draft EIR
- ☐ EIS
- ☐ ND
- ☐ MND
- ☐ Other

Report Date (Month/Day/Year): 04/08/1987

Check if the following apply to the report:

- ☒ Wetland and/or aquatic habitat
- ☐ Within designated Coastal Zone
- ☐ Potential movement corridor for fish and/or wildlife

c. Expansive and Liquefiable Soils

The following measures should be considered to mitigate the impacts of construction on lakeside areas, and expansive and liquefiable soils. Additional mitigation measures, involving modification of portions of the proposed development, may be needed depending upon the results of site-specific geologic and engineering determinations.

- Excessive settlement due to the presence of loose, compressible materials can be controlled by overexcavating and recompaction using County of Ventura grading procedures.

- Soil liquefaction can be controlled with groundwater lowering, or soil densification or improvement. If an engineering investigation determines that a moderate to high liquefaction potential exists, remedial measures may be necessary. Soil densification and improvement may prove economical provided loose, saturated alluvial deposits are of limited thickness.

- During periods when the lake is at or near its high water level, areas along the lake shore may become soft and marshy. Consequently, structures should be located on higher ground. Gorian and Associates (1977) recommend structures near the lake be founded at a minimum pad elevation of 965 feet (MSL). The relatively low risk of seiche-related damage can also be mitigated by siting structures several feet above the high water level.

- The risk to structures overlying expansive soils may be reduced by properly designing concrete footings and floor slabs. Controlled grading procedures also will reduce structural damage due to expansive soils. Site-specific information will be needed to determine the presence and extent of expansive soils.

d. Lake Sherwood Dam

- Although Lake Sherwood Dam has been shown to currently exceed DSOD safety requirements, testing of concrete under the 5-year monitoring program may indicate future loss of strength and a corresponding increase in the potential for failure. Eventually, remedial measures such as buttressing, or application of a sealer to the upstream portion of the dam may be required. Some remedial measures may require draining the lake. Monitoring concrete quality should continue and the effect of future lake draining on the proposed development should be considered. A funding mechanism should be established to assure that the homeowner's association which would own the dam and lake would have adequate financial resources to pay for the monitoring program and any remedial measures.

C. BIOLOGICAL RESOURCES

The following analysis was based on a review of previous biological studies conducted in the Lake Sherwood development area, including an extensive field investigation of the ecology of Lake Sherwood (TERA Corporation, 1979) and a recent two-day field reconnaissance of the Lake Sherwood development area (Dames & Moore, 1985). Oak tree surveys of the proposed golf course area (P.U. 1), lake perimeter and Carlisle Inlet area (P.U. 4) were done by Lee Newman and Associates, Inc., in 1985. The oak tree surveys include specific mapping and tagging of individual trees including oaks, sycamores, and landscaping trees. Detailed information on each tree includes species, trunk number, diameter at 42" above the ground, direction of low branching, physical and aesthetic condition, and recommendations for treatment. These oak tree and other studies are herein incorporated by reference and are available for review at the Ventura County Resource Management Agency. Additional work included a one day field reconnaissance in June 1986 and aerial mapping of the Area Plan (Map 2) performed by the EIR consultant. Appendix E contains lists of common plants and animals in the Lake Sherwood area.

1. Setting

a. Area Plan

The study area is a small inland valley within the Santa Monica Mountains and the Potrero Creek watershed that drains this valley. The mountains in this location are very steep and rugged with many areas of exposed bedrock and little soil cover. Consequently, the dominant vegetative cover is chaparral with grassland present on the deeper soils of the valley floor (Map 2). Oak and riparian woodlands are also present along the major drainages of the area. Oak forest and woodlands that are on north-facing slopes grade into the grasslands in the valley areas to form an oak savanna, especially in Hidden Vallley. Much of the grassland and oak savanna of Hidden Valley is currently used for grazing, while these vegetation types were formerly used for grazing within the Lake Sherwood development. Major land use changes have included large lot (20 acre) residential developments in the northwest portion of the Area Plan and a small lot rural community developed around Lake Sherwood. The dam that created Lake Sherwood primarily flooded grassland and oak/ riparian woodland and created aquatic habitats not naturally present. The following describes the major vegetative communities of the study area.

Chaparral is composed of hard-leaved, generally dark-green dense, rigid, evergreen shrubs. This vegetation varies from four to eight feet in height and often forms such a complete canopy on north-facing slopes that an understory of herbs and grasses usually isn't present. Chaparral is a fire-adapted community that is highly flammable, especially during summer. Many of the dominant shrubs are capable of stump-sprouting after fires, and many of the herbs are fire-annuals (i.e., found only after recent fires). Except on poor soils and steep slopes, chaparral is probably a fire subclimax community, replaced in time by oak woodland. If the natural fire cycle is interrupted, the habitat value of chaparral tends to degrade over a period of 25 to 40 years (G.E. Lawrence, 1966).

An interesting botanical component of the chaparral community in the area is red shanks (Adenostoma sparsifolium), which typically occurs further south in San Diego and Riverside counties and reaches its northerly limit in San Luis Obispo and Santa Barbara counties. This species is a relict of past warmer climates and is abundant in the southern portion of the study area (Carlisle Canyon, north-facing slopes of Lake Sherwood and Hidden Valley)

The major animal dominant in the chaparral community is the mule deer. The mule deer's foraging behavior can lead to significant changes in plant species composition by over-utilizing its favored food plants when it is abundant. Corridors that it frequents are shown on Map 2. Coyote, bobcat, and skunks are also prevalent in chaparral. Many smaller animals, such as rabbits, dusky-footed woodrats and other rodents are plentiful. Resident birds include common bushtit and scrub jay. Migrants common in the autumn months include white-crowned sparrows, golden-crowned sparrows, fox sparrow, Audubon warbler, and western robin. Amphibians do not commonly live in chaparral except at places where moisture is continuously present. In these locations, Eschscholtz's salamander, California slender salamander, and western toad can be found. Reptiles are very abundant throughout the chaparral, but none are limited strictly to this community. The most common reptiles are the side-blotched lizard, western fence lizard, and western rattlesnake.

Coastal sage scrub is found on generally south facing slopes throughout the planning area. Locally it integrates extensively with chaparral. This native plant community is characterized by the predominance of sub-shrubs, one to five feet in height with semi-woody stems growing from a woody base. Many of the species in the community show special adaptations to prevailing climatic conditions such as winter rainfall and summer drought by being drought-deciduous, having grayish foliage with heavy pubescence on stems and leaves, or similar adaptations to arid conditions. The coastal sage scrub in the northern portion of Hidden Valley appears to be the result of brushland conversion for grazing purposes.

The coastal sage scrub community hosts a number and variety of animals, most of which are permanent residents. Several amphibians, including the California slender salamander and the western toad, are found here along with many reptiles such as the coast horned lizard, western whiptail, gopher snake, common kingsnake, and western rattlesnake. Resident bird species include the brown towhee, Bewick's wren, California quail, and common bushtit. Coastal sage scrub provides the primary year-round hunting ground for many raptors which utilize adjacent grasslands during the spring. This plant community also provides the shelter necessary for nesting of many wildlife species.

Oak woodlands are found within the major drainages and along north-facing slopes in the Lake Sherwood and Hidden Valley area. This designation refers to a closed to partly open canopy woodland dominated by the coast live oak. Oak trees significantly affect the microenvironment around them because their extensive shade produces significantly lower temperatures than in the nearby chaparral and grassland communities. This allows different types of plants and animals to occur in areas that they otherwise would not be found.

Oak trees also provide significant vertical diversity that is important to bird species in the area. Oak forest (closed canopy) is more limited in the study area, occurring on the southern fringe of Hidden Valley, in the northern end of the Lake Sherwood development (Planning Unit 4 and 7A), and in Planning Unit 2 and Planning Unit 4.

Because oaks provide cooler temperatures in an arid area, rural residential development has generally occurred in this vegetation type. This is true of the study area, as indicated by the rural residences located on the south side of Hidden Valley within the oak woodland area. More inaccessible areas in the upper drainages, however, still retain relict populations of native Southern Oak Woodland, in which California black walnut and California Sycamore occur with the oaks adjacent to creeks and with an understory of California rose, redberry, poison oak, and fuchsia-flowered gooseberry.

Oak woodland is an important habitat area because it provides roosting and nesting sites for many birds, particularly raptors. Red-tailed hawk, Cooper's hawk, sparrow hawk, golden eagle (rare), and sharp-shinned hawk are all found here. The woodland also provides habitat for several species of woodpeckers including red-shafted flicker, acorn woodpecker, Downey woodpecker, and Nutall's woodpecker. Warblers and flycatchers are also common. Amphibians found in sage scrub and chaparral communities are also found here, along with reptiles and mammals common to several plant associations.

