Santa Lucia Preserve Project
Final
Environmental Impact Report

Volume II: Environmental Impact Report

Assigned EIR No. 94-005
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Summary

This summary briefly describes the proposed project and alternatives, project impacts, mitigation measures, impact conclusions, and areas of known controversy, as required by CEQA (State CEQA Guidelines, Sections 15123 and 15126).

PROPOSED PROJECT

The project site, known as Rancho San Carlos, encompasses approximately 20,000 acres in western Monterey County, south of Carmel Valley. The project applicant (Rancho San Carlos Partnership) seeks to establish a permanent preserve for native plant and wildlife habitat while pursuing limited development of the least environmentally sensitive land.

Comprehensive Development Plan

The comprehensive development plan of the Santa Lucia Preserve (proposed project) includes the following components:

- 90% of the land (approximately 18,000 acres), including the property's natural resources, would be set aside as "preserve lands" to maintain the vitality and character of the overall landscape, and
- 10% of the land (approximately 2,000 acres) would be developed for housing, recreation, and a community center with visitor-serving and commercial uses.

The comprehensive development plan for the Santa Lucia Preserve consists of the following types of land uses.

- **Residential.** The project will contain 350 residential units comprising 297 single-family lots and an additional 53 employee housing units (inclusionary housing). Residential development will be restricted to a building envelope called a "homeland", and all built improvements related to a house other than the supporting infrastructure would be constructed within the homeland. A range of lot sizes from 2 to approximately 100 acres would be created, each with a specific homeland envelope of 1-5 acres. Outside the prescribed homeland, the remaining portion of the lot, known as "openland", will be

generally left in open space except for drives, trails, and utilities, subject to a conservation easement owned and managed by the Conservancy.

- **Visitor Accommodations.** A lodge and an expanded hacienda will be operated at the center of the ranch community. These facilities will provide lodging, meal service, meeting rooms, and other guest services for lodge and ranch guests. The hacienda, comprising the existing main ranch house and its guest house, will be remodeled and expanded to provide dining facilities and a total of 40 rooms. The lodge would be a 110-room full-service visitor accommodation facility located north of the hacienda overlooking San Francisquito Flat.

- **Ranch Center.** The ranch center will provide residential-serving uses such as a post office, grocery store, gas station, retail stores, and offices. In addition, a portion of the inclusionary houses (eight units) would be accommodated within the ranch center.

- **Conservancy.** The conservancy will provide a library, gallery, meeting rooms, multipurpose room, and administration building.

- **Open Space.** Open space refers to the approximately 18,000 acres, which will be set aside as "preserve lands" *by conveyances of fee title ("wildlands") and conservation easements ("homelands") to the Conservancy* and maintained through a resource management plan to safeguard the natural resources of the site. The resource management plan includes measures to protect resources during project implementation and in perpetuity. The resource plan was developed based on an inventory of resources, a forest management plan, fire safety management plan, and a cattle grazing plan, herein incorporated by reference.

- **Recreational Facilities.** Recreational facilities will consist of resident-serving facilities such as a sporting center with swimming and tennis facilities, located near the ranch center; an employee recreation center, with a play field, swimming pool, basketball court, tot lot, picnic facilities, and 2,000-square-foot multipurpose building located adjacent to the junction of Rancho San Carlos Road and Robinson Canyon Road; and an equestrian center including stables, arenas, and paddocks, located adjacent to the sporting center.

- **Golf Trail.** The proposed golf trail involves an 18-hole course that is organized on a 5.5-mile single loop trail, which begins and ends at the proposed golf clubhouse rather than the more traditional layout of two nines, each returning to the clubhouse area. The facility includes a 15,000-square-foot clubhouse and driving range that will be used solely by club members and their guests. The golf trail is anticipated to accommodate 15,000 rounds a year with a layout that allows the majority of the players to walk rather than use a golf cart. A caddy system will provide portage of clubs.

- **Service/Operations.** This use consists of ranch management, security, maintenance, and operations.

- **Public Trails.** Two public trails are proposed to be licensed to an appropriate public agency: a new public trail to link the Peñon Peak area with existing trails in Garland Ranch Regional Park and a segment of the proposed Carmel Valley trail, which would cross the northern edge of the site parallel to the Carmel River. Refer to Chapter 16, "Public Services and Utilities", for additional discussion of these trails. Specific alignments have not been identified and would require additional environmental review before they are constructed.

- **Tertiary Treatment Plant.** This use consists of a tertiary wastewater treatment plant. A tertiary treatment facility is included in the comprehensive development plan.

Combined Development Permits

At this time, the applicant is seeking entitlements to only those portions of the project site with the GMPAP and has submitted applications for combined development permits that cover 16,541 acres of Rancho San Carlos within the GMPAP area. The application for PC94067 includes:

- a vesting tentative map to create 266 lots and 31 parcels;

- a rezoning of portions of the Santa Lucia Preserve within the GMPAP;

- general development plans for portions of the GMPAP area where residential serving commercial, recreational facilities, and visitor accommodations are planned;

- major use permit for some nonresidential uses provided for in the GMPAP, including tertiary treatment plant, tree removal, and limited development on slopes in excess of 30%;

A separate combined development permit application for the golf trail (PC94218) includes three use permits for:

- a golf trail, practice range, clubhouse, and tree removal;
- ridgeline development for the clubhouse; and
- reduction in parking requirements.

ALTERNATIVES

Alternatives Evaluated

A broad range of alternatives was considered for this project, and alternatives were screened based on project objectives and reducing significant impacts of the proposed project. The following five alternatives are evaluated and compared with the proposed project.

- **No-Lodge Alternative.** A lodge would not be developed under this alternative. All other elements of the proposed project within the GMPAP would remain the same, including development of 297 residential units, 40 guest units in the hacienda, ranch center, sporting center, equestrian center, and employee recreation center, golf trail, and the preserve.

- **Reduced-Lodge Alternative.** This alternative would reduce the lodge from a 110-room full service visitor accommodation to 50 guest bungalows with no central facilities and would develop 297 residential units, 40 guest units in the hacienda, a ranch center, equestrian center, employee recreation center, a golf trail, and a preserve.

- **No-Project Alternative (Maintenance of Existing Condition).** This alternative assumes continuation of the present management at Rancho San Carlos. Under this alternative, residential, visitor-serving, commercial, and recreational facilities would not be developed, and resource management plans would not be implemented.

- **No-Golf Trail Alternative.** The proposed golf trail would not be developed under this alternative. All other elements of the project within the GMPAP would remain the same, including development of 297 residential units; a 110-unit full service lodge; 40 guest units in the hacienda; ranch center, sporting center, equestrian center, employee recreation center, and the preserve.

- **No-Project Alternative (Existing Lots of Record).** This alternative involves developing the existing lots of record plus the additional lots that could be created by the subdivision of those existing lots in excess of 320 acres for a total of approximately 363 lots. This alternative is based on the assumption that 363 residential units initially would be built, although there would no mechanism to prevent future subdivision or rezoning; no commercial, visitor-serving, or recreational facilities would be developed under this alternative; resource management plans would not be implemented, and no preserve would be created.

Environmentally Superior Alternative

Of the alternatives evaluated in this draft EIR, the No-Golf Trail Alternative is considered the environmentally superior alternative.

IMPACTS OF THE PROPOSED PROJECT

Beneficial Impacts

Several beneficial impacts would result from the implementation of the proposed project

- Generation of construction-related employment
- Generation of operations-related employment
- Increased groundwater recharge through implementation of the Cattle Grazing Plan
- Improvement of grassland and oak savanna habitats
- Reduction in extent of invasive exotic plant species

Less-than-Significant Impacts

Several issues and potential impacts were evaluated in the Notices of Preparation for this EIR and were determined by the county not to be significant (Appendix A). Additionally, the following potential impacts were evaluated in this EIR and were determined to be less than significant.

Land Use

- Potential incompatibility of proposed land uses with existing or planned land uses onsite
- Potential inconsistency of proposed land uses with existing land use and zoning designations
- Potential incompatibility with adjacent land uses
- Potential inconsistency with relevant plans and policies

Population and Housing

- Increased population exceeding AMBAG projections for unincorporated area of Monterey County
- Increased need for housing

Economics

- No change in Monterey County's jobs/housing balance

Geology and Minerals

- Change in topography/ground surface relief
- Potential increased earthquake activity due to groundwater withdrawal and consequent potential structural damage and threat to public safety
- Potential geologic hazards associated with the golf trail and clubhouse
- Extraction of dimension stone and aggregate

Soils

- Potential damage to structures and underground utilities caused by soil expansion-contraction or poor load-bearing capacity
- Potential water quality degradation or human health hazard due to onsite septic system failure
- Possible failure of structures and utilities due to soil erosion

Groundwater Hydrology, Stream Base Flow, and Water Supply and Demand

- Potential groundwater overdraft if water demand exceeds groundwater supply
- Localized local and short-term water-level drawdowns near pumping wells

- Long-term decreases in groundwater levels
- Minor reduction in subsurface outflow
- Decrease in water supply in offsite areas resulting from decreased subsurface and surface outflow
- Degradation of wetlands caused by groundwater pumping

Runoff, Flooding, and Water Quality

- Increased temperatures in base flow reaches as a result of groundwater pumping
- Potential for accumulation of salts in soils receiving reclaimed wastewater

Fisheries

- Increased water temperature resulting from loss of riparian vegetation
- Potential reduction of fisheries habitat in Hitchcock Canyon and Robinson Canyon

Biological Resources

- Potential loss or degradation of 24.7 acres (1.6%) of chaparral
- Potential loss or degradation of 28.5 acres (1.3%) of scrub
- Potential loss or degradation of 235.4 acres (9.0%) of annual grassland
- Potential loss or degradation of 5.6 acres (0.5%) of redwood forest
- Potential loss or degradation of 2.6 acres (0.5%) of mixed evergreen forest
- Potential loss or degradation of *6.2* ~~11.3~~ acres *(0.5%)* ~~(0.7%)~~ of riparian habitat
- Loss or disturbance of *5.4* ~~5.82~~ acres (3%) of herbaceous wetlands
- Loss or degradation of 0.1 acre (0.2%) of other vegetated types
- Loss or degradation of 19.7 acres (8.2%) of other nonvegetated types
- *Potential loss or disturbance to special-status plants from fuel modification activities*

- Potential disturbance to Gairdner's yampah populations
- Loss of 173 acres (5%) of potential Cooper's hawk breeding habitat
- Loss of 601 acres (11%) of grasslands and oak savannas, including potential golden eagle and American badger foraging habitat
- Loss of 268.5 acres (8%) of short-grass grassland, including potential burrowing owl and California horned lark breeding and foraging habitat
- Loss of 6 acres (<1%) of redwood forest, including potential California spotted owl and Townsend's western big-eared bat breeding, roosting, and foraging habitat
- Loss of 14 acres (<1%) of potential long-eared owl breeding, roosting, and foraging habitat
- Loss of 592.4 acres (5%) of oak woodland habitat, including potential purple martin and pallid bat breeding habitat
- Loss of 4 acres (1%) of riparian woodland, potential yellow warbler, and yellow-breasted chat breeding habitat
- Potential loss of silvery legless lizard habitat
- Loss of 326 acres (3%) of oak woodland and chaparral, including potential Monterey dusky-footed woodrat habitat

Aesthetics

- Changes in views south from Robinson Canyon Road
- Changes in other views from Robinson Canyon Road
- Changes in views from private residences
- Changes in views of the ~~quarry~~ *borrow* site from public viewing areas
- Changes in views from public trails

Traffic

- Increased traffic volume on Robinson Canyon Road

Climate and Air Quality

- Increase in CO concentrations during project operation
- Increase in ROG, NO_x, and PM10 emissions during project operation under future with-GMPAP conditions
- Increase in ROG, NO_x, and PM10 emissions during project operation under future with-buildout conditions
- Odor generation due to operation of the wastewater treatment plant
- Potential conflict with the MBUAPCD 1994 AQMP

Noise

- Exposure of existing residents to noise from aggregate mining operations
- Exposure of new residents to noise from aggregate mining operations
- Exposure of wildlife to noise from aggregate mining operations
- Exposure of residents to noise from construction activities
- Exposure of existing noise-sensitive land uses to increased traffic noise
- Exposure of surrounding land uses to noise from new residences and other facilities
- Exposure of new residents to noise from the gun club

Public Services and Utilities

- Increased demand for county services
- Consistency with LAFCO groundwater standards
- Consistency with other LAFCO groundwater standards for the evaluation of proposals
- Increased wastewater generation
- Increased generation of sludge
- Increased amount of wastewater for disposal
- Increased demand for water service
- Increased generation of solid waste
- Potential increased demand for additional police officers
- Increased potential for fire hazard
- Increased water demand for firefighting
- Need for additional medical response service
- Increased demand for electricity
- Increased demand for telephone service
- Increased demand for cable television
- Need for recreational trails

Social Effects

- Compatibility with social characteristics of adjacent areas
- Compatibility with social characteristics of Carmel-by-the-Sea

Cultural Resources

- Potential changes or modifications to historic structures

Cumulative Impacts

- Conversion of open space to urban development
- Cumulative consumption of aggregate and Carmel stone
- *Increased consumptive use of the groundwater aquifer at the project site*
- Increased consumptive use of Carmel Valley aquifer
- Ongoing cumulative loss and degradation of regional native communities and associated wildlife habitats
- *Increased traffic from auxiliary units*
- *Increased traffic associated with the New Los Padres Dam*
- Increased emissions equal to and 29 ppd PM10
- Imperceptible increase in noise levels
- Cumulative demand for fire protection
- Cumulative generation of solid waste
- Potential degradation or loss of important cultural resources

Significant Impacts

The following impacts were determined to be significant and could be reduced to a less-than-significant level if the mitigation measures recommended in this draft EIR are implemented.