Oak Savannah is a result of the gradation of oak woodlands into the grasslands of the flat valley bottom areas, where the evergreen coast live oak is generally replaced by the deciduous valley oak as the dominant tree. This park-like woodland has been typically used for grazing purposes throughout the study area. Wildlife associated with the oak savanna are generally grassland species and birds associated with the oak trees (woodpeckers, flycatchers, warblers, and raptors).

This vegetative community is rapidly disappearing due to development and the lack of oak reproduction. Intense grazing pressure has limited valley oak seedling success to the shoulders of Potrero Road and along Hereford Road in the study area. The oak savanna within the Lake Sherwood development is considered one of only three prime examples of this vegetation type remaining in the Santa Monica Mountains (Jo Kitz, 11/15/86).

Riparian woodland in the study area consists of scattered semi-aquatic trees, shrubs, and herbs along the intermittent streams. Willows and sycamores are dominants of this woodland, along with coast live oaks in the adjacent oak woodlands. Wildlife in the riparian woodlands of the planning area are generally the same as that found in the oak woodlands.

The riparian woodland along Carlisle Canyon is one of the best examples found within the Santa Monica Mountains and is known for its extensive bird life (Lane, 1979). The riparian woodland along Carlisle Creek contains significant vertical diversity through the presence of a herbaceous understory, willow/shrub layer and extensive tree overstory. This increases its value to wildlife populations that reside or migrate through the area. Also, an unusual tree, the leatherleaf ash (Fraxinus velutina var. coriacea) is found in this area and potentially within the woodlands on the south slope

of Hidden Valley and in Planning Unit 1. This tree occurs at the western extreme of its population distribution at the site.

Grasslands in the study area are primarily composed of non-native introduced annuals and biennuals and are used extensively for grazing. Some small pockets of native bunchgrasses, along with native wildflowers like California poppy, blue-eyed grass, and red maids occur scattered throughout the grasslands in areas less exposed to grazing, primarily in grassy openings on upper slopes within the chaparral and coastal sage scrub community.

The grassland areas provide habitats primarily for grazers and seed eaters. Rodents, which characterize this area, include the Beechey ground squirrel, black-tailed hare, Botta pocket gopher, and deer mice. Carnivores, such as the badger and coyote, roam through this area, but raptorial birds are the major dominants of the grassland. These birds play an important role in controlling rodent populations. Barn owls take many pocket gophers, while red-tailed hawks prey on hares, rabbits, ground squirrels, and snakes. Grasslands are a primary foraging ground for turkey vultures and rare white-tailed kites.

Seed-eating bird species are also common constituents of grasslands. Species such as the meadowlark, lark sparrow, mourning dove, and various finches are probably more characteristic of grasslands than predatory birds. While several wildlife species are year-round residents of the grassland, this plant association provides wildlife habitat primarily during late winter and spring when the vegetation is in a high growth stage.

b. Lake Sherwood Development

The proposed Lake Sherwood development contains all of the habitats generally discussed above and also the aquatic habitats associated with the reservoir. Because the lake was drained a few years ago and was recently refilled during the winter rains of 1985-1986, aquatic plants and animals formerly in the lake are now substantially decreased in population or entirely lacking. Aquatic plants in the west end of the lake were regenerating during the spring of 1986; however, the plants were sprayed with a herbicide as part of lake management efforts. Based on information in prior reports (TERA Corporation, May 1979 and Ultrasystems, 1979?) shoreline emergent vegetation contained bullrush, cattail, shortweed, pondweed, coontail, bushy pondweed, and muskgrass. Rooted aquatic plants were most abundant in the west end of the lake, in the inlet for the China Flats drainage, and in shallower areas of Carlisle Inlet. The west end rooted aquatics served to trap incoming sediments and with their extensive growth, created steady shoaling of the lake's shallower areas. While the vegetation provided habitat and food for the aquatic wildlife, much of the organic material was not consumed and instead contributed to deposition on the lake bottom (TERA Corp., 1979).

The species composition and abundance of phytoplankton in Lake Sherwood was typical of lowland, warm-water eutrophic lakes in Southern California (TERA Corporation, 1979). Blue-green algae, which impart a noxious odor and taste to water, were in greater proportion to green algae than natural, probably as a result of the limited water circulation and generally poor

water quality conditions formerly in the lake. The prevalence of blue-green algae is still a problem in the recently refilled lake (site visit, 9/23/86).

A single zooplankton survey on May 10, 1976, included an unusually high abundance of zooplankton, which is indicative of dense phytoplankton blooms that preceded the survey (TERA Corporation, 1979). This ecologically unstable condition is typical of eutrophic lakes, and is aggravated by the use of chemical algal controls such as had occurred at Lake Sherwood. The end result of the unstable phytoplankton and zooplankton communities is generally domination of the aquatic habitats by "weedy" species such as blue-green algae.

All fish species that were present in Lake Sherwood were introduced to the lake, with the most common sport fish including largemouth bass, channel catfish, brown bullhead, black crappie, and bluegill. Rainbow trout were formerly planted during winter and spring on a put-and-take basis. The trout could not survive the high temperatures and low dissolved oxygen content of the lake during the late summer and fall, nor are there any suitable breeding habitats for trout in the lake. Other species reported in the lake included black bullhead, Sacramento perch, smallmouth bass, and mosquito fish. Recent reports were that some fish are still present in the lake after its refilling, including small specimens of catfish, bass, bluegill, and mosquito fish.

A variety of waterfowl, formerly nested and wintered at the lake (see Appendix E), and these are expected to return in larger numbers over the coming years. Mallards and teal were observed at the lake during the June, 1986 field visit. Bullfrogs were transplanted to the Lake Sherwood area in the 1920s and their local population is expected to increase now that the lake is refilled. Other aquatic habitats in the development area are limited to two ponds reported, but not mapped, by Dames & Moore (1985), intermittent water along the streams, and a seep north of the lake and along Carlisle Road. Other seeps may be potentially found throughout the area where volcanic bedrock is exposed in drainages. Seeps and ponds provide water for local wildlife populations and breeding sites for amphibians.

Mule deer forage throughout the Lake Sherwood development area, but spend most of their time within the chaparral and oak woodland communities. The deer migrate through the area generally following drainages and ridgelines (Map 2) with particular concentrations reported in the China Flats area, along Carlisle Creek, and near the southeastern end of the lake (personal communication, Alex Leganza, 9/23/86). At least three individual mountain lions, the primary predator of deer, are known to occur in the area, one generally north in the China Flats area and two in the western and southern portions of the development area and the Lake Sherwood drainage basin (personal communication, A. Leganza, 9/23/86).

Rocky outcrops in the project area (Map 2) are a sensitive wildlife resource in that they provide nesting and breeding habitat for a variety of species, including raptors such as raven, prairie falcon, and red-tailed hawk. Swallows also typically nest in caves within the rocky outcrops as do bats (all species of which are regionally declining in population), coyote, and mountain lion.

c. Sensitive Species

Legally protected species are officially listed as threatened and endangered by both the federal and state governments. (The state government recently changed its former designation of "rare" to "threatened" effective January 1, 1985.) The following species may be found within the Area Plan, including the Lake Sherwood development area.

Santa Monica Mountains Dudleya (Dudleya cymosa ssp. marcescens) is designated "threatened" by the state government (CDFG, 1985), and is also a Category 2 candidate species for federal listing. This perennial plant is known to occur on rocky north-facing slopes in cool, moist, shady canyons in chaparral areas of the Santa Monica Mountains, southern Ventura County. It may occur in small isolated populations in similar habitat within the study area. Dudleya plants superficially resembling D. cymosa ssp. marcescens and D. parva (a federal candidate species) were collected during field surveys by Dames & Moore in 1985; however, detailed examination of these specimens indicated they were the common species Dudleya lanceolata.

Conejo buckwheat (Eriogonum crocatum) is designated "threatened" by the state government (CDFG, 1984) and is a Category 2 candidate for federal listing. A perennial subshrub, it is found on rocky volcanic slopes in coastal sage scrub. It has been primarily collected from the Conejo Grade at the northern base of the Santa Monica Mountains, Ventura County. Conejo buckwheat was not observed in the project area during field surveys conducted by Dames & Moore in 1985, but it has been reported on the rocky slopes just east of P.U. 4 (CNDDB, 1984).

Santa Susana tarplant (Hemizonia minthornii) is designated "threatened" by the state government (CDFG, 1984) and is also a Category 2 candidate for federal listing. This perennial shrub has a limited distribution, known only from chaparral areas in the Santa Susana and Santa Monica Mountains (CNDDB, 1984). It was not observed in the study area during field surveys conducted by Dames & Moore, nor expected to occur in the project area because it usually is associated with sandstone rock outcrops.