Geology and Minerals

- Possible disruption and destruction of a limited paleontological resource resulting from site grading
- Potential structural damage and threat to public safety resulting from fault displacement during a seismic event
- Potential structural damage and threat to public safety resulting from ground shaking during a seismic event
- Potential structural damage and threat to public safety resulting from landsliding or other slope failure
- Potential structural damage and threat to public safety resulting from earthquake-induced liquefaction and lateral spreading

Soils

- Potential accelerated erosion, sedimentation, and reduction in soil productivity and revegetation potential
- Vegetation removal and potential accelerated soil erosion and sedimentation caused by establishment of a new *borrow area* ~~quarry~~
- Potential accelerated soil erosion and sedimentation caused by development on slopes in excess of 30%

Groundwater Hydrology, Stream Base Flow, and Water Supply and Demand

- Water supply shortage because of overestimated well yields
- Induced seepage losses from creeks and substantial depletion of dry-season base flow
- Decreased long-term or drought-period base flow in creeks
- Direct mortality of established riparian vegetation caused by dewatering of plant roots
- Long-term decrease in the total area of riparian vegetation caused by decreased reproductive success

Runoff, Flooding, and Water Quality

- Increased stormwater runoff
- Potential for increased flooding on the Carmel River
- Degradation of surface water and groundwater quality due to nonpoint sources discharges at the following: golf trail, equestrian facilities, wastewater facility, individual septic systems, and nuisance runoff
- Degradation of surface water quality due to construction activities
- Degradation of surface water quality due to removal of riparian vegetation
- Degradation of water quality in creeks and their receiving waters due to increased urban pollutant loadings

Fisheries

- Potential for acute and chronic toxicity to fisheries and reduced fish productivity
- Reduced spawning and habitat conditions resulting from increased sedimentation
- Potential reduction in Potrero Canyon, Las Garzas Creek, San Clemente Creek, and San Jose Creek fisheries resulting from groundwater extraction
- Reduced habitat conditions resulting from increased turbidity and sedimentation

Biological Resources

- Potential loss or degradation of 574.7 acres (5.8%) of oak woodlands and savannas
- Potential loss or degradation of 26.6 acres (5%) of coastal terrace prairie
- Construction-induced disruption of nesting Cooper's hawks
- Construction-induced disruption of nesting golden eagles
- Potential loss of approximately 229 landmark trees
- Potential adverse effect on riparian vegetation resulting from changes in groundwater hydrology

Aesthetics

- Changes in views north from the intersection of Robinson Canyon Road and Rancho San Carlos Road

Traffic

- Increased traffic volume on Segment 6 of Carmel Valley Road, which is operating at a LOS worse than the 1986 level
- Degradation of LOS at the intersection of Carmel Valley Road and Rancho San Carlos Road
- Addition of traffic volume to the intersection of Highway 1 and Carmel Valley Road, which is operating at LOS F
- Increase in V/C by more than 1% at the intersection of Highway 1 and Rio Road, which is operating at LOS E
- Increased traffic hazards resulting from addition of construction trucks to Rancho San Carlos Road
- Increased traffic hazards resulting from additional traffic volumes on Rancho San Carlos Road
- Increase in V/C by more than 1% at the intersections of Highway 1 with Carpenter Street and Rio Road, which are operating at LOS E
- Increase in V/C by more than 1% at the intersection of Highway 1 and Rio Road, which is operating at LOS E
- Degradation of LOS at the intersection of Highway 1 and Carpenter Street

Climate and Air Quality

- Potential increase in PM10 emissions during project construction
- Generation of odors due to operation of the portable asphalt batch plant
- Odor generation due to operation of the proposed equestrian center

Public Services

- Potential for increased demand for schools

Cultural Resources

- Unanticipated impacts on prehistoric and historic resources from construction and construction-related activities
- Potential damage to or destruction of prehistoric archaeological sites CA-MNT-1481, -1482, and -1483 from construction
- Potential damage to or destruction of prehistoric archaeological sites CA-MNT-1481, 1482, -1484, -1485, -1486/H, -1702, and -1704 from road improvements
- Potential damage to or destruction of prehistoric archaeological site CA-MNT-1700
- Damage to historic district from new construction
- Potential impact on San Francisquito Adobe from demolition of garage
- Potential damage to or destruction of known and unknown historic archaeological and architectural resources from construction
- Potential damage to or destruction of unknown historic archaeological and architectural resources from land management activities
- Potential damage to or destruction of cultural sites from grazing
- Potential damage to or destruction of known prehistoric archaeological or historic-period resources from incidental project activities and vandalism

Cumulative Impacts

- Increased sediment loads in the Carmel River
- Increased floodflows on the Carmel River
- Potential degradation of Carmel River water quality
- Cumulative demand for law enforcement
- Cumulative increased demand for schools

Significant and Unavoidable Impacts

All significant impacts can be reduced to less-than significant levels through implementation of mitigation measures specified in this EIR. Therefore, unless a mitigation measure is determined infeasible or otherwise not implemented, no significant and unavoidable impacts would occur.

SUMMARY OF IMPACTS AND MITIGATION MEASURES

Table S-1 at the end of this chapter summarizes the impacts and mitigation measures of the proposed project.

OTHER IMPACT CONCLUSIONS

Growth Inducement

The proposed project is not considered to be growth inducing for several reasons. This project is not expected to foster population growth or a need for additional housing due to its relatively self-contained nature. The project objective is to establish a permanent preserve for native plants and wildlife habitat while pursuing limited and sustainable development. The project is designed as a community within a preserve and includes a fixed number of new residents and services designed to support only those residents, not additional population growth. Further, the Monterey County Board of Supervisors has adopted Resolution No. 93-115 restricting development to a maximum of 350 residential units.

Additionally, the project is not expected to generate substantial economic growth and would not remove obstacles to additional development in the area. The sizing of all infrastructure would be based on the proposed project and is consistent with Board Resolution No. 93-115.

Areas of Known Controversy

The proposed project is considered somewhat controversial because it is opposed by the adjacent property owner, who *leases cabin sites* rents cabins south of the project area. The property owner opposes the project because he believes the project could degrade the aesthetic value and natural ecosystem of the area, have an adverse effect on his rental business, and cause safety conflicts in the project vicinity. Additionally, the project would increase the demand for groundwater, which is a concern for existing users and stewards of the Carmel Valley Aquifer, *and increase traffic on Carmel Valley Road. Opinions regarding needed improvements on this roadway vary greatly.*

Impact	Level of Significance	Mitigation Measure	Level of Significance with Mitigation Measure
LAND USE			
Potential Incompatibility of Proposed Land Uses with Existing or Planned Land Uses Onsite	Less than significant	None required	Less than significant
Potential Inconsistency of Proposed Land Uses with Existing Land Use and Zoning Designations	Less than significant	None required	Less than significant
Potential Incompatibility with Adjacent Land Uses	Less than significant	None required	Less than significant
Potential Inconsistency with Relevant Plans and Policies	Less than significant	None required	Less than significant
POPULATION AND HOUSING			
Increased Population Exceeding AMBAG Projections for Unincorporated Area of Monterey County	Less than significant	None required	Less than significant
Increased Need for Housing	Less than significant	None required	Less than significant
ECONOMICS			
Generation of Construction-Related Employment	Beneficial	None required	Beneficial
Generation of Operations-Related Employment	Beneficial	None required	Beneficial
No Change in Monterey County's Jobs/Housing Balance	Less than significant	None required	Less than significant
GEOLOGY AND MINERALS			
Change in Topography/Ground Surface Relief	Less than significant	None required	Less than significant
Possible Disruption and Destruction of a Limited Paleontological Resource Resulting from Site Grading	Significant	*1:* Implement a paleontological site mitigation plan	Less than significant
Potential Structural Damage and Threat to Public Safety Resulting from Fault Displacement during a Seismic Event	Significant	*2:* Establish 50- or 100-foot (depending on the degree of fault trace definition) habitable structure setbacks from fault lines	Less than significant
		3: Provide sufficient setback from additional faults or provide a mat or other engineered foundation	
Potential Structural Damage and Threat to Public Safety Resulting from Ground Shaking during a Seismic Event	Significant	*4:* Design and construct new buildings in accordance with current standards of earthquake-resistant construction	Less than significant

Impact	Level of Significance	Mitigation Measure	Level of Significance with Mitigation Measure
Potential Increased Earthquake Activity Due to Groundwater Withdrawal and Consequent Potential Structural Damage and Threat to Public Safety	Less than significant	None required	Less than significant
Potential Structural Damage and Threat to Public Safety Resulting from Landsliding or Other Slope Failure	Significant	*5.* Provide 50-foot building envelope setbacks from the base of slopes, dormant or active landslide scarps, stream cutbanks, erosion gullies, and steep slopes for Lots 8, 188, and 247	Less than significant
		6. Provide setbacks from unstable slopes for additional lots or implement appropriate engineering design as required	
		~~Provide setbacks for Lots 194 to 200 if required based on additional field investigations at the Potrero fault trace/landslide slip surface~~	
		7. Prepare contingency plan that provides alternative access routes	
Potential Structural Damage and Threat to Public Safety Resulting from Earthquake-Induced Liquefaction and Lateral Spreading	Significant	*8.* Use appropriate engineering techniques to reduce liquefaction hazard	Less than significant
		~~Avoid development in areas of liquefaction potential or use appropriate engineered foundation~~	
Potential Geologic Hazards Associated with the Golf Trail Clubhouse	Less than significant	None required	Less than significant
Extraction of Dimension Stone and Aggregate	Less than significant	None required	Less than significant
		SOILS	
Potential Accelerated Erosion, Sedimentation, and Reduction in Soil Productivity and Revegetation Potential	Significant and beneficial	*9.* Implement erosion control plans ~~preliminary erosion control report, golf trail geological report, golf trail erosion and sedimentation control plan~~	Less than significant and beneficial
		10. Monitor effectiveness and modify erosion control measures as necessary	
Potential Damage to Structures and Underground Utilities Caused by Soil Expansion-Contraction or Poor Load-Bearing Capacity	Less than significant	None required	Less than significant
Possible Failure of Structures and Utilities Due to Soil Corrosion	Less than significant	None required	Less than significant
Potential Water Quality Degradation or Human Health Hazard Due to Onsite Septic System Failure	Less than significant	None required	Less than significant

Impact	Level of Significance	Mitigation Measure	Level of Significance with Mitigation Measure
Vegetation Removal and Potential Accelerated Soil Erosion and Sedimentation Caused by Establishment of a New *Borrow Area* ~~Quarry~~	Significant	*11:* Prepare an erosion and sediment control/revegetation plan for new borrow area	Less than significant
Potential Accelerated Soil Erosion and Sedimentation Caused by Development on Slopes in Excess of 30%	Significant	*9:* Implement erosion control plans	Less than significant
GROUNDWATER HYDROLOGY, STREAMS BASE FLOW, AND WATER SUPPLY AND DEMAND			
Water Supply Shortage Because of Overestimated Well Yields	Significant	*12:* Maintain a water supply equal to or greater than connected water demand at all times	Less than significant
Potential Groundwater Overdraft if Water Demand Exceeds Groundwater Supply	Less than significant	None required	Less than significant
Increased Groundwater Recharge through Implementation of the Cattle Grazing Plan	Beneficial	None required	Beneficial
Localized Local and Short-Term Water-Level Drawdowns near Pumping Wells	Less than significant	None required	Less than significant
Long-Term Decreases in Groundwater Levels	Less than significant	None required	Less than significant
Induced Seepage Losses from Creeks and Substantial Depletion of Dry-Season Base Flow	Significant	*13:* Monitor groundwater levels	Less than significant
		14: Delay pumping at wells near base flow reaches	
		15: Drill new wells away from base flow reaches	
Decreased Long-Term or Drought-Period Base Flow in Creeks	Significant	*16:* Monitor base flow in creeks and provide supplemental water if necessary	Less than significant
Minor Reduction in Subsurface Outflow	Less than significant	None required	Less than significant
Direct Mortality of Established Riparian Vegetation Caused by Dewatering of Plant Roots	Significant	*14:* Delay pumping at wells near base flow reaches	Less than significant
		15: Drill new wells away from base flow reaches	
Long-Term Decrease in the Total Area of Riparian Vegetation Caused by Decreased Reproductive Success	Significant	*17:* Monitor riparian vegetation and maintain total area of riparian vegetation	Less than significant
Degradation of Wetlands Caused by Groundwater Pumping	Less than significant	None required	Less than significant
Decrease in Water Supply in Offsite Areas Resulting from Decreased Subsurface and Surface Outflow	Less than significant	None required	Less than significant

Impact	Level of Significance	Mitigation Measure	Level of Significance with Mitigation Measure
RUNOFF, FLOODING, AND WATER QUALITY			
Increased Temperatures in Base Flow Reaches as a Result of Groundwater Pumping	Less than significant	None required	Less than significant
Increased Stormwater Runoff	Significant	*18:* Implement best management practices to attenuate floodflows	Less than significant
Potential for Increased Flooding on the Carmel River	Significant	*19:* Design and implement stormwater runoff BMPs so that flooding in the Carmel Valley is not aggravated	Less than significant
Degradation of Surface Water and Groundwater Quality Due to Nonpoint Sources Discharges at the Following: Golf Trail, Equestrian Facilities, Wastewater Facility, Individual Septic Systems, and Nuisance Runoff	Significant	*20:* Implement nitrate monitoring program	Less than significant
Degradation of Surface Water Quality Due to Construction Activities	Significant	*21:* Develop and implement stormwater pollution prevention plan	Less than significant
Degradation of Surface Water Quality Due to Removal of Riparian Vegetation	Significant	*22:* Limit removal of riparian vegetation, revegetate affected areas, and protect vegetation in areas adjacent to protected base flow reaches	Less than significant
Degradation of Water Quality in Creeks and Their Receiving Waters Due to Increased Urban Pollutant Loadings	Significant	*23:* Implement BMPs to control urban pollutants	Less than significant
Potential for Accumulation of Salts in Soils Receiving Reclaimed Wastewater	Less than significant	None required	Less than significant
Increased Infiltration, Increased Base Flows, and Decreased Floodflows as a Result of Implementing the Cattle Grazing Plan	Beneficial	None required	Beneficial
FISHERIES			
Potential for Acute and Chronic Toxicity to Fisheries and Reduced Fish Productivity	Significant	*24:* Implement appropriate construction practices *9:* Implement erosion control plans *21:* *Develop and implement stormwater pollution prevention plan*	Less than significant
Reduced Spawning and Habitat Conditions Resulting from Increased Sedimentation	Significant	*25:* Minimize sediment-laden runoff that enters creeks *9:* Implement erosion control plans	Less than significant
Increased Water Temperature Resulting from Loss of Riparian Vegetation	Less than significant	None required	Less than significant

Impact	Level of Significance	Mitigation Measure	Level of Significance with Mitigation Measure
Potential Reduction in Potrero Canyon, Las Garzas Creek, San Clemente Creek, and San Jose Creek Fisheries Habitat Resulting from Groundwater Extraction	Significant	*14.* Delay pumping at wells near base flow reaches	Less than significant
		15. Drill new wells away from base flow reaches	
		16. Monitor base flow in creeks and provide supplemental water if necessary	
Potential Reduction of Fisheries Habitat in Hitchcock Canyon and Robinson Canyon	Less than significant	None required	Less than significant
Reduced Habitat Conditions Resulting from Increased Turbidity and Sedimentation	Significant	*26.* Implement drainage plan	Less than significant
		9. Implement erosion control plans	
BIOLOGICAL RESOURCES (PLANTS AND ANIMALS)			
Potential Loss or Degradation of 574.7 Acres (5.8%) of Oak Woodlands and Savannas	Significant	*27.* Enhance oak woodland and savanna habitat by planting oak species removed onsite	Less than significant
Potential Loss or Degradation of 24.7 Acres (1.6%) of Chaparral	Less than significant	None required	Less than significant
Potential Loss or Degradation of 28.5 Acres (1.3%) of Scrub	Less than significant	None required	Less than significant
Potential Loss or Degradation of 235.4 Acres (9.0%) of Annual Grassland	Less than significant	None required	Less than significant
Potential Loss or Degradation of 26.6 Acres (5%) of Coastal Terrace Prairie	Significant	*28.* Modify grazing regime to increase the density of native grasses in annual grassland	Less than significant
Potential Loss or Degradation of 5.6 Acres (0.5%) of Redwood Forest	Less than significant	*29.* Enhance redwood forest by planting redwoods onsite	Less than significant
Potential Loss or Degradation of 2.6 Acres (0.5%) of Mixed Evergreen Forest	Less than significant	None required	Less than significant
Potential Loss or Degradation of *6.2* ~~11.3~~ Acres *(0.5%)* ~~(0.7%)~~ of Riparian Habitats	Less than significant	*30.* Enhance or restore degraded riparian habitat	Less than significant
Loss or Disturbance of *5.4* ~~5.82~~ Acres (3%) of Herbaceous Wetlands	Less than significant	*31.* Enhance or replace lost and disturbed wetland habitat	Less than significant
Loss or Degradation of 0.1 Acre (0.2%) of Other Vegetated Types	Less than significant	None required	Less than significant
Loss or Degradation of 19.7 Acres (8.2%) of Other Nonvegetated Types	Less than significant	None required	Less than significant
Potential Loss or Disturbance to Special-Status Plants from Fuel Modification Activities	*Significant*	*32. Avoid special-status plant species occurrences when conducting fuel modification activities*	*Less than significant*