The American peregrine falcon (Falco peregrinus anatum) is listed as an endangered species by both the state and federal governments. Previously, this species was more common in southern California (Garrett and Dunn, 1981), nesting along California's southern and central coasts and on the Channel Islands. Occasional inland nests were also reported. Recent recovery efforts for the peregrine falcon have included the release of falcons to the wild after they were raised in special breeding centers. This has led to an increase in the number of reported sightings of this species throughout coastal California. Peregrine falcons forage over grasslands, agricultural fields, wetlands, and shorelines. They nest in crevices and ledges on high protected cliffs. Limited areas of suitable nesting habitat exists in the eastern and central portions of the project area. The occurrence of this species is expected to be rare and of a transient nature.

Species of special interest are plants or animals that are of interest to local biologists and resource management personnel because they: (1) are of limited distribution; (2) may be experiencing population declines; (3) may

be subjected to known or future threats to their habitats or existence; and/or (4) are of unusual scientific, recreational, or education value. Because these species usually do not have the same rarity and/or vulnerability as legally-protected species, they do not have the same legal protection afforded to threatened or endangered species. However, most species of special interest are protected from unregulated taking or hunting by local, state and federal regulations. Many of these species may be added to official state and federal rare species lists in the future.

There are two general categories of special interest species: (1) those species that are candidates for official federal listing as threatened and endangered (USFWS, 1983 and 1985); and (2) those species which are not federal candidates, but which have been unofficially identified as a species of special interest by private conservation organizations or government agencies.

Federal candidate species are assigned to two categories depending on the current state of knowledge of the species and its biological appropriateness for listing (USFWS, 1983 and 1985). Category 1 candidate species include taxa for which the USFWS currently has on file substantial information on biological vulnerability and threats to support the appropriateness of proposing to list the taxa as endangered or threatened species. Category 2 includes taxa for which sufficient information is available to indicate possible listing, but for which additional data are required on vulnerability and threats.

There are nine federal candidate plant species that could potentially occur in the area. Table 6 lists the status, distribution and likelihood of occurrence. Federal candidate animal species are listed in Table 7. Although none of these species were directly observed during the Dames & Moore field reconnaissance, they are likely candidates to occur in the area. Other special animals (CDFG, October, 1986) that could potentially occur in the project area besides those previously listed include: western grebe, least bittern, great blue heron, black-crowned night heron, yellow warbler, Cooper's hawk, sharp-shinned hawk, northern goshawk, golden eagle, northern harrier (marsh hawk), black-shouldered kite, osprey, prairie falcon, short-eared owl, long-eared owl, yellow-breasted chat, American badger, and Pacific kangaroo rat. The California mountain lion (Felis concolor californica) found in this area is considered a sensitive animal by private conservation groups. These animals are generally taxa that are biologically rare, thought to be declining throughout their range but not currently threatened or endangered, or are associated with habitats that are rapidly declining in California.

Great blue herons, least bitterns, western grebe, and black-crowned night herons were previously reported to occur along the lake shores (TERA Corporation, 1979), and were probably migrants to the area. All of the listed raptors are potential migrants or vagrants at the site, with the Cooper's hawk also potentially nesting in woodlands adjacent to the intermittent streams in the area. A prairie falcon was observed during the May, 1985 field surveys conducted by Dames & Moore within appropriate nesting habitat in the southeastern portion of the project area, less than 1/4 mile south of Lake Sherwood (Map 2). Hence, at least one nesting pair probably occurred just south of the dry lakebed in 1985. This species is also likely to occur in and near the project area during migration and winter.

Table 6. Plant Species of Special Interest that are Known Or Could Potentially Occur in the Area Plan[1]

Scientific Name[a]	Common Name[a]	Growth Form[b]	Flowering Period	Federal Candidate Status[c]	1984 CNPS Inventory[d]	Characteristic Vegetation Type[e]	Geographic Distribution[f]	Occurrence in Project Area[g]
Astragalus brauntonii	Braunton's milk-vetch	PH	Feb-June	Category 2	1B	C	Foothills bordering the Los Angeles Plain, from the Santa Monica, Santa Ana, and San Gabriel mountains.	Unlikely, but possible throughout much of the project area in disturbed areas in chaparral. Not observed.
Centrostegia leptoceras	Slenderhorned Spineflower	AH	Apr-June	Category 1	1B	CSS	Historically from the San Fernando Valley to the San Bernardino Valley. Now, known only in the Cajon Canyon area of San Bernardino County.	Unlikely but slight possibility in sandy areas of coastal sage scrub in the northwestern portion of the project area. Not observed.
Dudleya cymosa ssp. marcescens	Santa Monica Mountains dudleya	PH	May-June	Category 2	1B	C	Santa Monica Mountains, southern Ventura County.	Possible on shaded, rocky slopes in chaparral along streams. Possibly observed.
Dudleya multicaulis	Many-stemmed dudleya	PH	May-June	Category 2	1B	C,CSS	Los Angeles County, to western San Bernardino, Riverside, and Orange Counties, and San Onofre Mountains, in San Diego County.	Slight possibility on dry, rocky, open slopes in chaparral and coastal sage scrub throughout the project area. Not observed.

Table 6. (continued)

Scientific Name[a]	Common Name[a]	Growth Form[b]	Flowering Period	Federal Candidate Status[c]	1984 CNPS Inventory[d]	Characteristic Vegetation Type[e]	Geographic Distribution[f]	Occurrence in Project Area[g]
Dudleya parva	Conejo dudleya	PH	May-June	Category 1	1B	C,CSS	Conejo Grade and Arroyo Grade, Santa Rosa, southern Ventura County	Slight possibility on bare rocky slopes in chaparral and coastal sage scrub throughout the project area. Possibly observed.
Dudleya verityi	Verity's dudleya	PH	May-June	Category 2	1B	C,CSS	Chaparral areas of southern California mountains.	Unlikely, but possible on rocky hillsides in chaparral. Not observed.
Eriogonum crocatum	Conejo buckwheat	PSS	Apr-July	Category 2	1B	CSS	Long Grade-Conejo Grade area of Ventura County.	Probable on dry rock hillsides, previously observed immediately east of study area[2].
Hemizonia minthornii	Santa Susana tar plant	PS	July-Nov	Category 2	1B	C	Very limited area near Santa Susana Pass, Los Angeles and Ventura Counties.	Unlikely, but possible near stony outcrops in chaparral. Not observed.
Pentachaeta lyonii	Lyon's pentachaeta	AH	Mar-Apr	Category 2	1B	C	Found primarily in grasslands of coastal Los Angeles County.	Probable, previously observed west of Westlake Boulevard in vicinity of Lake Sherwood development.

Table 6. (Continued)

[a]Nomenclature follows Munz and Keck (1959), Munz (1974), and/or Smith (1976).

[b]AH = annual herb; PH = perennial herb; PSS = perennial subshrub.

[c]USFWS (1980, 1983). Category 1 = Taxa for which sufficient information is available on biological vulnerability and threats to support the appropriateness of proposing to list the taxa as endangered or threatened species. Category 2 = taxa for which sufficient information is available to indicate possible listing, but for which additional data are required on vulnerability and threats.

[d]From the 1984 California Native Plant Society Inventory (Smith and York, 1984), List 1B = rare and endangered.

[e]C = chaparral, CSS = coastal sage scrub, G = grasslands.

[f]Based on information in Munz (1974), Smith and York (1984), and the files of California Department of Fish and Game.

[g]Based on information in Smith and York (1984), the files of California Department of Fish and Game, and observations of Dames & Moore biologists during field reconnaissance surveys, 1985, and discussions by MEI with knowledgeable local botanists.

1. Source: Dames & Moore, 1985, with revisions by this report.
2. Per CNDDB, 1984.

Table 7. Wildlife Species on the Federal Candidate List Likely to Occur in the Area Plan

Common Name[a]	Scientific Name[a]	Regional Occurrence[b]: Seasonal Abundance and Occurrence	Regional Occurrence[b]: Breeding Status/Habitat	Potential or Known Occurrence in Project Area[c]
Amphibians and Reptiles[d]				
California Red-legged Frog (CSC, 2)[e]	Rana aurora draytoni	Uncommon year-round resident.	Prefers year-round ponds, freshwater marshes, and coastal sloughs in South Coast ranges.	Likely to occur in vicinity of the lake, ponds, and seasonally along intermittent streams.
Western Pond Turtle (CSC, 2)[e]	Clemmys marmorata pallida	Uncommon year-round resident.	Quiet waters of ponds, small lakes, streams, marshes, and reservoirs near oak woodland, mixed coniferous forest, and grassland throughout southern California.	Likely to occur in the lake, ponds, and seasonally, in pools associated with intermittent streams.
San Diego Horned Lizard (CSC, 2)[e]	Phrynosoma coronatum blainvillei	Uncommon resident.	Open brushlands and woodlands near sandy washes with scattered low bushes.	Likely to occur throughout valley areas of area plan.
California black-tailed gnatcatcher (coastal ssp.) (CSC, 2)[e]	Polioptila melanura californica	Rare to uncommon resident.	Dry scrub and woodlands.	Apparently no longer occurs in study area, nearest known population in Los Angeles County. (Palos Verdes peninsula).

[a]Common and scientific names follow CDFG, 11/85.

[b]Regional occurrence based on information from Stebbins (1972), CDFG (1980), Webster et al. (1980), and Garrett and Dunn (1981).

[c]Based on available literature data.

[d]Occurrence in the project area for special-interest amphibians and reptiles uncertain due to the drainage of Lake Sherwood. When full, the lake provides additional suitable habitat for these species.

[e]CSC - CDFG Species of Special Concern
2 - Federal Candidate Species, Category 2

The yellow warbler and yellow-breasted chat may occur as occasional migrants along the intermittent streams; however, both prefer dense willow thickets which are generally lacking in the project area. The Pacific kangaroo rat is expected to be an occasional to common small mammal in the more open, but undisturbed brushlands throughout the project area. Badgers are expected in the open grasslands of Hidden Valley, especially near ground squirrel colonies.

2. Impacts

a. Area Plan

The relative biological sensitivity of various portions of the Area Plan has been determined on the basis of several biological criteria. Assigning a sensitivity value to any given area involves a certain degree of subjectivity, since there is no way to quantify "value". The criteria used included:

- Overall distribution and abundance of habitat on a local and regional basis
- Presence of species that are declining in numbers or are uncommon, rare or endangered
- Degree of disturbance
- Isolation from urban impacts
- Native plant and wildlife species diversity and relative abundance
- Overall size of habitat
- Value of area as critical link in wildlife population abundance such as wildlife migration corridor or breeding area.

Based on these criteria, the Area Plan can be divided into zones of varying sensitivity. The areas of greatest sensitivity are the riparian woodland along Carlisle Creek (rare habitat, species diversity), and the Boney Mountain ridge in the central part of the Area Plan (isolation, rare wildlife, rare plant habitat, nesting areas). Areas of particular significance are the oak savanna and oak forest/woodlands within P.U. 1 of the Lake Sherwood development (rare habitat, wildlife corridor), the oak woodland and southwestern hillsides of Hidden Valley (rare plants, species diversity, isolation), the oak woodlands and canyon above China Flats (P.U. 7A), and the prairie falcon nesting area to the southeast of Lake Sherwood in P.U. 11 (rare plants and wildlife, wildlife corridor). Overall, biological resources within the Area Plan are critically important due to their very high level of habitat diversity and the presence of unique floristic elements on the regional scale of the Santa Monica Mountains.

The proposed land use designations for the Area Plan outside of the Lake Sherwood development would limit the potential for further development in the area as compared to the existing general plan. However, development as proposed by the Area Plan could still result in significant biological

impacts due to the site specific location of various sensitive wildlife and plant species. This is considered an unavoidable adverse impact.

b. Lake Sherwood Development

This proposed project would result in significant unavoidable impacts on the biological resources of the area. The most significant effects are the loss of individual oak trees and loss of the the ecological relationship of the oak and riparian woodlands with the adjacent grassland and chaparral habitats. In addition, approximately 95% of the grassland habitat within the project area will be converted to residential or golf course use.

A summary of oak tree removal in Planning Unit 1 prepared by the applicant indicates that 15 percent (179 of 1,196) of the oak trees and 67 percent (89 of 132) of the sycamore trees would be removed by the proposed golf course and loop road. Comparison of the oak tree reports prepared for the applicant with the proposed plan indicates that up to 10 percent more of the oak and sycamore trees within Planning Unit 1 could be lost as a direct result of grading for individual residential developments, assuming that trees would generally be preserved on a lot by lot basis. Other direct oak tree losses would be about 10 to 25 percent of approximately 1,000 trees in P.U. 4 (Carlisle Inlet) and along the lake shoreline due to resubdivision and road widening. (P.U. 6, 8, and 9). Another ten or more oak and sycamore trees may be lost due to widening of Carlisle Road under existing County pave-out policy. Indirect and long-term losses are expected to be greater because the high volumes of irrigation water necessary to maintain the golf course are detrimental to the oaks and creates root rot conditions. This impact would also occur to oaks preserved within the residential areas, but subjected to over-irrigation. Actual indirect losses of oak trees are expected to occur over a long period of time, generally twenty to thirty years in the future after land conversion.

Loss of individual oak trees is considered a significant impact because oak trees in general are reproducing poorly throughout California and oak tree habitat is rapidly being lost to agricultural and urban expansion. The proposed golf course and adjacent residential development would limit oak tree reproduction to within those woodlands located at the fringes of the golf course fairways. The proximity of residences to the woodlands also limits the diversity of animals that would otherwise live in the oak woodland habitat, in particular raptor species such as Cooper's hawk and sharp-shinned hawk. While the project has been designed to avoid removing oak trees, it would nonetheless have a significant and unmitigable adverse impact on the long-term viability of the oak woodlands at the site.

Approximately 400 acres or 35 percent of chaparral habitat within the project area would be directly removed if the project is builtout according to the proposed land use designations. In addition, the Fire Department requires a 100-foot wide vegetation conversion zone around all houses, particularly the estate lots. Based on the fire modification zones proposed by the applicant, this may account for approximately 200 additional acres. Depending on the actual location of the homesites within the estate lots, brush clearance per the fire requirement may significantly fragment chaparral community throughout the site. Further brush clearance should be expected on

the estate lots as individual owners attempt to maximize the use of these lots by creating more grazing land or planting the hillsides in avocado orchards. (It should be noted that while soil conditions are unfavorable for avocados at the site, this has not prevented such conversions in other similar locations throughout southern California). Because chaparral is a fire-adapted community, it requires periodic wildfire to maintain a high wildlife value, to destroy soil pathogens, and to aid in seed germination. In particular, a wide variety of "fire annuals" occur after wildfires that are an important component in the botanic diversity in the area. However, residential development within chaparral usually includes fire suppression, which results in the gradual loss of biological value of the vegetation and creates a larger than natural fuel load that causes more severe fires. A significant wildfire risk could be created in this manner for the estate lots within P.U. 2, 3, and 4 that are physically distant from the major access routes. Because of the existence of residences, fire prevention measures that do not harm biological values such as controlled burning are not generally usable.

Approximately 70 percent of the coastal sage scrub vegetation located north of the lake in P.U. 5, 8, and 11 would be directly removed due to development of the villas and realignment of Potrero Road. Loss of vegetation in this area is considered significant due to the probable presence of rare plants (see discussion below). About 40 percent of the loss of this vegetation type would be due to resubdivision of existing lots and may occur even if the proposed project is not approved.

The regional supply of chaparral and coastal sage scrub vegetation is still extensive as compared to the rapidly decreasing supply of woodlands. However, the brushlands at the site are diverse and much of it is still in primarily a native state. Therefore, the loss of brushland due to the proposed project is considered to be a significant, but mitigable impact, to existing plant resources provided that measures are taken to minimize losses.

The sensitive plant species within the project area are generally associated with the steep volcanic rock ridges and slopes that would not be directly affected by the proposed project. Although the potential exists for unknown populations of sensitive plants to be affected by site-specific location of residences and or vegetation conversion on individual lots, this is not expected to cause a significant impact on their populations. An exception is that Lyon's pentacheata is potentially located in the grasslands on the site, most likely in the China Flats area and adjacent to the coastal sage scrub in the northeast corner of the property. In addition, a disjunct population of a plant variety not normally found in California has been identified adjacent to the Lake Sherwood development area in habitat similar to that required by Lyon's pentacheata and both may occur in the area of P.U. 5. Potential populations could be eliminated by the development of P.U. 5 and 7. Field surveys conducted in the area did not discover Lyon's pentacheata, however no surveys were done during its flowering period (late spring). Because of the general loss of grassland habitats throughout this species range, any further loss of populations could have a significant impact.

The removal and alteration of substantial amounts of the project site's vegetation would result in consequential decreases and changes in wildlife populations in the area. There would be a decrease in the number of species dependent on natural habitats and increases in species population of urban adapted forms.

Construction activities such as vegetation clearing, grading and blasting will result in the direct mortality of small animals which are too small and/or slow to abandon the area. The more mobile species, such as birds and larger mammals, and many of those individuals near the margins of the development area would be displaced at least temporarily from their territories. Survival of these individuals will depend upon their success in establishing new territories away from the construction area and the rate of recovery of suitable vegetation on the site. Populations of animals having small home ranges, particularly rodents and reptiles, would also be disrupted. Individuals losing all or most of their territories are generally unable to establish a new territory in adjacent undeveloped areas and will most likely perish. The increase in human equipment activity will cause many species to abandon the area permanently or until construction is completed.