Impact	Level of Significance	Mitigation Measure	Level of Significance with Mitigation Measure
Potential Disturbance to Gairdner's Yampah Populations	Less than significant	*33.* Prevent disturbance to Gairdner's yampah populations during construction	Less than significant
		34. Control the introduction and spread of invasive exotic plants	
Loss of 173 (5%) Acres of Potential Cooper's Hawk Breeding Habitat	Less than significant	None required	Less than significant
Construction-Induced Disruption of Nesting Cooper's Hawks	Significant	*35.* Delay construction until the young have fledged	Less than significant
Loss of 601 Acres (9%) of Grasslands and Oak Savannas, Including Potential Golden Eagle and American Badger Foraging Habitat	Less than significant	None required	Less than significant
Construction-Induced Disruption of Nesting Golden Eagles	Significant	*35.* Delay construction until the young have fledged	Less than significant
Loss of 268.5 Acres (7%) of Short-Grass Grassland, Including Potential Burrowing Owl and California Horned Lark Breeding, Roosting, and Foraging Habitat	Less than significant	None required	Less than significant
Loss of 6 Acres (<1%) of Redwood Forest, Including Potential California Spotted Owl and Townsend's Western Big-Eared Bat Breeding, Roosting, and Foraging Habitat	Less than significant	None required	Less than significant
Loss of 14 Acres (<1%) of Potential Long-Eared Owl Breeding, Roosting, and Foraging Habitat	Less than significant	None required	Less than significant
Loss of 592.4 Acres (4%) of Oak Woodland Habitat, Including Potential Purple Martin and Pallid Bat Breeding Habitat	Less than significant	None required	Less than significant
Loss of 4 Acres (<1%) of Riparian Woodland, Including Potential Yellow Warbler and Yellow-Breasted Chat Breeding Habitat	Less than significant	None required	Less than significant
Potential Loss of Silvery Legless Lizard Habitat	Less than significant	None required	Less than significant
Loss of 326 Acres (3%) of Oak Woodland and Chaparral, Including Potential Monterey Dusky-Footed Woodrat Habitat	Less than significant	None required	Less than significant
Potential Loss of Approximately 229 Landmark Trees	Significant	*36.* Compensate for loss of landmark trees by planting in-kind onsite at a 5:1 replacement ratio	Less than significant
Potential Adverse Effect on Riparian Vegetation Resulting from Changes in Groundwater Hydrology	Significant	*17.* Monitor riparian vegetation and maintain total area of riparian vegetation	Less than significant
Improvement of Grassland and Oak Savanna Habitats	Beneficial	None required	Beneficial
Reduction in Extent of Invasive Exotic Plant Species	Beneficial	None required	Beneficial

Impact	Level of Significance	Mitigation Measure	Level of Significance with Mitigation Measure
		AESTHETICS	
Changes in Views South from Robinson Canyon Road	Less than significant	None required	Less than significant
Changes in Views North from the Intersection of Robinson Canyon Road and Rancho San Carlos Road	Significant	*37:* Relocate or redesign the ranch operations center and employee recreation center	Less than significant
Changes in Other Views from Robinson Canyon Road	Less than significant	None required	Less than significant
Changes in Views from Private Residences	Less than significant	None required	Less than significant
Changes in Views of the ~~Quarry~~ *Borrow* Site from Public Viewing Areas	Less than significant	None required	Less than significant
Changes in Views from Public Trails	Less than significant	None required	Less than significant
Potential Impact of the Golf Trail Clubhouse on Ridgeline Development	Less than significant	None required	Less than significant
Changes in Views Caused by Development of Roadway on Slopes in Excess of 30%	Less than significant	None required	Less than significant
		TRAFFIC	
Existing plus Approved Projects plus CDP-GMPAP			
Increased Traffic Volume on Segment 6 of Carmel Valley Road, Which Is Operating at a LOS Worse than the 1986 Level	Significant	*38:* Contribute to the traffic mitigation fund for Carmel Valley Road	Less than significant
Degradation of LOS at the Intersection of Carmel Valley Road and Rancho San Carlos Road from LOS D to LOS E during the A.M. Peak Hour, and from LOS E to LOS F during the P.M. Peak Hour	Significant	*39:* Add a left-turn acceleration lane on Carmel Valley Road for the northbound to eastbound left-turning vehicles and extend the eastbound right-turn lane	Less than significant
		(Alternative) 40: Contribute to a fund for signalizing the intersection of Carmel Valley Road and Rancho San Carlos Road or constructing an overpass for the northbound left-turn movement	
Addition of Traffic Volume to the Intersection of Highway 1 and Carmel Valley Road, Which Is Operating at LOS F	Significant	*41: Contribute to the traffic mitigation fund for Highway 1* ~~Contribute its fair share toward improving Highway 1~~	Less than significant
Increase in V/C by More than 1% at the Intersection of Highway 1 and Rio Road, Which Is Operating at LOS E	Significant	*41:* Contribute to the traffic mitigation fund for Highway 1	Less than significant
Increased Traffic Volume on Robinson Canyon Road	Less than significant	None required	Less than significant

Impact	Level of Significance	Mitigation Measure	Level of Significance with Mitigation Measure
Increased Traffic Hazards Resulting from Addition of Construction Trucks to Rancho San Carlos Road	Significant	*43:* Develop and implement a traffic control plan for the construction site	Less than significant
Increased Traffic Hazards Resulting from Additional Traffic Volumes on Rancho San Carlos Road	Significant	*44:* Improve Rancho San Carlos Road and existing bridge across Carmel Valley River, to conform with the county and CDF standards	
		45: Provide adequate sight distance, and install appropriate traffic control devices	Less than significant
Existing plus Approved Projects plus Buildout			
Increased Traffic Volume on Segment 6 of Carmel Valley Road, Which Is Operating at a LOS Worse than Its 1986 Level	Significant	*38:* Contribute toward the traffic mitigation fund for Carmel Valley Road	Less than significant
Degradation of LOS at the Intersection of Carmel Valley Road and Rancho San Carlos Road from LOS D to LOS E during the A.M. Peak Hour and from LOS E to LOS F during the P.M. Peak hour	Significant	*39:* Add a left-turn acceleration lane on Carmel Valley Road for the northbound to westbound left-turning vehicles and extend the eastbound right-turn lane	Less than significant
		(Alternative) 40: Contribute to a fund for signalizing the intersection of Carmel Valley Road and Rancho San Carlos Road or constructing an underpass for the northbound left-turn movement	
Addition of Traffic Volume to the Intersection of Highway 1 and Carmel Valley Road, Which Is Operating at LOS F	Significant	*41:* Contribute *to the traffic mitigation fund for Highway 1* ~~its fair share toward improving Highway 1~~	Less than significant
Increase in V/C by More than 1% at the Intersections of Highway 1 with Carpenter Street and Rio Road, Which are Operating at LOS E	Significant	*41:* Contribute to the traffic mitigation fund for Highway 1	Less than significant
Increased Traffic Volume on Robinson Canyon Road	Less than significant	None required	Less than significant
Increased Traffic Hazards Resulting from Addition of Construction Trucks to Rancho San Carlos Road	Significant	*43:* Develop and implement a traffic control plan for the construction site	Less than significant
Increased Traffic Hazards Resulting from Additional Traffic Volumes on Rancho San Carlos Road	Significant	*45:* Provide adequate sight distance, and install appropriate traffic control devices	Less than significant
Existing plus Approved and Proposed Projects plus CDP-GMPAP			
Increased Traffic Volume on Segment 6 of Carmel Valley Road, Which Is Operating at a LOS Worse than Its 1986 Level	Significant	*38:* Contribute toward the traffic mitigation fund for Carmel Valley Road	Less than significant
Addition of Traffic Volume to the Intersection of Carmel Valley Road and Rancho San Carlos Road, Which Is Operating at LOS F during the P.M. Peak Hour	Significant	*39:* Add a left-turn acceleration lane on Carmel Valley Road for the northbound to westbound left-turning vehicles and extend the eastbound right-turn lane	Less than significant

Impact	Level of Significance	Mitigation Measure	Level of Significance with Mitigation Measure
		(Alternative) *40:* Contribute to a fund for signalizing the intersection of Carmel Valley Road and Rancho San Carlos Road or constructing an underpass for the northbound left-turn movement	
Addition of Traffic Volume to the Intersection of Highway 1 and Carmel Valley Road, Which Is Operating at LOS F	Significant	*41:* Contribute *to the traffic mitigation fund for Highway 1* ~~its fair share toward improving Highway 1~~	Less than significant
Increase in V/C by More than 1% at the Intersections of Highway 1 and Rio Road, Which Is Operating at LOS E	Significant	*41:* Contribute *to the traffic mitigation fund for Highway 1* ~~its fair share toward improving Highway 1~~	Less than significant
Increased Traffic Volume on Robinson Canyon Road	Less than significant	None required	Less than significant
Increased Traffic Hazards Resulting from Addition of Construction Trucks to Rancho San Carlos Road	Significant	*43:* Develop and implement a traffic control plan for the construction site	Less than significant
Increased Traffic Hazards Resulting from Additional Traffic Volumes on Rancho San Carlos Road	Significant	*45:* Provide adequate sight distance, and install appropriate traffic control devices	Less than significant
Existing plus Approved and Proposed Projects plus Buildout			
Increased Traffic Volume on Segment 6 of Carmel Valley Road, Which Is Operating at a LOS Worse than Its 1986 Level	Significant	*38:* Contribute toward the traffic mitigation fund for Carmel Valley Road	Less than significant
Degradation of A.M. Peak-Hour LOS at the Intersection of Carmel Valley Road and Rancho San Carlos Road from LOS E to LOS F during the A.M. Peak Hour and from LOS E to LOS F during the P.M. Peak hour	Significant	*39:* Add a left-turn acceleration lane on Carmel Valley Road for the northbound to westbound left-turning vehicles and extend the eastbound right-turn lane, and operate an employee shuttle service	Less than significant
		(Alternative) *40:* Contribute to a fund for signalizing the intersection of Carmel Valley Road and Rancho San Carlos Road or constructing an underpass for the northbound left-turn movement	
Degradation of LOS at the Intersection of Highway 1 and Carpenter Street	Significant	*41:* Contribute *to the traffic mitigation fund for Highway 1* ~~its fair share toward improving Highway 1~~	Less than significant
Addition of Traffic Volume to the Intersection of Highway 1 and Carmel Valley Road, Which Is Operating at LOS F	Significant	*41:* Contribute toward the traffic mitigation fund for Highway 1	Less than significant
Increase in V/C by More than 1% at the Intersection of Highway 1 and Rio Road, Which Is Operating at LOS E	Significant	*41:* Contribute *to the traffic mitigation fund for Highway 1* ~~its fair share toward improving Highway 1~~	Less than significant
Increased Traffic Volume on Robinson Canyon Road	Less than significant	None required	Less than significant
Increased Traffic Hazards Resulting from Addition of Construction Trucks to Rancho San Carlos Road	Significant	*43:* Develop and implement a traffic control plan for the construction site	Less than significant

Impact	Level of Significance	Mitigation Measure	Level of Significance with Mitigation Measure
Increased Traffic Hazards Resulting from Additional Traffic Volumes on Rancho San Carlos Road	Significant	*45.* Provide adequate sight distance, and install appropriate traffic control devices	Less than significant
CLIMATE AND AIR QUALITY			
Potential Increase in PM10 Emissions during Project Construction	Significant	*46.* Implement PM10-reducing construction practices	Less than significant
		47. Phase construction so that estimated construction-related PM10 emissions fall below MBUAPCD daily thresholds	
Generation of Odors Due to Operation of the Portable Asphalt Batch Plant	Significant	*48.* Avoid operation of portable asphalt batch plant within 0.25 mile of an occupied sensitive odor receptor	Less than significant
Increase in CO Concentrations during Project Operation	Less than significant	None required	Less than significant
Increase in ROG, NO_x, and PM10 Emissions during Project Operation under Future with-GMPAP Conditions	Less than significant	None required	Less than significant
Increase in ROG, NO_x, and PM10 Emissions during Project Operation under Future with-Buildout Conditions	Less than significant	None required	Less than significant
Odor Generation Due to Operation of the Proposed Equestrian Center and Wastewater Treatment Plant	Significant	*49.* Employ odor-reducing design and implement odor-reducing maintenance practices for the expanded equestrian center	Less than significant
Potential Conflict with the MBUAPCD 1994 AQMP	Less than significant	None required	Less than significant
NOISE			
Exposure of Existing Residents to Noise from Aggregate Mining Operations	Less than significant	None required	Less than significant
Exposure of New Residents to Noise from Aggregate Mining Operations	Less than significant	None required	Less than significant
Exposure of Wildlife to Noise from Aggregate Mining Operations	Less than significant	None required	Less than significant
Exposure of Residents to Noise from Construction Activities	Less than significant	None required	Less than significant
Exposure of Existing Noise-Sensitive Land Uses to Increased Traffic Noise	Less than significant	None required	Less than significant
Exposure of Surrounding Land Uses to Noise from New Residences and Other Facilities	Less than significant	None required	Less than significant

Impact	Level of Significance	Mitigation Measure	Level of Significance with Mitigation Measure
Exposure of New Residents to Noise from the Gun Club	Less than significant	None required	Less than significant
		PUBLIC SERVICES AND UTILITIES	
Increased Demand for County Services	Less than significant	None required	Less than significant
Consistency with LAFCO Groundwater Standards	Beneficial	None required	Beneficial
Consistency with Other LAFCO Standards for the Evaluation of Proposals	Beneficial	None required	Beneficial
Increased Wastewater Generation	Less than significant	None required	Less than significant
Increased Generation of Sludge	Less than significant	None required	Less than significant
Increased Amount of Wastewater for Disposal	Beneficial	None required	Beneficial
Increased Demand for Water Service	Less than significant	None required	Less than significant
Increased Generation of Solid Waste	Less than significant	None required	Less than significant
Potential for Increased Demand for Schools	Significant	*50.* Implement school impact fees	Less than significant
		51. Implement a year-round elementary school	
		52. Reopen Carmelo School	
Potential Increased Demand for Additional Police Officers	Less than significant	None required	Less than significant
Increased Potential for Fire Hazard	Less than significant	None required	Less than significant
Increased Water Demand for Firefighting	Less than significant	None required	Less than significant
Need for Additional Medical Response Service	Less than significant	None required	Less than significant
Increased Demand for Electricity	Less than significant	None required	Less than significant
Increased Demand for Telephone Service	Less than significant	None required	Less than significant
Increased Demand for Cable Television	Less than significant	None required	Less than significant
Need for Recreational Trails	Beneficial	None required	Beneficial