Direct loss of habitat due to vegetation removal is the most significant direct impact to wildlife. Loss of habitat causes animals to move into adjacent areas of similar habitat which may already be at the carrying capacity for that species. Resultant overcrowding introduces additional stress to the local population, a factor that becomes critical for certain species survival, such as those with low population numbers, or those with unique habitat requirements. In the proposed project area, those species most affected include raptors and large mammalian predators such as mountain lion, badger, and fox.

The ponds, seeps, and riparian corridors within the site enhance the ability of the area to support wildlife. The project vicinity is characterized by generally arid conditions and low annual rainfall. The occurrence of surface water resources is extremely limited in the region, making open water of high value to the local wildlife. These aquatic resources and their associated vegetation provide increased habitat diversity that supports a higher variety of wildlife species than a similar area without surface water. The proposed project would increase the amount of open water in the area (i.e., golf course ponds), but this is not expected to be generally available to wildlife and may be contaminated by use of pesticides. Water resources currently available along the creek in Planning Unit 1 would still be available to urban tolerant species, but lost to intolerant species.

The cumulative effect of these alterations in habitat is that the proposed Lake Sherwood development would have a significant and unavoidable impact on wildlife resources in the area, in particular, on those wildlife species that are currently experiencing population declines. Those portions of the development proposed for urban residential densities would have the greatest impact (P.U. 1, 5, 7, 8 and 9), while those open space areas of P.U. 2, 3, 4 and 11 would have the least impact.

Areas of particular value to wildlife are the oak woodlands and rocky outcrops. The impact of the loss of mature trees is related to the scarcity of such arboreal habitats on the project site and in the general vicinity, where the predominant cover types average 2-4 feet in height. Large trees are especially important to raptors which utilize them for nesting, cover, and hunting perches ("look-out" sites). A wide variety of other birds, mammals and insects also utilize the trees for feeding, nesting and cover. Most of the trees within P.U. 1 would be located near residences and the golf course and would so be lost as breeding habitat for raptors, which are generally intolerant of human disturbances. Most of the trees along Carlisle Creek in P.U. 3 and 4 would be within larger lots and so may be more available for breeding purposes.

In areas where blasting is necessary to achieve construction specifications (e.g., in areas where bedrock is close to the surface), there is the potential for significant adverse impacts to wildlife, particularly raptors. The impacts are related to direct loss of habitat and disturbance from sound and pressure waves generated during blasting. Foraging and possibly breeding activities would be disrupted on a short-term basis during construction.

The rocky outcrop areas serve as nesting habitat for raptors, swallows and potentially bats. While most outcrop areas would not be disturbed directly by the project, indirect effects noted below would result in decreases in local animal populations. Raptor nesting success has been shown to be significantly less for attempted nests located within 1/4 mile of human disturbances. About half of the rocky outcrop areas within the Lake Sherwood development are located within this zone and can be expected to have decreased nesting success. Given the biological sensitivity of raptors due to declining population levels, that is considered a significant and unavoidable impact of the proposed project.

Indirect habitat losses are expected to occur in the natural areas adjacent to the proposed development. These losses would be due to increased human activity in the surrounding brushlands, creation of barriers to migration of wide-ranging species (particularly deer and mountain lion), introduction of domestic pets which hunt wildlife and serve as reservoirs for disease organisms, and night lighting. As shown on Map 2, the proposed Lake Sherwood (particularly P.U. 5) would limit wildlife movement north-south through the project area by introducing residential uses within migration corridors. This would result in further isolation of large mammal populations north of the development area and increase the possibility of their extinction. While the effect on large mammals may be significant as discussed above, the indirect effects of the increase in human population on the habitats in adjacent areas is expected to be adverse but less than significant due to the relative size of the project.

The red-legged frog and yellow-legged frog may or may not benefit from the increased water supply that would be caused by the project. Although the amount of ponds available in the proposed golf course area would increase, the expected use of pesticides on the golf course and landscape management of pond edges would probably decrease the actual amount of suitable habitat available.

The prairie falcon nest may be indirectly disturbed by the proposed development in P.U. 4. This may result in the relocation of the falcons out of the Lake Sherwood area and further into the Santa Monica Mountains.

A portion of the emergent aquatic vegetation along Stafford Road would be filled in as a part of the proposed golf course construction, resulting in a loss of breeding area for the lake fish and primary waterfowl habitat (TERA Corporation, 1979). However, the TERA Corporation report indicates that the formerly wide stands of emergent plants provided only marginal waterfowl habitat within their interior, with the major habitat being the outside fringe between open water and plants. Vegetation loss in this area would not significantly reduce available waterfowl habitat and a steepening of the shoreline in the area could increase available habitat by decreasing the effect of lake surface fluctuations (TERA Corporation, 1979). In addition, the proposed golf course pond and desilting basin immediately west of the lake would provide increased shoreline perimeter. Therefore, the proposed filling of a portion of the lake is not expected to result in a significant effect.

3. Mitigation Measures

a. Area Plan Outside of Lake Sherwood Development

The following measures would reduce significant impacts of the Area Plan to less than significant.

- Rural residences and apurtenant structures proposed for development should be located such as to avoid the loss of any native oak, sycamore, ash, bayleaf (bay laural), alder, or maple. If such is infeasible, the loss of native trees should be replaced by the planting of three 15-gallon replacement trees of the same species.
- No grading requiring a permit should be permitted on slopes exceeding 25 percent without the submission of a biological field reconnaissance report detailing the composition of species at the site and suitable mitigation measures if necessary.
- Brush removal for fire protection purposes should be limited to 2 acres or less adjacent to proposed residences.
- All residential and apurtenant structures proposed for future development should be located a minimum of 100 feet from the top of the bank of the nearest stream.

b. Lake Sherwood Development

The proposed Lake Sherwood development would result in unavoidably adverse impacts to biological resources. The following measures would reduce impacts, but not to an insignificant level.

A specific oak tree preservation and mitigation program should be instituted. The following contains the outlines of this program, modelled after the program adopted for the Oak Park area in Ventura County.

OAK TREE PRESERVATION AND MITIGATION

(Source: Ventura County's Oak Park Community Plan and MCE)

Oak trees within the planning area contribute significantly to the area's aesthetic values and rural atmosphere as well as play important roles in the natural ecology. In recognition of these contributions, this Amendment has as major goals the following:

(1) The preservation and maintenance, if possible, of healthy, aesthetically attractive oak trees within the Development Plan area.

(2) The mitigation, on aesthetic and ecological grounds, of all oak trees removed from roads rights-of-way or development areas. These mitigation measures consist of financial contributions to the Conejo Recreation and Park District for the planting of oak trees within the Lake Sherwood community.

In order to implement these goals the following policies apply to all development within the Amendment area. All references to oak tree ratings or oak tree clusters refer to the findings contained in the Preliminary Oak Tree Reports prepared by Lee Newman and Associates.

(1) If an oak tree has a rating of C/B or better for health/aesthetics, all reasonable efforts should be made to preserve the tree through project design. If, in the opinion of the developer, such a tree cannot be reasonably preserved, a written statement of the reasons why shall be provided to the Planning Division as part of the project application.

(2) Any oak tree to be preserved within development areas shall be preserved as follows:

   (a) If possible, the tree shall be on land maintained by a Homeowners Association or a public agency. This is to encourage proper maintenance of the tree through use of professional landscape personnel.

   (b) The entity or private property owner responsible for oak tree maintenance shall keep on file and implement oak tree maintenance instructions to be provided by the Planning Division.

   (c) Landscaping within 5 feet of the dripline of oak trees shall consist of drought resistant plant species compatible with the water requirements of the trees.

   (d) Prior to approval of grading plans, the trees to be preserved shall be inspected by an arborist approved by the Planning Division. The arborist shall make written recommendations to the County and developer concerning a program to maintain, and if need be, to enhance the health of individual trees. This program shall include plans to protect the trees during grading and construction activities. The developer and/or maintenance agency shall implement the appropriate portions of the program as approved by the Planning

Division. (Note: See the Newman Reports for details). Failure to adhere to the mitigation plan to the satisfaction of the Planning Division shall result in a $3,500 assessment per affected tree to be made by the developer to the Conejo Recreation and Park District. Said fee shall be paid prior to issuance of any further permits for the project.

(e) If trees are to be removed, a mitigation schedule should be negotiated with the County. The baseline fee is calculated as the cost of purchasing and planting two 24-inch box and one 15 gallon oak trees. This baseline may be modified periodically by the Planning Division to reflect changes in the cost of trees or labor. The Baseline is based on the aesthetic and biological value of an isolated grade C/C oak tree. For a tree to be more valuable than grade C/C, both the health and aesthetic values must have a grade of C or better. For example, a D+/B tree is not considered to be more valuable than a grade C/C tree. For a tree to be less valuable than grade C/C, both value must have a grade of less than C. In the example of a D+/B tree, this tree would be treated as a C/C tree for mitigation purposes. (Note: These fees apply to dead trees as they have ecological value.)

- o Isolated Trees - Defined as trees shown with a separate canopy which is not merged with another tree canopy:
  - Trees of grade C/C or better - Baseline mitigation.
  - Trees of less than grade C/C = 1/2 of Baseline mitigation.
- o Clustered Trees - Defined as trees shown with a canopy combined with the canopy of at least 1 other tree.
  - Trees of grade C health or better = 2 x Baseline.
  - Trees of less than grade C health = Baseline.

  (Note: Trees in a cluster of other oak trees provide more ecological benefits than do isolated trees.)

(3) The largely intact trunk and major limbs of removed trees shall be offered to the Conejo Park District for their use on public park or open space lands. If accepted by the District, such trees shall be delivered by the developer to an area as designated by the District located within 1 mile of the development parcel. If a previously dead tree as identified in the Newman Reports is accepted by the Park District, the mitigation fee is waived. In lieu of offering and delivering removed trees to the Conejo Recreation and Park District, the developer may, at this discretion, pay an addition fee per tree to be negotiated with the District. Payment of said fee removes any obligation to donate the tree to the Park District.

Payment of the mitigation fee and delivery of the removed trees to the Conejo Recreation and Parks District shall occur prior to issuance of the first Occupancy Permit of a project.

(4) The recommendations for health maintenance, protection from grading and construction activities, and long-term water and fertilization made in the Newman Reports shall be implemented through written Homeowners Association and other C, C and Rs, or other written documents as appropriate.

* * * * *

In addition to the above program, the following measures are recommended.

- o To mitigate the impacts of the proposed golf course in P.U.1, the applicant should dedicate a conservation easement for a similar amount of acreage in the Lake Sherwood/Hidden Valley area containing viable oak savanna habitat. Such land or rights should be deeded to a public or private agency for the purpose of long-term maintenance of the site as oak savanna.

- o Protected trees other than oaks within the Scenic Resource Protection Zone should be replaced per the following schedule:

Protected Tree	Replacement Tree(s)	Replacement Ratio (Removed: New)	Replacement Size
Cottonwood	California Sycamore	1:3	15 gallons
Alders	Alders	1:3	Tree(s) removed shall be replaced with one of the same species in a 24-inch box.
California Bayleaf	California Bayleaf	1:3	
Maple	Maple	1:3	
Sycamore	California Sycamore or Oak	1:3	Two 15 gallon replacement trees may be chosen among those in the replacement column.

- o A biological field investigation should be conducted in the spring for each development area prior to or during subsequent environmental documentation for future discretionary entitlements. The purpose of the survey will be to identify the presence or absence of sensitive species within the boundary of actual development and to establish additional mitigation measures as needed. The County should implement these mitigation measures when identified prior to tentative tract or CUP approval.

- Loss of wetland habitat within Lake Sherwood should be mitigated on an acre per acre basis with establishment of additional equivalent wetland habitat (CDFG, 11/19/86).

- The golf course should be managed for wildlife with the following recommendations:

  1. Use of pesticides and herbicides within 20 feet of creek and pond banks should be prohibited.

  2. Ponds should be managed such that emergent vegetation is allowed to grow on 50% of the pond's perimeter. Such vegetation should not be trimmed except as a consequence of sedimentation removal within desilting basins or to remove nuisance problems. Optimum width of the emergent vegetation is 5 to 20 feet and maintenance to provide open water within the pond is permitted.

  3. Non-controlled fertilizer applications should be limited to greens and tees. Fairways should be limited to an application rate of 200 pounds of actual nitrogen/acre per year including that nitrogen delivered from the reclaimed wastewater used for irrigation. No fertilizers should be used in rough areas. Phosphate fertilizer should not be used on the fairways to prevent excessive phosphate input to Lake Sherwood.

- Wildlife corridors should be established to follow the natural stream courses and ridgelines. Where the golf course perimeter road crosses the stream at the westernmost extent of the road, a 6' x 6' or larger arched steel multiplate culvert should be developed with natural earthen bottoms and entrances landscaped with native plants. Natural vegetated corridors of 50 feet wide or greater should be established linking open space areas. Similar culverts shall be used wherever golf course paths cross natural streambeds.

- Blasting should be limited to July through January to avoid affecting breeding raptors. A field survey by a qualified biologist should be done prior to blasting of any rocky outcrops and mitigation measures recommended by the survey should be implemented. Blasting could be permitted during January-July if a wildlife survey indicates that no raptors are nesting within 3/4 mile of the blasting site.

- CC&Rs should be established that limit the conversion of brushlands on estate lots to two acres or less adjacent to the main residence.

- Where improved channels are necessary for flood control purposes, they should be constructed with bottoms composed of native rock, sand, and soil and preferably have sloping sides. The use of gabions (rock-filled baskets) are recommended for control of bank erosion. All streambed modifications will require a 1603 permit from the California Department of Fish and Game.

- All homesites within Planning Units 2, 3 and 4 should be located within 200 feet of proposed main access roads. Applicant claims that this is economically infeasible for P.U. 2.

- Fuel modification zones should be planted with fire retardant native plants and irrigated until vegetation is well established.

- Revegetation of all buried pipeline and transmission line corridors through areas to be left natural should be done as follows:

  1. During pre-construction clearing of right-of-way, all vegetation and the top 6 to 12 inches of soil should be windrowed and later spread back over the construction site after burial of facilities.

  2. Post-construction grading should return the terrain to its pre-construction contours as much as practicable.

  3. Areas requiring compaction should have the top 6 to 12 inches scarified prior to any revegetation efforts.

  4. Those areas susceptible to erosion should be stabilized by the use of jute mats or other erosion-control devices.

  5. A hydromulch mix of native seeds should be sprayed within the construction corridor after project construction.

- Recommendations of the applicant's tree consultant should be followed, in particular:

  1. No grading shall take place within the tree drip lines without the notification of the County Planning Department.

  2. If grading is approved within the driplines, a tree consultant shall be present during all work. This grading will be done by hand work.

  3. If any roots are encountered, they shall be properly pruned in accordance with the recommendations of a tree consultant.

  4. Trees shall be fenced, for protection of mechanical injury, at the dripline with a chainlink fence before any grading commences. This fence shall not be removed without certification from a tree consultant.

  5. No equipment storage and/or parking shall take place within any tree dripline.

  6. Structural pruning is for clearance only and can be done only if approved by the County Planning Department for road construction, parking areas, and building construction.

  7. Safety pruning is for the pruning of hazardous limbs and should be done only if it is required by a tree consultant.

8. All deadwooding and/or pruning shall be accomplished under the direct supervision of a tree consultant.

9. When pruning undercut limbs to avoid tearing the bark, the final cut should be out from the trunk slightly with the lower edge of the cut further away from the trunk than the top.

10. Grade stakes or anything else should not be nailed to the trees.

11. Landscape planting and/or irrigation and/or utilities shall not be designed and/or installed within any oak tree driplines, unless approved by the County Planning Department.

12. Chemical herbicides shall not be applied within one-hundred feet of any oak tree driplines.

13. Natural leaf mulch shall not be removed from within the oak tree driplines.

14. The dust accumulation onto the tree's foliage (from nearby construction) shall be hosed off periodically during construction.

- All night-lighting within the proposed development should be shielded and directed to the ground. Transient light from lighting should not exceed 1 foot-candle at 100 feet from the lightpole, except for the tennis court area.

- Residential estate lots within P.U. 2, 3, and 4 should not be fenced except for the outside perimeter of the private community, within 200 feet of the main residence on each lot, corrals and swimming pools. Outside perimeter fencing used should not extend to the ground, but have an opening of not less than 6 inches between the ground and bottom of the fence. Top of fence should not exceed 8 feet in height above the ground.

D. HYDROLOGY/DRAINAGE

The following analysis was prepared in part by Widmer and Associates based on a review of the hydrologic information submitted by the applicant (Haaland and Associates, October 1985, Lake Sherwood Master Drainage Study) and information available from the Ventura County Flood Control District.