Impact	Level of Significance	Mitigation Measure	Level of Significance with Mitigation Measure
		CULTURAL RESOURCES	
Unanticipated Impacts on Prehistoric and Historic Resources from Construction and Construction-Related Activities	Potentially significant	*53:* Avoid significant prehistoric and historic resources	Less than significant
Potential Damage to or Destruction of Prehistoric Archaeological Sites CA-MNT-1481, -1482, and -1483 from Construction	Significant	*54:* Conduct monitoring at site CA-MNT-1481	Less than significant
		55: Place fill on sites CA-MNT-1482 and -1483 and conduct data recovery for minor impacts	
Potential Damage to or Destruction of Prehistoric Archaeological Sites CA-MNT-1481, 1482, -1484, -1485, -1486/H, -1702, and -1704 from Road Improvements	Significant or Potentially significant	*56:* Construct road through site CA-MNT-1481 in existing location and maintain unimproved road through site CA-MNT-1482	Less than significant
		57: Incorporate avoidance procedures into final mitigation plan for sites CA-MNT-1481, -1482, -1484, -1485, -1486/H, and -1702	
		58: Conduct test excavations and conduct data recovery excavation for site CA-MNT-1704	
Potential Damage to or Destruction of Prehistoric Archaeological Site CA-MNT-1700	Significant	*59:* Monitor and conduct data recovery excavation for site CA-MNT-1700	Less than significant
	(Alternative)	*60: Avoid damage to prehistoric archaeological site CA-MNT-1700*	
Potential Changes or Modifications to Historic Structures	Less than significant	None required	Less than significant
Damage to Historic District from New Construction	Significant	*61:* Prepare historic American building survey photographic and written documentation	Less than significant
Potential Impact to San Francisquito Adobe from Demolition of Garage (Building Number 35)	Significant	*62:* Demolish garage by hand	Less than significant
Potential Damage to or Destruction of Known and Unknown Historic Archaeological and Architectural Resources from Construction	Significant	*63:* Conduct historical research and document historic archaeological and architectural resources	Less than significant
Potential Damage to or Destruction of Unknown Historic-Period Archaeological and Architectural Resources from Land Management Activities	Significant	*64:* Prepare historical sensitivity analysis and identify historically sensitive, unsurveyed areas	Less than significant
Potential Damage to or Destruction of Cultural Sites from Grazing	Significant	*65:* Cease grazing on sites CA-MNT-1484, -1485/H, -1486/H, -1487, and two adobe sites and place grazing improvements away from known cultural resources	Less than significant
Potential Damage to or Destruction of Known Prehistoric Archaeological or Historic-Period Resources from Incidental Project Activities and Vandalism	Significant	*66:* Develop long-term management and monitoring plan to protect prehistoric- and historic-period resources	Less than significant

Impact	Level of Significance	Mitigation Measure	Level of Significance with Mitigation Measure
Potential Damage to or Destruction of *Unknown* ~~Known~~ Prehistoric- or Historic-Period Resources *and Human Remains* ~~from Incidental Project Activities and Vandalism~~	Significant	67: *Stop work and consult with appropriate parties* ~~Develop long-term management and monitoring plan to protect prehistoric- and historic-period resources~~	Less than significant
SOCIAL EFFECTS			
Compatibility with Social Characteristics of Adjacent Areas	Less than significant	None required	Less than significant
Compatibility with Social Characteristics of Carmel-by-the-Sea	Less than significant	None required	Less than significant

Chapter 1. Introduction

This *final* ~~draft~~ environmental impact report (EIR) has been prepared pursuant to the California Environmental Quality Act (CEQA) and the State CEQA Guidelines. CEQA requires that all state and local government agencies consider the environmental consequences of projects over which they have discretionary authority before taking action on those projects.

The purpose of this EIR is to analyze the environmental effects of the proposed project and to identify measures and alternatives to the project that would reduce or avoid significant environmental impacts resulting from the project. CEQA requires that each public agency mitigate or avoid significant effects on the environment of projects it approves or implements, whenever it is feasible to do so.

The EIR must also disclose significant environmental effects that cannot be avoided, growth-inducing impacts, impacts found not to be significant, and significant cumulative impacts.

An EIR is an informational document used in the planning and decision-making process. It is not the purpose of the EIR to recommend either approval or denial of the project.

SCOPE OF THE EIR

Notice of Preparation

Two notices of preparation (NOP) for the draft EIR were prepared (one for the combined development permit which consists of a tentative map, General Development *Plans* ~~Permit~~, and Use Permits and the other for the combined development permit for the golf trail) by the Monterey County Planning and Building Inspection Department pursuant to Section 15082 of the State CEQA Guidelines. The NOPs and comments are included as Appendix A to this *final* ~~draft~~ EIR. The following agencies and individuals submitted comments on the NOP:

- California Regional Water Quality Control Board, Central Coast Region;
- Monterey Peninsula Water Management District;
- Monterey Bay Unified Air Pollution Control District;

- Association of Monterey Bay Area Governments;
- Monterey Peninsula Regional Park District;
- Monterey County Department of Health;
- Monterey County Water Resources Agency;
- Monterey County Local Agency Formation Commission;
- Monterey County Department of Public Works;
- Richard and Eleanor Avila;
- Dick Heuer;
- Bruce Dormody, San Clemente Rancho;
- Patrick L. Dormody; and
- Sierra Club, Ventana Chapter.

Issues Addressed

Based on the responses to the NOPs and a review of site conditions and the proposed project, the following issues are addressed in this EIR:

- project consistency with relevant plans and policies, including the Monterey County General Plan (GP), the Greater Monterey Peninsula Area Plan (GMPAP) and amendments including Monterey County Board of Supervisors Resolution No. 93-115, the Carmel Valley Master Plan (CVMP), the Carmel Area Land Use Plan, Local Coastal Program, and the Monterey County Regional Transportation Plan;

- socioeconomics, including the effects of population, housing, and economics associated with the proposed project;

- geology, minerals, and soils, including seismic, grading, and erosion impacts, and the effects *of* ~~on~~ the gravel quarries in the project vicinity;

- groundwater, including effects on the groundwater basin hydrology and water quality;

- surface water, including effects on drainage, runoff, and water quality;

- biological resources, including effects on vegetation, wildlife, fisheries, and special-status species;

- visual resources, including the changes in views from scenic highways and sensitive viewsheds;

- traffic, including the effects on state facilities, local roadways, and intersections;

- air quality, including the effects on the air basin and local sensitive receptors;
- noise, including the effects on existing land uses adjacent to the project site;
- public services, including the effects on water, wastewater, schools, parks, and recreation, electricity, fire protection, and law enforcement;
- cultural resources, including the effects on archaeological and historical artifacts in the area; and
- cumulative impacts.

APPROVAL PROCESS FOR THE PROPOSED PROJECT

The decision-making process for the proposed project involves three advisory or decision-making agencies. The subdivision committee is an advisory agency and will conduct a hearing to consider the combined development permit, the tentative map, and EIR. The committee will make a recommendation to approve or deny the project to the Monterey County Planning Commission, also an advisory agency for this project. The planning commission will conduct a hearing to consider the two combined development permits, the tentative map, and EIR and will then make a recommendation to the Monterey County Board of Supervisors. The board of supervisors, the decision-making agency, will conduct a hearing to consider the project and EIR and will then decide whether:

- to certify the EIR as legally adequate and
- to approve the project.

INTENDED USES OF THE EIR

This EIR will be used by the aforementioned committees and boards, including the subdivision committee, the planning commission and the board of supervisors, to provide information about the environmental impacts of the proposed project. In addition, the EIR will also be used by the County of Monterey in its discretionary approval processes for the project. The EIR will be reviewed by the following responsible and trustee agencies for the issuance of permits and for comments on the project's environmental impacts and mitigation measures:

- California Department of Transportation, which will review the EIR to assess impacts on state facilities;

- California Regional Water Quality Control Board, Central Coast Region, which will review the EIR to assess impacts on water quality and the project's compliance with water quality standards;

- California Coastal Commission, which has jurisdiction over resources in the coastal zone;

- California Department of Fish and Game (DFG), which will review the EIR to assess impacts on biological resources and as a basis to enter into a streambed alteration agreement if one is needed to implement the project;

- U.S. Army Corps of Engineers (Corps), which will review the EIR to assess impacts on jurisdictional wetlands (the proposed project may require a Section 404 permit to fill any jurisdictional wetlands onsite);

- U.S. Fish and Wildlife Service (USFWS), which will review the EIR to assess impacts on any federally listed species, candidate species, or species of special concerns (if the proposed project adversely affects these species, a permit from USFWS may be necessary to implement the proposed project);

- Monterey Bay Unified Air Pollution Control District (MBUAPCD), which will review the EIR to assess the proposed project's impacts on air quality and its consistency with the Air Quality Management Program for the Monterey Bay region;

- Monterey Peninsula Water Management District (MPWMD), which will review the EIR to assess impacts on water supply;

- Monterey County Local Agency Formation Commission (LAFCO), which will review the project for consistency with its policies for formation of county service areas;

- Monterey County Water Resources Agency (MCWRA), which will review the EIR to assess impacts on the groundwater basin hydrology and water quality and surface water drainage;

- Monterey County Health Department, which will review the EIR to determine whether an adequate water supply and wastewater treatment system will exist to serve the site;

- Monterey County Department of Parks, which will review the EIR to determine the impacts on parks and recreation; and

- Monterey County Department of Public Works, which will review the EIR to assess traffic impacts and sewage disposal.

- *Monterey Peninsula Regional Park District, which will review the EIR to assess the open space component of the comprehensive development plan and associated impacts.*

The EIR will also be used by interested individuals and groups to review the environmental impacts of the proposed project and recommended mitigation measures.

Chapter 2. Project Description

LOCATION

Regional Location

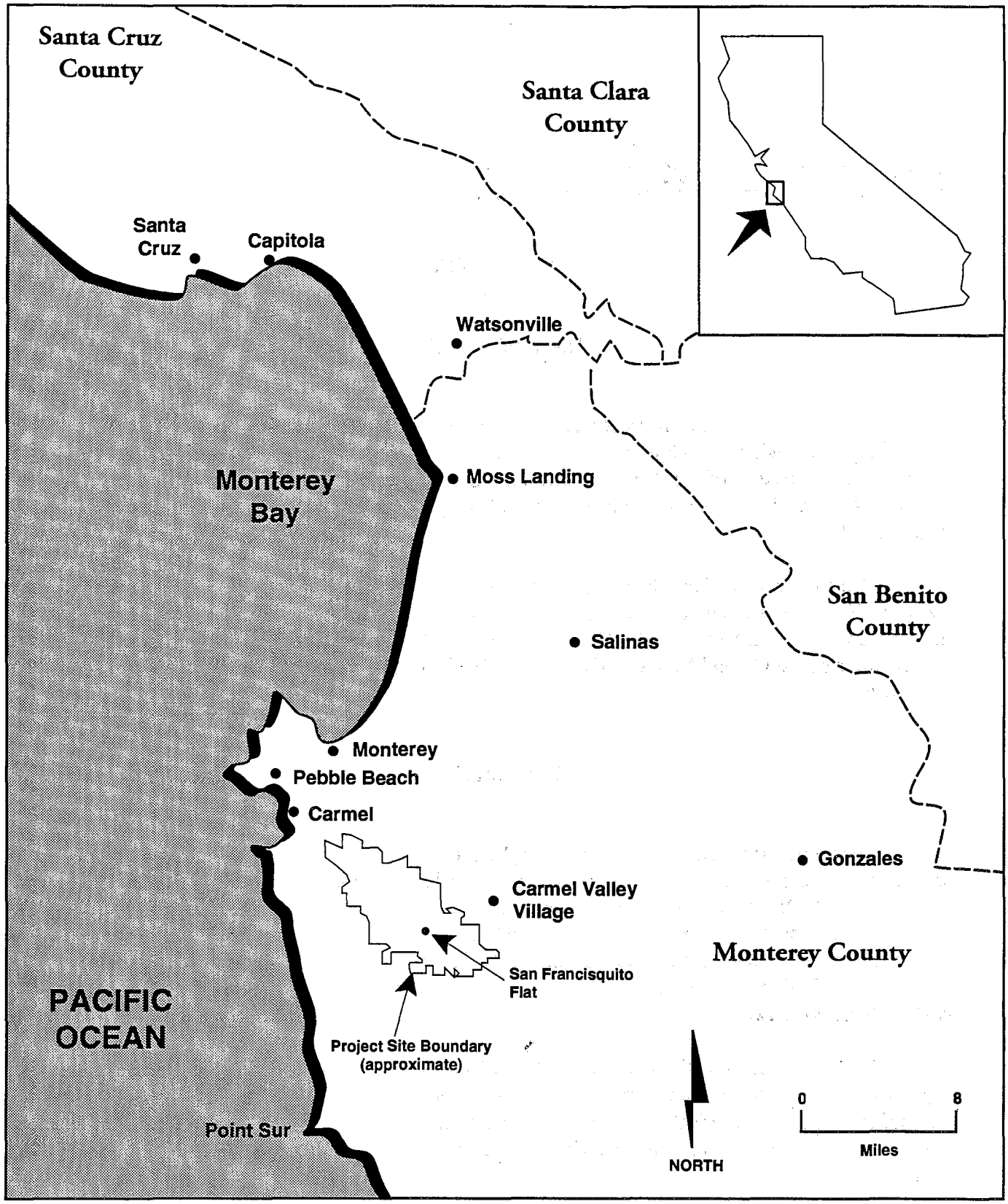
The project site, known as Rancho San Carlos, encompasses approximately 20,000 acres located in western Monterey County. The site is located approximately 2-10 miles south of Carmel Valley and 5 miles east of the Pacific Ocean (Figure 2-1). Rancho San Carlos Road and Robinson Canyon Road, which extend south from Carmel Valley Road, currently provide access to the site (Figure 2-2).

The project region has a varied topography of valleys, flat lands, rolling hills, and steep slopes, with San Francisquito Flat occupying the south-central portion of the project site. Topography on the site ranges in elevation from 3,000 feet along the southwest boundary to approximately 30 feet on the floor of the Carmel Valley in the north. The ridges and valleys generally trend northwest-southeast.