1. Setting

Lake Sherwood is a man-made reservoir that was formed by the construction of a dam at the downstream junction of four major drainage areas (Figure 24):

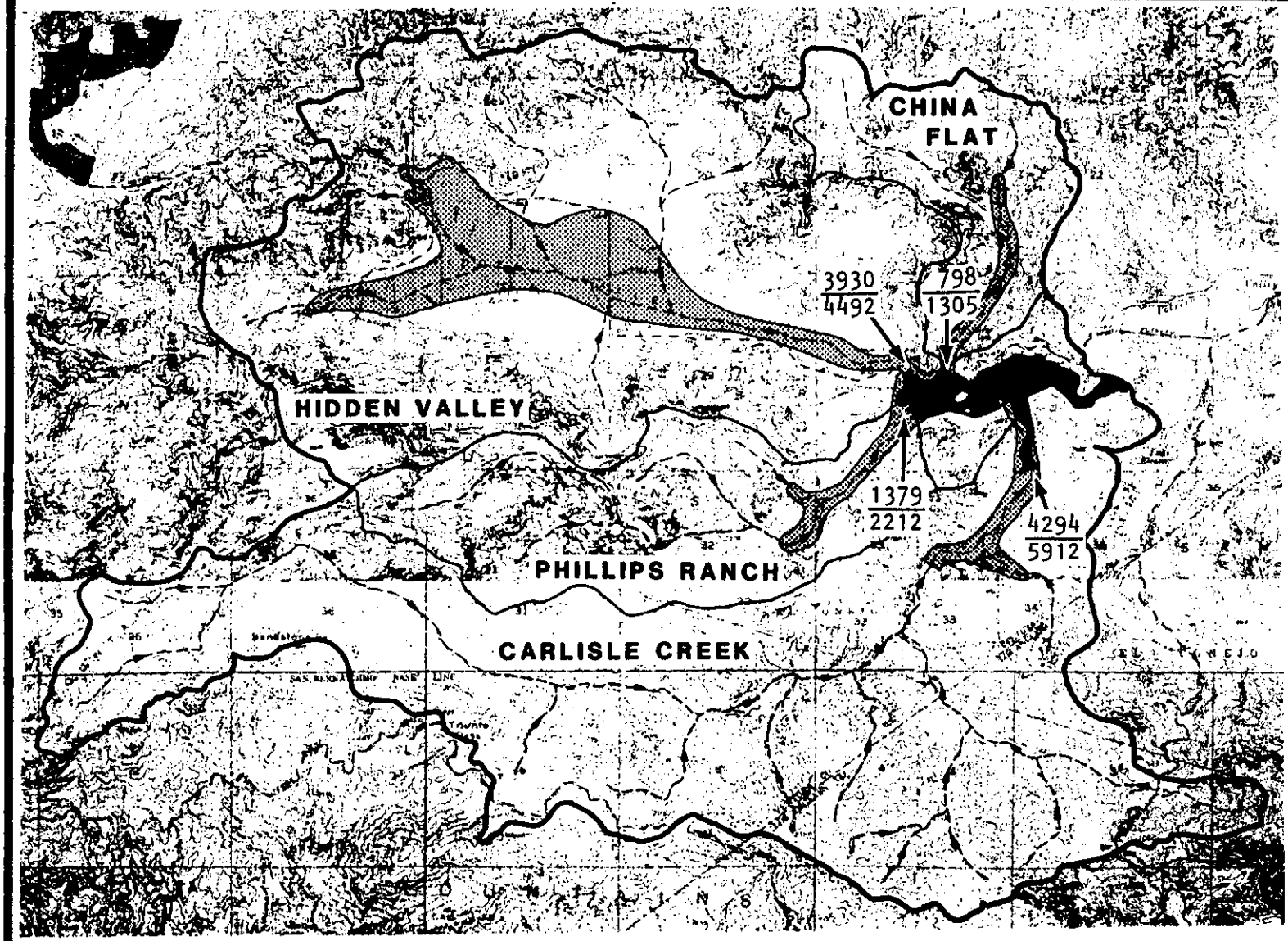
China Flat - tributary from the north
Carlisle Creek - tributary from the south
Phillips Ranch - tributary from the west
Hidden Valley - tributary from the northwest

Storm runoff from these four areas accumulates in natural streambeds and flows into the lake. The lake has a spillway set at elevation 955 and the discharge from the spillway goes into Potrero Creek, which is a combination of unimproved and improved channel sections flowing into and through Westlake Village. The Ventura County Flood Control District maintains the improved channel downstream of the Potrero Road bridge and the unimproved section upstream of the bridge up to the spillway is privately maintained.

The most recently determined drainage area and runoff values are shown in Table 8. The analysis yielding these results also contains an identification of smaller drainage subareas. Data is readily available for use in additional analyses as needed by common computer techniques of the Ventura County Flood Control District.

The only available data on flood plain limits are the Flood Insurance Rate Maps prepared by the Federal Emergency Management Agency (October 1985). "Zone A" mapping (Figure 24) defines areas within the 100-year flood, but does not include flood elevations or flood hazard determination. These maps are only a rough guide to the possible existence of flooding conditions at any given location, and should not be taken as conclusive evidence of flood plain limits for development purposes.

The imposition of regulations and conditions on new developments, and specifically the hydrology, drainage, and flood control features of such development, is controlled by the Ventura County Board of Supervisors in unincorporated territory, acting directly or as the Ventura County Flood Control District. Among the guides and standards applicable are the Hydrology Manual, the Design Manual, the Standard Plans and Specifications for Public Works Construction, the Land Development Manual, the Ventura County Road Standards, Standard Designs, and Standard Land Development Specifications. The guides and standards are not considered substitutes for good engineering design practice, and creative design approaches such as the use of flood plain management techniques are seen in new developments.



HYDROLOGY

LEGEND

Zone A (100-yr flood)

XXXX A(acres)
XXXX Q(cu.ft./sec.)

Sources:

Base map from Tera, Corp., 1979

Flows from Haaland & Associates, 1985.

Zone A from FIRM Map nos. 060413-0945B and 0975B, Oct. 31, 1985.

FIGURE 24

Table 8. Storm Flows for Lake Sherwood Watershed

Drainage Area Description	Drainage Area (Acres)	50-yr recurrence Interval Flowrate (Cubic Feet Per Second)
Carlisle Creek	4294	5912
Phillips Ranch	1379	2212
Hidden Valley	3930	4492
China Flat	798	1305
Total Inflow to Lake Sherwood	10,401	10,355*

*This amount is inflow to the lake and not flow at the dam spillway for the 50-year storm. A reservoir routing analysis is required to obtain the outflow value.

Source: Haaland and Associates; October 1985.

A quantitative estimate of average annual siltation occurring in Lake Sherwood is provided in the report "A Study of the Ecology of Lake Sherwood", by TERA Corporation, in May 1979. The report estimates the average annual siltation at 41,000 cubic yards for the period from 1936 through 1976.

No comprehensive information is available on the history of siltation in Westlake downstream of Lake Sherwood, although the Westlake Lake Management Association is attempting to gather comprehensive information at this time.

2. Impacts

a. Area Plan Exclusive of Lake Sherwood Development

The proposed change in the General Plan for the Hidden Valley and Carlisle Creek areas would reduce the potential for homesites being located within potential flooding areas due to the larger lot sizes. Nonetheless, flooding in Hidden Valley is extensive during major storms and there is the potential for significant flood damage to new residences that could be located in this area. Incremental increases in impervious surfaces due to development in Hidden Valley or Carlisle Creek would not significantly increase downstream storm flows given the proposed land use designations.

The potential for flooding impacts is reduced through Ventura County ordinances No. 3741 and 3750, which require a permit for any construction or development within the special flood hazard area (100-year floodplain as shown on Figure 24). The following summarizes the pertinent ordinance provisions for flood hazard reduction:

- All new construction and substantial improvements shall be anchored.
- Structural elements of new construction shall be elevated generally one foot above the base flood elevation.
- The cumulative effect of any proposed development shall not increase base flood elevation by more than one foot at any point.
- Residential structures within adopted regulatory floodways are prohibited.

b. Lake Sherwood Development

Planning completed by the applicant for this area has identified the proposed geographic location of uses down to lot boundary scale and conceptual drainage facilities (Figure 25), but no concept grading plans are available. Therefore, the following hydrologic analysis is limited to the general layout information available.