Site Location

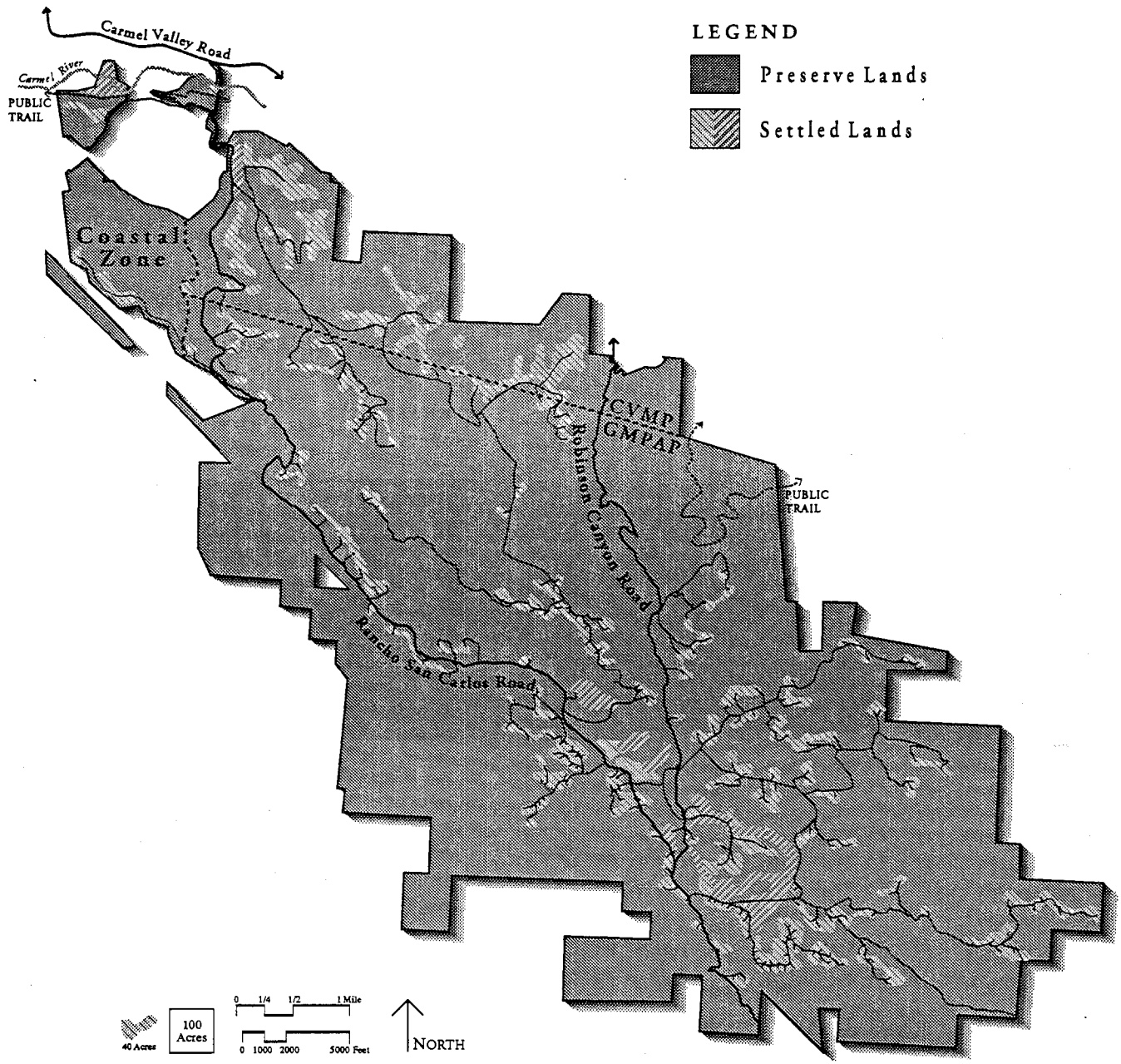
The project site is bounded by the Carmel Valley on the north and northeast and by relatively undeveloped land on all other sides, except for recreational development of approximately 200 cabins at San Clemente Rancho and White Rock Club to the south and southeast. The site encompasses a portion of the Santa Lucia Range southwest of the Carmel River. The property includes many of the drainage basins of Hitchcock Canyon, Las Garzas Creek, Potrero Canyon, Robinson Canyon, and San Clemente Creek, all tributaries of the Carmel River, and San Jose Creek, which flows into Carmel Bay just north of Point Lobos.

Lands surrounding the approximately 20,000-acre site have a variety of uses, including ranching, public and private recreation and open space, and residential and second-home development. Public and private recreation and open space uses surround the project site to the east and south, with the more urbanized lands located north of the site in the Carmel Valley (Figures 2-2 and 3-2).



Jones & Stokes Associates, Inc.

Figure 2-1
Regional Location



Source: Rancho San Carlos Partnership 1994a.

Jones & Stokes Associates, Inc.

Figure 2-2
The Santa Lucia Preserve

PROJECT OBJECTIVES

The Rancho San Carlos Partnership is the applicant, and its project objective is to secure approval for two combined development permits to create a project known as the Santa Lucia Preserve. The partnership seeks to establish a permanent preserve for native plant and wildlife habitat while pursuing limited development (e.g., housing, visitor-serving accommodations, commercial and recreation facilities) of the least environmentally sensitive land. The full plan proposes a maximum of 150 visitor-serving units; 297 market rate lots; 53 employee housing units; and commercial, equestrian, and recreational uses on 2,000 acres ("settled lands"). Open space/"preserve lands" constitute the remaining 17,815 acres of the site (Figure 2-2).

BACKGROUND

Over the past 4 years, the landowner, the Rancho San Carlos Partnership, has undertaken a comprehensive planning effort to inventory and understand the natural resources of the site. Following this analysis, the partnership devised a conceptual plan with the goals of placing a limited amount of development on the land and supporting the protection and enhancement of the natural resource systems.

In March 1993, the Monterey County Board of Supervisors, recognizing the unique natural and scenic resources of Rancho San Carlos, adopted Resolution No. 93-115, amending the GMPAP to designate that portion of the ranch included within the GMPAP area as a "Comprehensive Planned Use" area.

To carry out that designation, the board required that a comprehensive development plan be prepared for the entire site, which would include lands within the GMPAP area and those additional portions of land located outside the GMPAP area within the CVMP area and the CZ. Specifically, Board Resolution No. 93-115 states that:

- particular attention be given toward siting so that planning development is compatible with existing resources and adjacent land uses;
- the total density included in the entire comprehensive development plan does not exceed 150 visitor accommodation units and 350 single-family residential dwelling units; and
- the comprehensive development plan shall include an open space component specifically describing the manner in which at least 14,467 acres of Rancho San Carlos will be retained in perpetuity for grazing, recreation, and resource conservation.

Board Resolution No. 93-115 established the framework for the Rancho San Carlos Partnership to continue planning for the site in accord with the objectives of preserving the natural setting while providing for a limited amount of development. This framework resulted in the applicant's plan for a community preserve that includes the following components:

- 90% of the land, or approximately 18,000 acres, including the property's natural resources, is proposed to be set aside as "preserve lands" to maintain the vitality and character of the overall landscape; and

- 10% of the land, or approximately 2,000 acres, is proposed to be developed as "settled lands" for housing, recreation areas, and a community center.

Together, the "preserve lands" and the "settled lands" constitute the community preserve known as the Santa Lucia Preserve (Figure 2-3). The comprehensive development plan prepared for the Santa Lucia Preserve documents resources of the ranch and identifies guiding principles for their conservation and protection. The plan also addresses development compatibility, along with defined land use and phasing program for each of the three county planning areas, and proposes a system of development standards to guide design, siting, and construction of all buildings, roads, landscape, and infrastructure improvements in response to existing county policy and the unique natural and scenic resources of the ranch.

A resource management plan was also prepared for the Santa Lucia Preserve in response to Board Resolution No. 93-115. This plan details the applicant's method of conservation through the establishment of the Santa Lucia Conservancy. According to the plan, the preserve lands will be owned and managed through two organizations: the Santa Lucia Conservancy (the Conservancy) and the Stewardship Company. The functions of each are described briefly below:

- The Conservancy will be organized as an independent nonprofit corporation to oversee, govern, and control the resource management of the Santa Lucia Preserve. As proposed, the Conservancy will also coordinate public access to the site through ongoing education and interpretive programs and publicly licensed trails.

- The Stewardship Company will be a separate but wholly owned subsidiary of the Conservancy, responsible under contract with the Conservancy for implementing all resource management, scientific, and educational objectives of the Conservancy. Additionally, the Stewardship Company will conduct commercial, recreational, and community-serving responsibilities, including fire protection and security services, operations and maintenance of the water and wastewater facilities and roads under contract to the ranch county service area (CSA), landscape maintenance services for homeowners, and a native plant materials nursery.

Land Use Summary

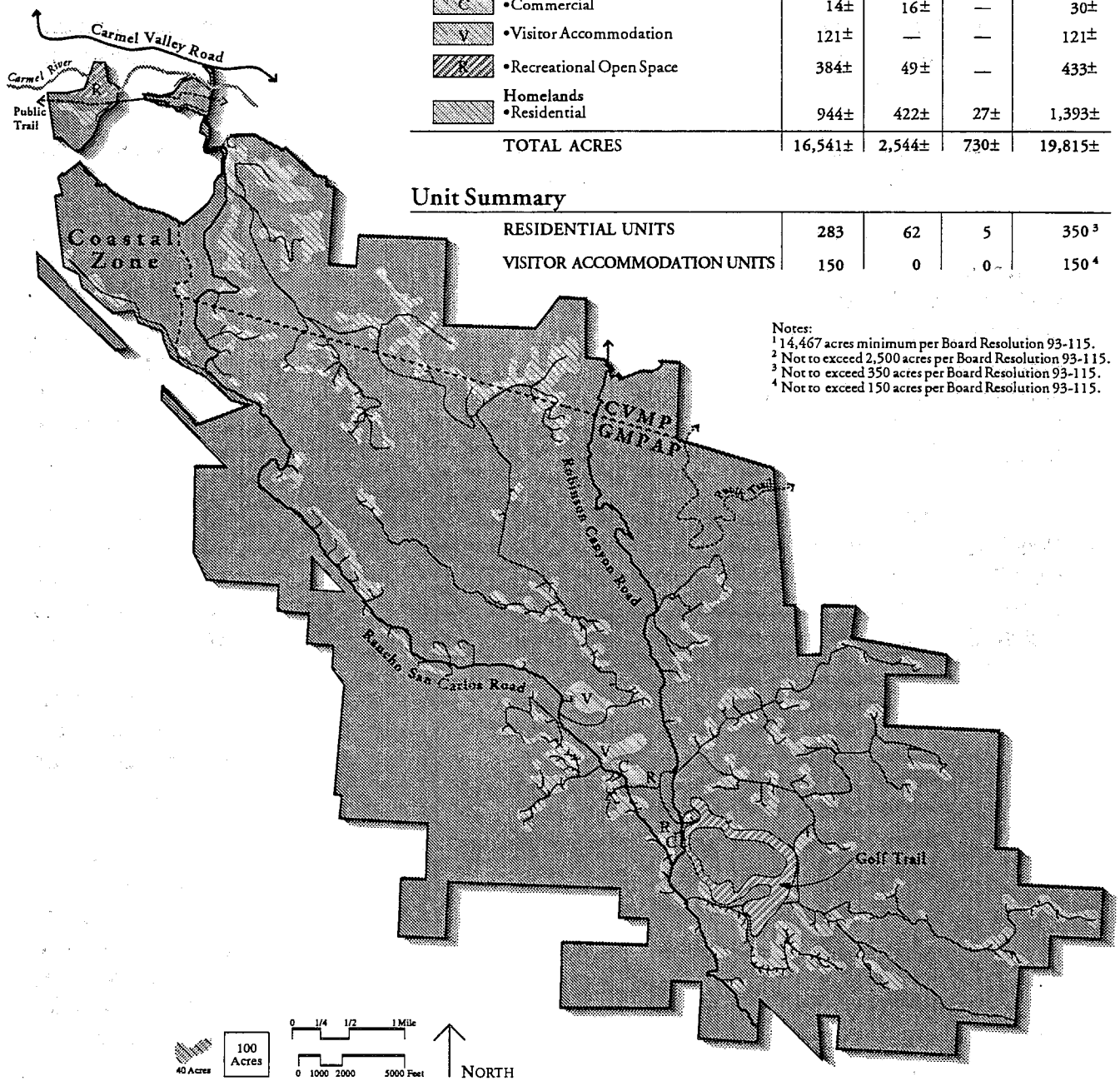
The acreages shown in this table are approximate.

	GMPAP	CVMP	Coastal Zone	TOTAL
PRESERVE LANDS — Total Grazing, Recreation, and Resource Conservation Use	15,078 [1]±	2,057±	703±	17,838±
C/V/R SETTLED LANDS — Total Commercial, Visitor Accommodation, Recreation and Residential Uses	1,463 [2]±	487±	27±	1,977±
Rancholands	519±	65±	—	584±
C •Commercial	14±	16±	—	30±
V •Visitor Accommodation	121±	—	—	121±
R •Recreational Open Space	384±	49±	—	433±
Homelands •Residential	944±	422±	27±	1,393±
TOTAL ACRES	16,541±	2,544±	730±	19,815±

Unit Summary

RESIDENTIAL UNITS	283	62	5	350 [3]
VISITOR ACCOMMODATION UNITS	150	0	0	150 [4]

Notes:
[1] 14,467 acres minimum per Board Resolution 93-115.
[2] Not to exceed 2,500 acres per Board Resolution 93-115.
[3] Not to exceed 350 acres per Board Resolution 93-115.
[4] Not to exceed 150 acres per Board Resolution 93-115.



Source: Rancho San Carlos Partnership 1994a.

Jones & Stokes Associates, Inc.

Figure 2-3
Comprehensive Development Plan

EXISTING IMPROVEMENTS

Most of the Rancho San Carlos property is undeveloped. Access to the site is currently provided by Rancho San Carlos Road, a 10-mile paved private rural road, and Robinson Canyon Road, a 9-mile paved county road. Internal access is provided by over 100 miles of existing ranch roads. Stock ponds are scattered throughout the property. Pacific Gas and Electric Company (PG&E) and Pacific Telephone (PacTel) easements cross the site, and power and telephone services are available on portions of the property. Cattle grazing has occurred on the site for two centuries.

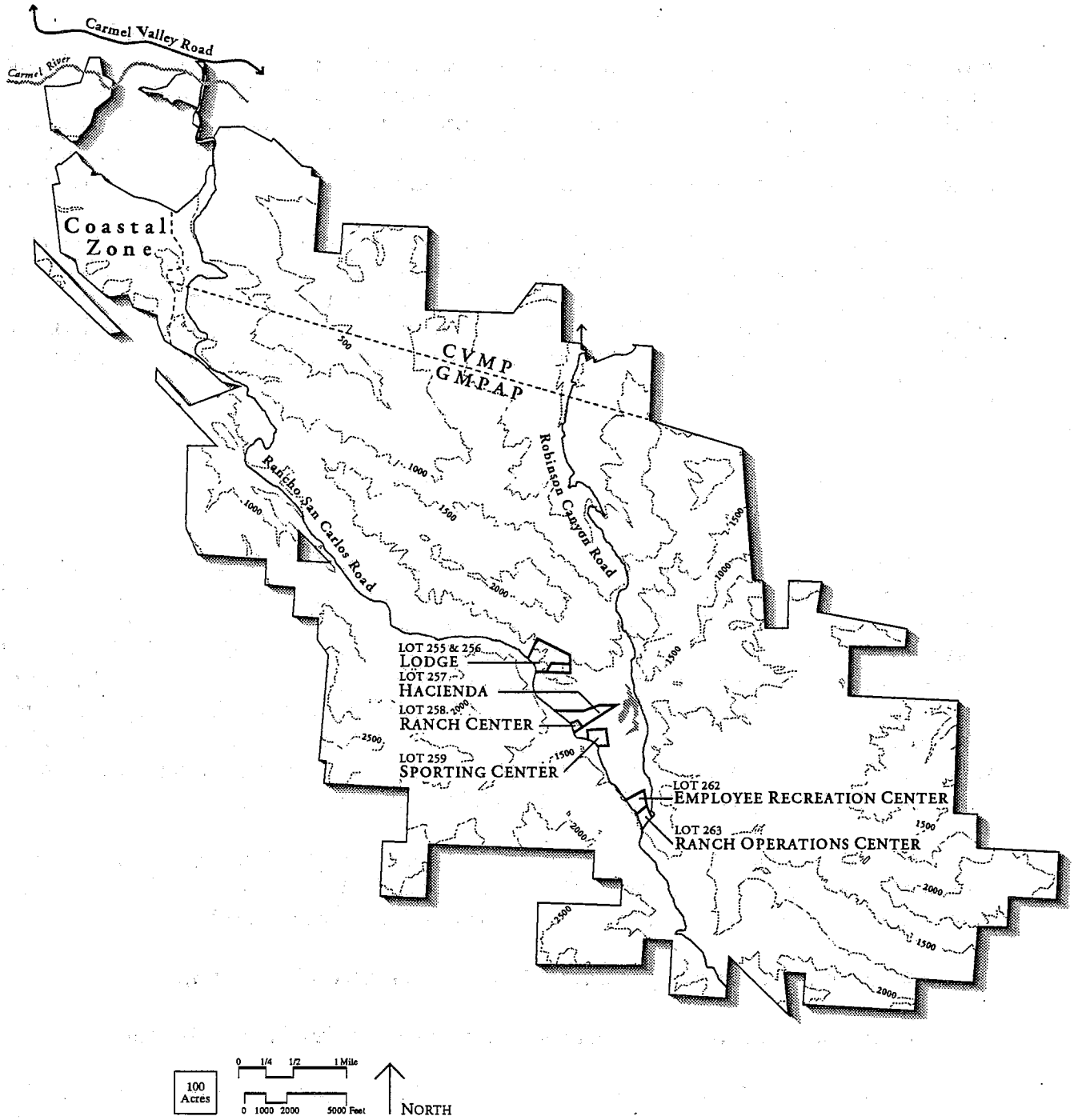
Land uses that presently occupy the site include the ranch house, guest accommodations, offices, and employee housing, as well as ranch operation facilities, including barns, stables, and equestrian facilities. A total of 14 existing and approved dwelling units are on the property. These units include the ranch house, auxiliary buildings with 16 guest rooms, a dining room, kitchen, two meeting rooms, and approximately 1,000 square feet of office space, which is used by employees and guests of the ranch.

PROJECT CHARACTERISTICS

The project proposed for the Rancho San Carlos property is detailed in the applicant's comprehensive development plan (Rancho San Carlos Partnership 1994a). The comprehensive development plan includes 20,000 acres within the GMPAP, CVMP, and the Carmel Area CZ. At this time, the applicant is seeking entitlements to only those portions of the site within the GMPAP area and has submitted applications for combined development permits that cover 16,541 acres of Rancho San Carlos within the GMPAP area. The combined development permit applications include interrelated entitlements and permits necessary to implement the policies for Rancho San Carlos, which are stated in the Monterey County GP (*1982* ~~1992~~), the GMPAP, and the Santa Lucia Preserve Comprehensive Development Plan (Rancho San Carlos Partnership 1994a).

This EIR evaluates the entire comprehensive development plan; however, approvals would be granted only for uses within the GMPAP as described in the combined development permit applications. The application for PC94067 (incorporated herein by reference) includes:

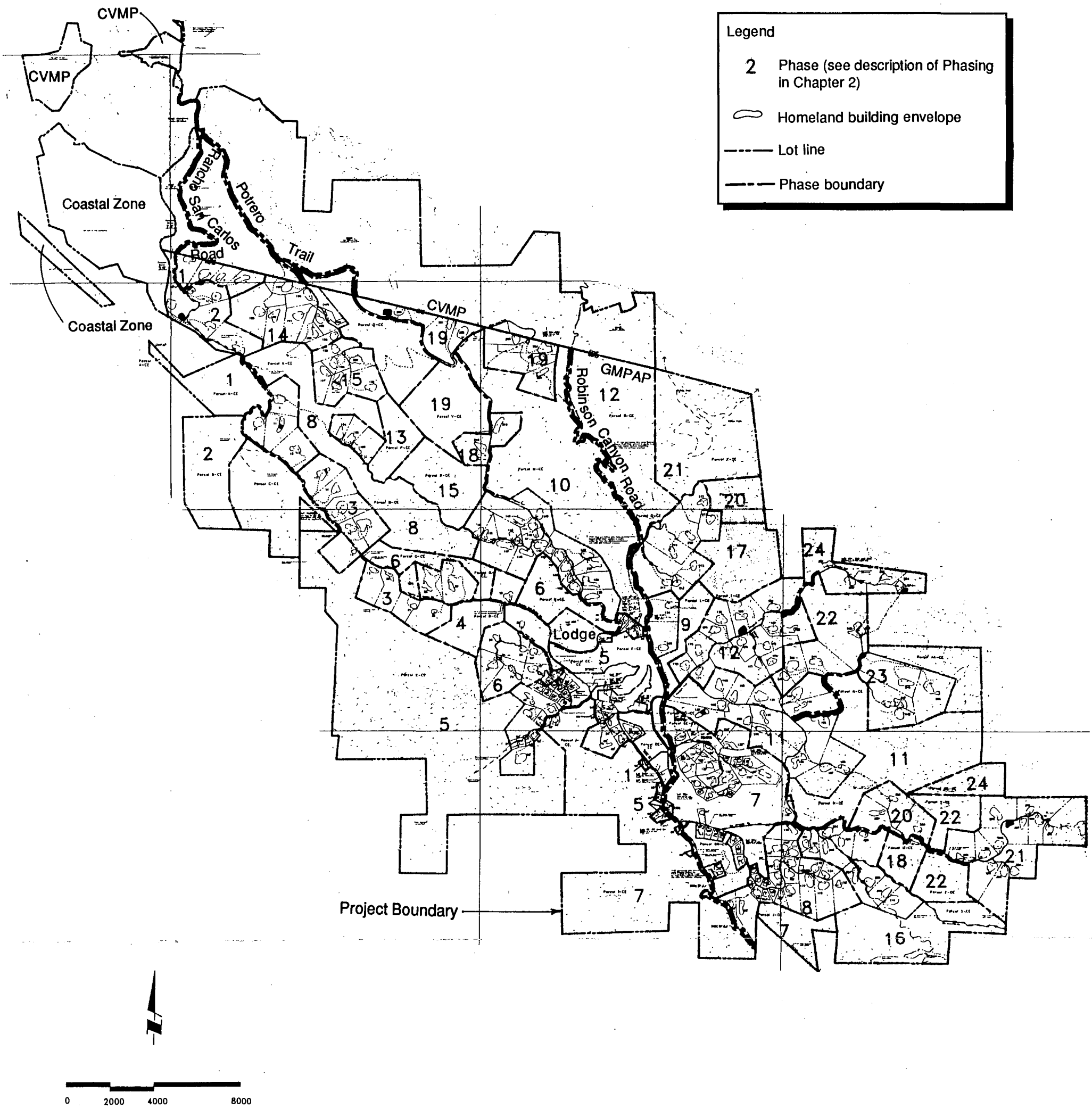
- a vesting tentative map to create 266 lots and 31 parcels (Figure 2-4);
- a rezoning of portions of the Santa Lucia Preserve within the GMPAP area;
- general development plans for portions of the GMPAP area where resident-serving commercial, recreational facilities, and visitor accommodations are planned (Figure 2-5) (see also Appendix G which contains the site plans and the fact sheets for the general development plans); and



Source: Rancho San Carlos Partnership 1994b.

Jones & Stokes Associates, Inc.

Figure 2-5
Location of General Development Plan Lots within the Santa Lucia Preserve



Note: The VTM for the Santa Lucia Preserve contains 14 sheets that are available for review at the Monterey County Planning and Building Inspection Department.

Jones & Stokes Associates, Inc.

Figure 2-4
Vesting Tentative Map (GMPAP Only): Phasing Diagram

- major use permits for some of the nonresidential uses provided for in the GMPAP, including a tertiary treatment plant (Appendix G), tree removal, and limited development on slopes in excess of 30% (see also Appendix H).

A separate combined development permit application for the golf trail (PC94218), (incorporated herein by reference) includes three use permits for:

- a golf trail, practice range, clubhouse, and tree removal (Appendix I);
- ridgeline development for the clubhouse; and
- reduction in parking requirements.

The project applicant intends to propose that the official name of Dormody Road be changed to San Clemente Road, which is its previous name. For clarity and because all application materials refer to the road as San Clemente Road, the text of this document has been revised to refer to the road as San Clemente Road (Dormody Road).

Proposed Land Uses on the Project Site

The proposed comprehensive development plan consists of the following types of land uses.

Residential Uses

The project will contain 350 residential units consisting of single-family lots and some multifamily housing units for employees. Residential development will be restricted to a building envelope called a "homeland". All built improvements related to a house other than the supporting infrastructure would be constructed within the homeland. A range of lot sizes from 2 to approximately 100 acres would be created, each with a specific homeland envelope of 1-5 acres. Outside the prescribed homeland, the remaining portion of the lot, known as "openland", will be generally left in open space except for drives, trails, and utilities, subject to a conservation easement owned and managed by the Conservancy.

The comprehensive development plan states that 15% of all housing (53 units) will be inclusionary in compliance with the Monterey County Inclusionary Housing Ordinance.

Visitor Accommodations

A lodge and an expanded hacienda will be operated at the center of the ranch community. These facilities will provide lodging, meal service, meeting rooms, and other guest services for lodge and ranch guests. The hacienda, comprising the existing main ranch house and its guest house, will be remodeled and expanded to provide dining facilities and a total of 40 rooms. The lodge would be a 110-room full-service visitor accommodation facility located north of the hacienda overlooking San Francisquito Flat.

Ranch Center

The ranch center will provide residential-serving uses such as a post office, grocery store, gas station, retail stores, and offices. In addition, a portion of the inclusionary housing (eight units) would be accommodated within the ranch center.

Conservancy

The conservancy will provide a library, gallery, meeting rooms, multipurpose room, and administration building within the ranch center.

Open Space

Open space refers to the approximately 18,000 acres, which will be set aside as "preserve lands" and maintained through a resource management plan to safeguard the natural resources of the site. The resource management plan includes measures to protect resources during project implementation and in perpetuity. The resource plan was developed based on an inventory of resources, a forest management plan, fire safety management plan, and a cattle grazing plan, herein incorporated by reference.

Recreational Facilities

Recreational facilities will consist of resident-serving facilities such as a sporting center with swimming and tennis facilities, located near the ranch center; an employee recreation center, with a play field, swimming pool, basketball court, tot lot, picnic facilities, and 2,000-square-foot multipurpose building located adjacent to the junction of Rancho San Carlos Road and Robinson Canyon Road; an equestrian center including stables, arenas, and paddocks, located adjacent to the sporting center; and a golf trail. The golf trail facility proposes to accommodate 15,000 rounds of golf per year, a 15,000-square-foot clubhouse, and a driving range.

Service/Operations

This use consists of ranch management, security, maintenance, and operations.

Public Trails

Two public trails are proposed to be licensed to an appropriate public agency: a new public trail to link the Peñon Peak area with existing trails in Garland Ranch Regional Park and a segment of the proposed Carmel Valley trail, which would cross the northern edge of the site parallel to the Carmel River. Refer to Chapter 16, "Public Services and Utilities", for additional discussion of these trails. Specific alignments have not been identified and would require additional environmental review before they are constructed.

Tertiary Treatment Plant

A tertiary treatment facility *(see Appendix G)* is included in the comprehensive development plan. The wastewater treatment facility (on Lot 261) will generate up to 70,000 gallons per day (gpd) of irrigation-quality water.

Site Improvements

Implementation of any required onsite and offsite infrastructure improvements and ancillary facilities will also be incorporated into overall project phasing. Proposed improvements include the following:

- Water supply. Domestic and fire flow water supply will be provided by a community water system coordinated and managed on a ranchwide basis by a CSA or other public entity through a system of deep wells, and storage and distribution facilities constructed by the developer. Irrigation water supply for the golf trail will be provided from reclaimed domestic wastewater, recycled irrigation water, and rainfall.

- Wastewater system. Most of the lots would be served by individual septic tanks and leach field system. *The ranch center, conservancy, lodge, hacienda, sports center, equestrian center, ranch operations center, employee recreation center, the golf trail clubhouse,* ~~The ranch center and some of the lots in the vicinity~~ *78 market-rate, 44 inclusionary, and 12 noninclusionary employee homes* would be served by a tertiary treatment facility. *(See Table 4 of the Golf Trail Water Supply Plan)* Treated effluent from the treatment plan would be used for ~~onsite irrigation and landscape and~~ golf trail irrigation. The applicant has prepared a wastewater disposal plan for the project.

- Road maintenance. Road maintenance services for all paved and unpaved roads will be provided by the Stewardship Company under contract to the CSA.

- Utilities. All new and existing utility service will be placed underground in accordance with county policy and located within road rights-of-way and driveways wherever feasible. Natural gas would not be distributed within the preserve. Power and telephone services are available on portions of the site. Telephone, cable, and other communication services would be provided in a common trench.

- Solid waste. Solid waste will be collected by the Carmel Valley Disposal Service and delivered to the Monterey Regional Waste Management District (MRWMD) landfill facility located north of the City of Marina. MRWMD operates a recycling program that will be incorporated in the collection system at the Santa Lucia Preserve.

- Emergency services. Security, communications, emergency, and fire protection services will be provided by the Stewardship Company under contracts with the CSA. Fire protection would be augmented by a trained volunteer fire department made up of employees and residents of the preserve. The Monterey County Sheriff's Department would have primary responsibilities for law enforcement within the preserve.

- Ranch operations. A new ranch operations center will be built at the intersection of Rancho San Carlos Road and Robinson Canyon Road to provide a new centralized location for Santa Lucia Preserve operations. Many of the operations to be located here already occur at other locations on the ranch as a part of existing resource management activities.

- *Quarry, aggregate borrow site,* ~~Quarries,~~ rock crusher and portable asphalt plant. Materials such as Carmel stone, granite, and aggregate will be quarried, processed, and stored onsite for use in the construction of the proposed project. The location of the *quarry and borrow site are* ~~quarries is~~ described in Chapter 6, "Geology and Minerals".

All road improvements, which may be required as a condition of approval of any discretionary entitlement, shall be installed and constructed phase by phase or guaranteed through an appropriate adequately secured agreement before the issuance of building permits. Offsite improvements may be provided through the payment of appropriate fees and/or an agreement with the county to participate in improvement financing techniques.

Additional uses that would fall within the CVMP and CZ boundaries are residential uses, which include market rate single-family homes, inclusionary multifamily units, and employee housing. These uses will require further environmental review when specific permit applications are proposed but are evaluated in this EIR based on the amount of information available describing these uses.