The Federal Flood Insurance Rate maps indicate that there is the potential for flooding along the north shore of Lake Sherwood, within P.U. 7 along the creek, in the Carlisle Inlet area of P.U. 4, and within the proposed golf course. Based on the conceptual plans provided by the applicant, it appears

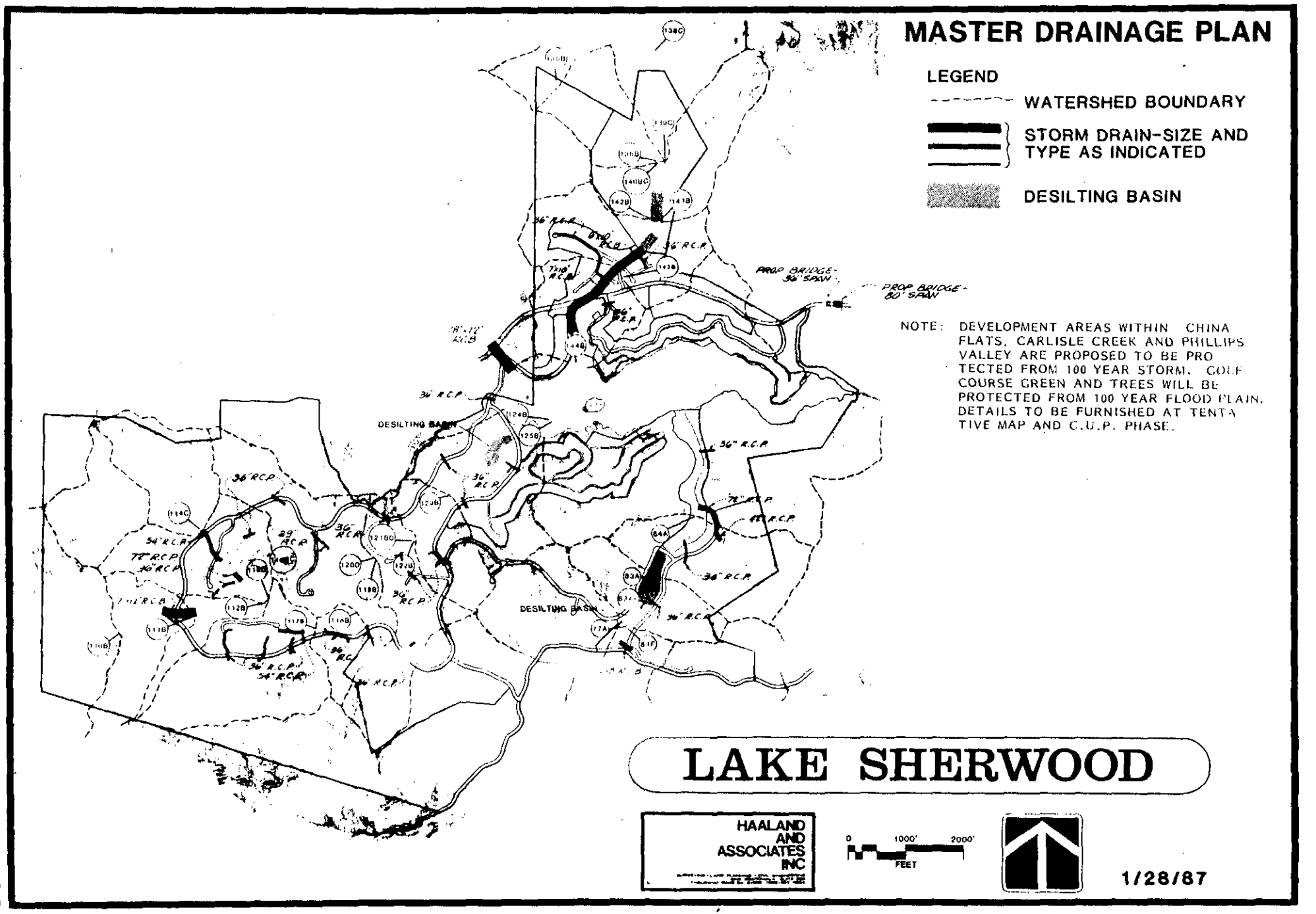

MASTER DRAINAGE PLAN
LEGEND
WATERSHED BOUNDARY
STORM DRAIN-SIZE AND TYPE AS INDICATED
DESILTING BASIN
NOTE: DEVELOPMENT AREAS WITHIN CHINA FLATS, CARLISLE CREEK AND PHILLIPS VALLEY ARE PROPOSED TO BE PROTECTED FROM 100 YEAR STORM. GOLF COURSE GREEN AND TREES WILL BE PROTECTED FROM 100 YEAR FLOOD PLAIN. DETAILS TO BE FURNISHED AT TENTATIVE MAP AND C.U.P. PHASE.
PROP. BRIDGE - 36' SPAN
PROP. BRIDGE - 80' SPAN
DESILTING BASIN
DESILTING BASIN
LAKE SHERWOOD
HAALAND AND ASSOCIATES INC
0 1000' 2000'
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FIGURE 25

that potential flooding problems can be adequately mitigated using a combination of conventional flood protection techniques such as shown on Figure 25. Portions of the project could be set back an adequate distance from existing streams to avoid encroachments into flood plains. Other areas, especially where proposed roads cross streams, would require culvert or bridge construction to permit the passage of storm flows. In areas where the major streams are at a flat slope just upstream of the lake, some encroachment into the flood plain can be designed using appropriate grading and flood plain management methods. If properly implemented, each of the above techniques would provide adequate protection from flooding for new and existing developed areas that are located adjacent to and upstream of Lake Sherwood.

It is not possible to determine the impact of the project on potential flooding downstream of Lake Sherwood at this time. Such a determination would require information on the proposed project grading, and a new hydrology analysis performed for the area after development with all proposed drainage facilities in place. The proposed development could, however, have detrimental impacts on flooding potential downstream. Any increase in peak flood flows would be considered detrimental.

If not mitigated in project design, the project could produce detrimental impacts on existing watercourses through increased erosion, and increased average annual siltation loading on Lake Sherwood and possibly downstream. Increased siltation of Lake Sherwood would affect the holding capacity of the reservoir, resulting in increased peak flows downstream of the dam. The construction of buildings and roadways will form impervious surfaces that generate clear runoff, which may accelerate stream erosion and downstream siltation. The proposed provision of desilting basins can offset this impact.

3. Mitigation Measures

a. Area Plan Exclusive of Lake Sherwood Development

None necessary since applicable Ventura County ordinances and proposed lot sizes are adequate to prevent significant impacts.

b. Lake Sherwood Development

The following measures are specific to the proposed Lake Sherwood development.

- o Flood protection of existing and new building and essential facilities upstream of Lake Sherwood should be achieved through a combination of approaches, including proper design and construction of roads, culverts and bank protection devices such as rock riprap; by adequate setback of facilities from the 100-year flood plain limits of adjacent watercourses; or by the limited encroachment of protected fills into the 100-year flood plain using appropriate flood plain management techniques.

- A detailed hydrology study showing flowrates after the completion of construction of the proposed project should be done before approval of development permits. The study should show no increase in peak runoff downstream of Lake Sherwood. Flood flow attenuation techniques such as the installation of retention basins that are indicated to be necessary by this study should be required before grading permits are approved.

- Development within the A zones (see Figure 24) as shown on the Federal Flood Insurance Rate Maps (FIRM) will require that the FIRM be modified to recognize the developed condition. Calculation of 10-, 50-, 100-, and 500-year flood plain elevations and appropriate submittals to the Federal Emergency Management Agency will be necessary to modify the FIRM.

- The design of desilting basins should include calculations demonstrating that there will be no increase in the average annual siltation loading on Lake Sherwood.

E. CULTURAL RESOURCES

An archaeological literature search was conducted through the Institute of Archaeology, UCLA, for that portion of the Area Plan outside of the Lake Sherwood development. A comprehensive phase I archaeological overview was conducted by Greenwood and Associates for the Lake Sherwood development portion of the Lake Sherwood/Hidden Valley Area Plan. The study entailed an intensive literature search and records check at the Institute of Archaeology, UCLA, along with various secondary sources that established the historical background for the project vicinity; an evaluation of where further work is needed to establish site significance; and recommendations to mitigate current and future impacts. A list of sources consulted and personal contacts elicited for information is presented in Section IX - References. The following is a summary of the pertinent aspects of the Greenwood and Associates report. The full report and associated maps may be reviewed by qualified persons on a "need to know" basis at the Ventura County Resource Management Agency, 800 South Victoria Avenue, Ventura.

1. Setting

Area Plan

a. Prehistoric Overview

The earliest inhabitants of the greater Ventura Region and surrounding area were probably big game hunters who exploited large Pleistocene animals such as the mammoth. With the passage of time, climatic changes and possibly human predation resulted in the extinction of the larger animals. Inevitably, this led to a change in human subsistence strategies from a big game hunting economy to a pattern characterized by the hunting of smaller game and the collecting of wild plants and seeds. The latter activity is exemplified by such plant processing implements as the milling stones used in the preparation of vegetal resources such as the sages (Salvia spp.). The greater province of the Ventura Region contains one of the most important concentrations of archaeological sites in southern California. Although most of the area has not been systematically surveyed to compile an inventory, the sites already recorded are sufficient in both numbers and diversity to predict the ultimate significance of these unique and non-renewable resources. It is likely that the region contains the entire chronological and cultural span of human activities known along the coastal provinces of southern California.

The earliest sites recognized in the area so far are attributed to the Milling Stone Horizon, characterized by the large milling stones and manos, simple percussion-flaked core tools, and a way of life primarily reliant on the gathering of wild plants for food. Hunting was a supplemental or sporadic activity. Sites of this period dating back to about 6000 B.C. appear to have been occupied by small groups of people and may not present large quantities of artifacts visible on the surface. This Horizon persisted over thousands of years without great change.

The so-called Intermediate or Transitional Period, still poorly defined in the Ventura area, dated from about 1000 B.C. to A.D. 800-1000. The sites reflect an increase in fishing and more hunting of both land and sea mammals.