Prior landowners had filed water rights applications with the SWRCB for winter on-stream storage of 6,000 acre-feet per year in the San Jose Creek watershed (application 29281), winter on-

stream storage of 6,000 acre-feet per year in the Las Garzas Creek watershed (applications 29282 and 29283), and combined year-round diversion from wells in the Carmel River alluvial aquifer of 386 acre-feet per year (applications 30149, 30150, and 30154). These applications were associated with an earlier proposal for developing Rancho San Carlos, in which the water supply for the development was to be obtained by impounding and diverting surface water. In the present proposal, water will be supplied by a network of wells, and large surface water storage facilities will not be needed. Consequently, the applications probably will be withdrawn, except that the application for Las Garzas Creek will be used to cover the existing impoundment at Moore's Lake, which is presently unauthorized. For practical purposes, the application will be for impoundment only. There are no diversions from Moore's Lake and the water level remains essentially constant. The only consumptive use is evaporation from the lake surface.

Project Phasing

Implementation of the project will be accomplished in 24 phases, with full buildout expected to require 20 years or more. Development will be initiated within the GMPAP area, followed by subsequent development in the CVMP and CZ areas. Conveyance of parcels to the Santa Lucia Conservancy will take place in conjunction with recordation of final maps for each phase. Conservation easements on the openlands will be conveyed to the Conservancy phase by phase upon recordation of final maps. At any stage of development, inclusionary housing in an amount equal to or greater than 15% of the total completed units will be provided. The combined development permit application includes only general development plans for the land uses described above. Specific use permits will be required at a later stage of the project.

Applicant's Proposed Mitigation Measures

The project applicant is proposing ~~to~~ several mitigation measures to reduce impacts of the proposed project. These measures are listed within the relevant sections of *the* EIR, ~~and~~ *some of which* are ~~not~~ assumed to be part of the project description. Following the discussion of a particular significant impact, the EIR discusses whether the applicant is proposing a mitigation measure to reduce the level of significance of that impact. If so, the EIR identifies that measure as the "Applicant's Proposed Mitigation Measure". If the applicant's proposed mitigation measure would reduce the impact to a less-than-significant level, no additional mitigation measures are recommended. In contrast, if the applicant's proposed mitigation measure would not reduce the impact to a less-than-significant level, "Additional Mitigation Measures" are recommended.

In addition, the applicant has proposed a mitigation monitoring program (Appendix B) that has been modified to include the additional mitigation measures included in this EIR. The applicant's proposed mitigation measures are assumed to include the monitoring recommendation specified in the applicant's monitoring program.

VESTING TENTATIVE MAP

The combined development permit application includes an application for a vesting tentative subdivision map for the 16,541 acres of Rancho San Carlos within the GMPAP area (Figure 2-4). The vesting tentative map provides for the creation of 254 residential lots providing for 297 residential units consisting of 239 market rate single-family lots and 15 lots for 58 single-family and multifamily housing units for employees (including 14 replacement units for existing or approved farm employee housing), of which 53 will be inclusionary units.

In addition, the vesting tentative map proposes to create 31 parcels comprising 9,300± acres of open space "wildlands" and 12 lots comprising 519± acres for nonresidential uses (resident-serving commercial, recreational facilities, visitor accommodations and operations services).

The vesting tentative map has been revised by the applicant to address septic requirements of the County Environmental Health Division and soils, geologic, and aesthetic considerations raised in the draft EIR. The revised vesting tentative map is found in Appendix J.

ZONING

The entire portion of the Rancho San Carlos property that falls within the GMPAP area is currently zoned Resource Conservation (RC) with a 40-acre per unit density, Design Control (D), and a Site Plan Review (S) overlay zoning. In addition, two small Historic Resource District (HR) overlays exist for the San Francisquito Adobe and the Wright/ Stevenson Cabin.

Monterey County Planning staff has recommended the following zoning designations for portions of the Santa Lucia Preserve:

- Ranch center and the sporting center be zoned as LC-D (Light Commercial/Design Control) and subject to the development standards established by Title 21, Chapters 18 and 44 of Monterey County Code;

- Ranch operations center and the employee recreation center be zoned as HC-D (Heavy Commercial/Design Control) and subject to the development standards established by Title 21, Chapters 20 and 44;

- Hacienda and the lodge be zoned as VO-D (Visitor Serving/Professional Office/Design Control) and subject to the development standards established by Title 21, Chapters 22 and 44;

- Tertiary treatment plant, the equestrian center, ~~and~~ the golf trail, *and the open space parcels* retain the existing RC-D-S (Resource Conservation/Design Control/Site Plan

Review) zoning, subject to the development standards established by Title 21, Chapters 36 and 45;

- Inclusionary housing units on Lots 28 through 32, Lots 62, 63, 64, and 93 be zoned as MDR-B6-D (Medium-Density Residential/Building Site/Design Control), and subject to the development standards established by Title 21, Chapters 12, 42, and 44; and

- All other proposed residential lots (except those referred to above) be zoned as LDR-B6-D (Low-Density Residential/Building Site/Design Control), and subject to the development standards established for such zoning by Monterey County Code Title 21, Chapters 14, 42, and 44.

In addition, the following groups of lots should have a height limit imposed as part of the zoning to avoid potential for ridgeline development or to reduce potential for visual impact. Unless otherwise noted, this height limit should be 24 feet high.

VTM Sheet #8:	Lots 224, 225, and 226
VTM Sheet #10:	Lot 134 Lots 28, 29, 30, and 31 (18-foot height limit) Lot 27 (16-foot height limit)
VTM Sheet #11:	Lots 251, 253, and 254
VTM Sheet #13:	Lots 65, 77, 83, and 84

GENERAL DEVELOPMENT PLANS

Under the Monterey County Zoning Ordinance, all development within the Light Commercial (LC), the Heavy Commercial (HC), and the Visitor-Serving/Professional Office (VO) zoning districts requires approval of a general development plan prior to the establishment of any development within the district. General development plans are intended to address the general long-range development and operation of improvements on a parcel in excess of 1 acre. General development plans may be applied for and approved prior to or concurrently with approval of any other required permits for development.

The combined development permit application for the Santa Lucia Preserve includes applications for approval of six general development plans for the lodge, the hacienda, the ranch center, the sporting center, the ranch operations center, and the employee recreation center. Following approval of general development plans, specific use permits for each will be required before the use can be established. The requirement of a general development plan for the tertiary

treatment plant was waived because the application includes a specific use permit application for that facility.

Details concerning the uses covered by the general development plans, including site plans, are contained in Appendix G.

CONDITIONAL USE PERMITS

The combined development permit application includes applications for conditional use permits for the tertiary treatment plant, tree removal, and ~~limited~~ development on slopes in excess of 30%. In addition, a separate combined development permit application (PC94218) includes three use permits for the golf trail, practice range, clubhouse, and tree removal; for ridgeline development for the clubhouse; and for a reduction in parking requirements for the clubhouse.

Tertiary Treatment Plant

A 6±-acre parcel to the east of the equestrian center (Lot 261) is proposed for a 70,000± gpd wastewater treatment facility. The facility is proposed to contain a fully automated three-pass trickling filter system with rapid sand filters, chlorination, full redundancy, odor control and standby power, all contained in a 3,000± square foot building. Peripheral facilities include a 3-day emergency raw sewage storage tank and a 120-day treated water storage facility. The treatment plant will serve the ranch center, the hacienda, the lodge, the sporting center, the equestrian center, the employee recreation center, the ranch operations center, and approximately 94 residential lots in the vicinity of the core facilities. The treated and reclaimed effluent may be used initially for wetland and riparian rehabilitation programs, and ultimately for golf course irrigation.

Details concerning the tertiary treatment plant, including site plans, are contained in Appendix G.

Tree Removal

Under the Monterey County Zoning Ordinance, a use permit is required for the removal of oak and certain other protected trees in designated zoning districts.

The combined development permit application for the Santa Lucia Preserve includes an application for a use permit to remove an estimated 1,480 trees within the 16,541± acres of the GMPAP area. Of the trees to be removed, an estimated 451 will be removed to provide homesites, and 1,029 will be lost due to road and driveway construction. Seventy-one percent of the trees to be removed are coast live oaks. Two redwoods will be removed in connection with the widening of Rancho San Carlos Road.

Details concerning the proposed tree removal are included in the Forest Management Plan (Ralph Osterling Consultants 1994a, b) submitted with the combined development permit application.

Development on Slopes in Excess of 30%

Under the Monterey County General Plan and the Zoning Ordinance, development on slopes in excess of 30% requires a use permit.

The combined development permit application for the Santa Lucia Preserve includes an application for a use permit to allow existing roads crossing slopes in excess of 30% to be improved, and to allow some new driveways to cross short distances of slope in excess of 30%. The application proposes 25 road segments, totaling 21,975 linear feet of roadway, to cross slopes in excess of 30%.

A key map showing the locations for which this use permit is sought, tables identifying each road segment and applicable county policies, and drawings of the type of road improvements proposed in each case are contained in Appendix H.

The Golf Trail Facility

The golf trail facility is proposed as a low-volume play (15,000 rounds per year), private 18-hole golf course, including a 15,000± square foot clubhouse and a driving range. Located on three parcels of the "settled lands" (Lots 264, 265, and 266) in the Touche and San Clemente planning areas, the golf trail is designed to combine a challenging golf experience with a 5.5±-mile walking trail through many of the natural resources of the preserve. The design of the golf trail minimizes the use of motorized carts and also minimizes the area of high maintenance/irrigated turf. Of the 337± total acres within the golf trail parcels, 125± acres will be mown grass, of which 71± acres will be irrigated turf. The areas of "rough" surrounding the turf will be used by the Conservancy for continued experimentation with the program for reestablishment of native California grasses. The combined development permit application for the golf trail includes an integrated golf course management plan, a water quality protection plan, and a water supply plan. This proposes a combination of reclaimed domestic wastewater, diffuse stormwater runoff from the golf trail irrigated turf areas, and groundwater wells as sources of irrigation for the course.

The application for the golf trail includes a use permit for the removal of 136 trees in connection with the construction of the golf trail. Of these, *106* ~~228~~ are valley oak; *13* ~~30~~ are coast live oak; *11* ~~12~~ are black oak; and the remaining *six* ~~10~~ are bay, madrone, *and* sycamore.~~, and willow.~~ Seventy-eight of the trees to be removed are "landmark" oak trees (i.e., trees measuring 24 inches and larger in girth 24 inches above ground). Details regarding tree removal and the tree replacement program for the golf trail are included in the Tree Management Plan (Ralph Osterling Consultants 1994b) contained in the golf trail application on file with the county.

The application for the golf trail also includes a use permit for ridgeline development. A small portion of the clubhouse roofline has been found to have the potential to create a silhouette when viewed from Robinson Canyon Road. In such cases, a use permit is required in order to ensure that a substantially adverse visual impact is avoided. The clubhouse is approximately 85 feet by 146 feet in maximum plan dimension and will include dining facilities and a lounge, a board room, locker rooms, and upper and lower terraces. Details regarding the clubhouse design, including site plans, *and* floor plans, ~~and elevations,~~ are contained in Appendix I. A visual analysis is included in the golf trail application on file with the county.

In order to reduce potential site disturbance, the applicant proposes that the parking lot located to the north side of the clubhouse be reduced from the ±87 parking spaces prescribed by ordinance, to ±40 spaces. The Monterey County Zoning Ordinance provides that the parking standard may be modified by use permit in cases where circumstances show that reduced parking will be adequate because of specific features of the use, the site or the site vicinity.

APPLICABLE PLANS

The entire property is within three planning areas: the GMPAP, the CVMP, and the CZ. This EIR assesses the consistency of the proposed comprehensive development plan with these and other applicable plans described in Chapter 3, "Land Use". The combined development permit area is located exclusively within the GMPAP area and is not subject to the CVMP or the Carmel *Area* ~~Valley~~ Land Use Plan. Some of the proposed road improvements, however, will be located in the CVMP area.

Monterey County General Plan

The GP is a long-range, comprehensive plan addressing all aspects of future growth, development, and conservation in the county. It was adopted by the Monterey County Board of Supervisors in September 1982 and subsequently amended on several occasions. At the countywide level, the plan designates all proposed major land uses by one of seven basic designations: residential, commercial, industrial, agricultural, resource conservation, public/quasi-public, and transportation.

Under the agricultural designation, the Rancho San Carlos property is specifically mentioned with a notation that the property may be considered for development of a "rural village". According to the GP, allowable uses for Rancho San Carlos may consist of residential, visitor accommodation, community shopping, and recreational uses on approximately 2,500 acres. The balance of approximately 17,500 acres should be retained in grazing, recreation, and resource conservation.

Greater Monterey Peninsula Area Plan and Amendments

The GMPAP, a component of the GP, is one of eight area plans that address local issues. It was adopted by the Monterey County Board of Supervisors in December 1987 and subsequently amended in March 1993. As an area plan, it is more specific than the GP because of its geographic focus. Development opportunities, constraints, and natural resources of the Greater Monterey Peninsula planning area are unlike those in other parts of the county; hence, the policies for this planning area are more precisely adapted to the characteristics of this area than are the more general policies of the GP. Most of the project site is located within the GMPAP planning area.

Carmel Valley Master Plan

The CVMP, adopted by the Monterey County Board of Supervisors in 1986, is a component of the *1982* ~~1992~~ GP. The intent of the plan is to recognize the existing broad-scale differences in development intensity in the valley, and to guide new development in directions that support the desirable attributes of existing land use patterns while discouraging resource conflicts that would endanger the valley's essential character. A small portion on the northeastern border of the project site is located in the CVMP planning area.

Carmel Area Land Use Plan Local Coastal Program

The Carmel Area Land Use Plan details the plans and policies that apply to the Carmel coastal segment of Monterey County's Local Coastal Program. The plan includes policies that are intended to guide the use and development of the coast and to provide a reasonable degree of protection of the natural resources of the area. The plan was adopted by the Monterey County Board of Supervisors in October 1982 and certified by the California Coastal Commission in April 1983. Subsequent revisions to the plan were approved by the board in October 1984 and amended and certified by the California Coastal Commission in January 1985. The northwestern corner of the site is located within the Carmel Area Land Use Plan Local Coastal Program area.

Monterey County Coastal Implementation Plan

The Monterey County Coastal Implementation Plan is intended to establish regulations, standards, and procedures to fully implement the policies of the Carmel Area Land Use Plan. These regulations apply only to the parcels within the Carmel Area CZ, which are subject to the Carmel Coastal Program area and would therefore be subject to the regulations of the Monterey County Coastal Implementation Plan.

Chapter 3. Land Use

INTRODUCTION

This chapter describes existing regional and local land uses, zoning designations, and relevant land use plans and policies related to the proposed project. Impacts are assessed by determining the compatibility of the proposed project with existing land uses, consistency with land use and zoning designations, and consistency with relevant land use plans and policies. Information for this section was compiled from the EIR for Rancho San Carlos (Planning Analysis & Development 1992) and the Santa Lucia Preserve Comprehensive Development Plan (Rancho San Carlos Partnership 1994a).

SETTING

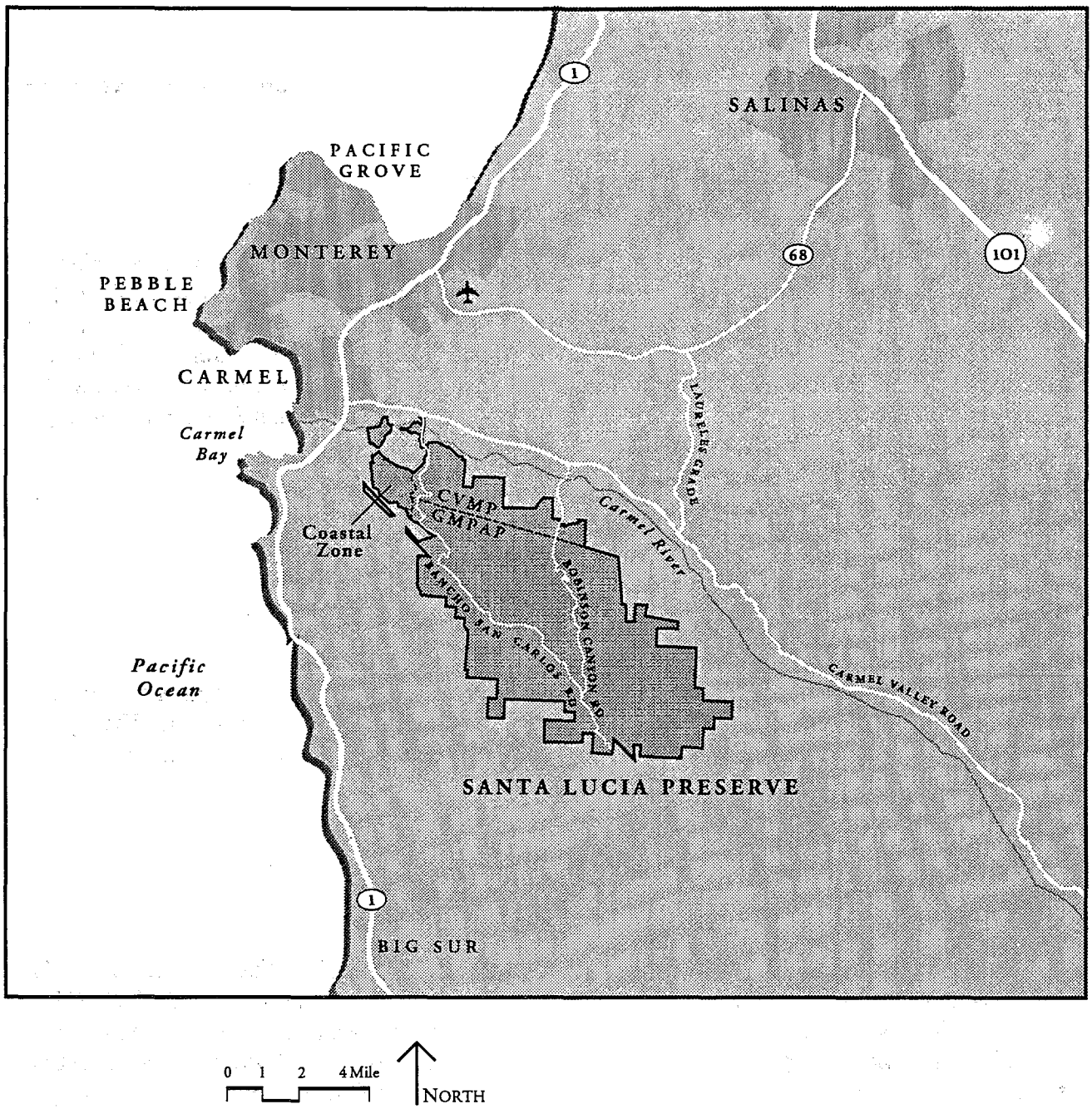
Regional Setting

The approximately 20,000-acre project site is located in western Monterey County, approximately 2-10 miles south of Carmel Valley and 5 miles east of the Pacific Ocean. The region has a varied topography of valleys, flats, rolling hills, and steep slopes, with San Francisquito Flat occupying the south-central portion of the project site (Figure 3-1).

Local Setting

The project site is bounded by the Carmel Valley on the north and northeast and by relatively undeveloped land on all other sides, except for recreational development of approximately 200 cabins at the San Clemente Rancho and White Rock Club to the south and southeast. *These cabins are in a single cluster with most of the San Clemente Rancho and White Rock Club's property that borders the project site being undeveloped.* The site constitutes a portion of the Santa Lucia Range southwest of the Carmel River (Figure 3-1).

Lands surrounding the site have a variety of uses, including ranching, public and private recreation, open space, and residential and second-home development. Public and private recreation and open space uses surround the project site to the east and south, with the more urbanized lands located north of the site in the Carmel Valley.



Source: Rancho San Carlos Partnership 1994a.

Jones & Stokes Associates, Inc.

Figure 3-1
Project Location

Relevant Plans and Policies

The entire property is located within three planning areas: the GMPAP, the CVMP, and the CZ. This EIR *assesses* assess the proposed project's consistency with policies from the applicable plans described below. Table 3-1 (at the end of this chapter) presents a detailed description of the relevant policies from these plans and assesses the proposed project's consistency with them.

Monterey County General Plan

The GP is a long-range, comprehensive plan addressing all aspects of future growth, development, and conservation within the county. It was adopted by the Monterey County Board of Supervisors in September 1982 and subsequently amended on several occasions. At the countywide level, the plan designates all proposed major land uses by one of seven basic designations: residential, commercial, industrial, agricultural, resource conservation, public/quasi-public, and transportation.

Under the agricultural designation, the Rancho San Carlos property is specifically mentioned with a notation that the property may be considered for development of a "rural village". According to the GP, allowable uses for Rancho San Carlos may consist of residential, visitor accommodation, community shopping, and recreational uses on approximately 2,500 acres. The balance of approximately 17,500 acres should be retained in grazing, recreation, and resource conservation.

Greater Monterey Peninsula Area Plan and Amendments

The GMPAP, a component of the GP, is one of eight area plans that address local issues. It was adopted by the Monterey County Board of Supervisors in December 1987 and subsequently amended in March 1993. As an area plan, it is more specific than the GP because of its geographic focus. Development opportunities, constraints, and natural resources of the GMPAP planning area are unlike those in other parts of the county; hence, the policies for this planning area are more precisely adapted to the characteristics of this area than are the more general policies of the GP. Most of the project site is in the GMPAP planning area.

Carmel Valley Master Plan

The CVMP, adopted by the Monterey County Board of Supervisors in 1986, is a component of the 1992 GP. The plan's intent is to recognize the existing broad-scale differences in development

intensity in the valley and to guide new development in directions that support the desirable attributes of existing land use patterns while discouraging resource conflicts that would endanger the valley's essential character. A 2,400-acre portion on the northeastern border of the project site is located in the CVMP planning area.

Carmel Area Land Use Plan Local Coastal Program

The Carmel Area Land Use Plan details the plans and policies that apply to the Carmel coastal segment of Monterey County's Local Coastal Program. The plan includes policies that are intended to guide the use and development of the coast and to provide a reasonable degree of protection of the natural resources of the area. The plan was adopted by the Monterey County Board of Supervisors in October 1982 and certified by the California Coastal Commission in April 1983. Subsequent revisions to the plan were approved by the board in October 1984 and amended and certified by the Coastal Commission in January 1985. The northwestern corner of the site is in the Carmel Area Land Use Plan Local Coastal Program area.

Monterey County Coastal Implementation Plan

The Monterey County Coastal Implementation Plan is intended to establish regulations, standards, and procedures to fully implement the policies of the Carmel Area Land Use Plan. These regulations apply only to the parcels in the Carmel Area CZ, as subject to the Carmel Area Land Use Plan. The plan was adopted by the Monterey County Board of Supervisors in January 1988. As noted above, the northwestern corner of the site is in the Carmel Area Land Use Plan Local Coastal Program area and would therefore be subject to the regulations of the Monterey County Coastal Implementation Plan.

Monterey County Zoning Ordinance

The Monterey County Zoning Ordinance was adopted by the Monterey County Board of Supervisors in 1991 and amended in September 1994. The zoning ordinance consists of the establishment of various districts, regulations, and permit processes for the unincorporated territory of the County of Monterey. The districts were established to regulate residential, commercial, visitor-serving/office, agricultural industrial, industrial, farmlands, grazing, resource conservation, public/quasi-public, and open space uses. The zoning districts list uses that are allowed or may be allowed subject to discretionary permit processes.

Oak Tree Ordinance No. 3420

Ordinance No. 3420 is an ordinance established to preserve oak and other protected trees. The ordinance and Title 21 (Zoning Ordinance), specifically states that "No oak tree may be removed in any area of the County of Monterey designated in the applicable area plan as Resource Conservation, Residential, Commercial, or Industrial...without approval of the permit(s) required in Section 16.60.040 of this ordinance." This ordinance and Title 21 (Zoning Ordinance), specifically Chapter 21.64.260D., require Rancho San Carlos Partnership to obtain a use permit for the removal of more than three protected trees.

Inclusionary Housing Ordinance

The Inclusionary Housing Ordinance requires that 15% of housing units in new developments with more than seven houses be provided as affordable housing. If more than 25% of the development is provided as inclusionary housing, the board of supervisors may elect to approve a density bonus of one market value unit for every inclusionary housing unit above 25%. Development for agricultural purposes, including the development of land for housing for farm workers, is exempt from the Inclusionary Housing Ordinance. The proposed project is consistent with this ordinance because at least 15% of the housing units will be inclusionary housing.

Air Quality Management Plan

Reducing air pollution throughout California is required by both the federal and the California Clean Air Acts. The *1994* MBUAPCD Air Quality Management Plan *addresses state requirements by updating the 1991 Air Quality Management Plan.* ~~states that "Land use within the air basin must be consistent with the Air Quality Management Plan."~~ Consistency of the proposed project with the Air Quality Management Plan is addressed in Chapter 14, "Climate and Air Quality".

Existing Land Uses Surrounding the Project Site

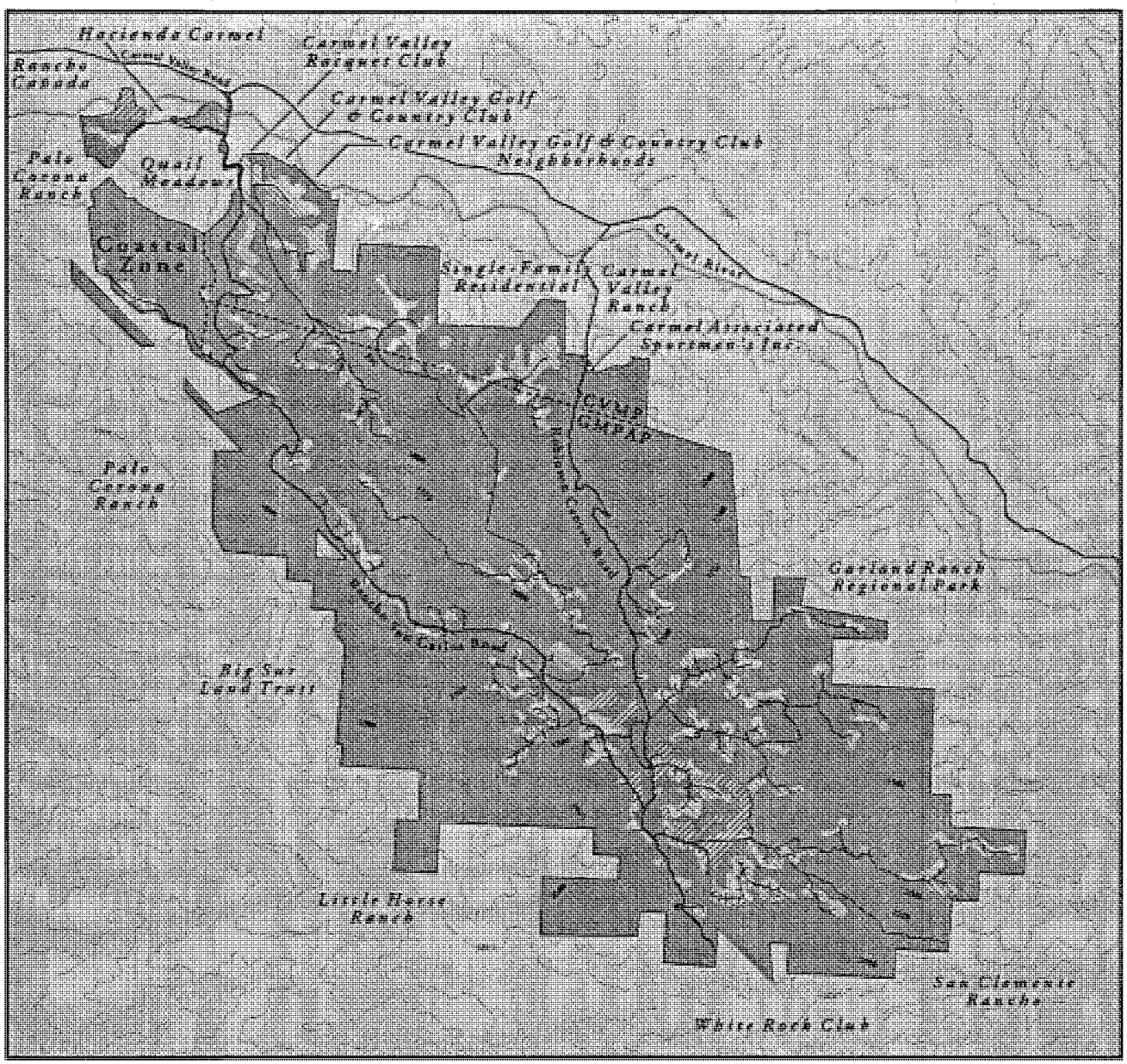
Much of the land surrounding the project site consists of large parcels that date back to the *Mexican* ~~Spanish~~ land grants. Palo Corona Ranch, the Sawyer property, and Point Lobos Ranch are located west of the project site on the coast-facing slopes of the Santa Lucia Range. Lands to the east of the project site have a mountainous terrain similar to the uplands of the ranch and are used for limited grazing and some vacation homes. San Clemente Reservoir is located approximately 1 mile east of the project site's southeastern boundary. Figure 3-2 illustrates the existing land uses surrounding the project site.

LEGEND

SETTLED LANDS

Homelands/Rancholands

Recreational open space



0 1/4 1/2 1 Mile

NORTH

Source: Rancho San Carlos Partnership 1994a.

Jones & Stokes Associates, Inc.

Figure 3-2
Adjacent Land Uses

North

Carmel Valley is located north of the project site. Existing land uses in this area just north of the project site include three golf courses, several shopping centers, food service establishments, visitor-serving facilities, including destination resorts, residential subdivisions, ranch estates, retirement communities, and agricultural land uses.

In this area, residential and recreational uses predominate. The Carmel Valley Ranch resort is located on the east side of Robinson Canyon Road approximately 1 mile north of the project site. The Carmel Valley Golf and Country Club is located just north of the project site at Rancho San Carlos Road. The Rancho Cañada Golf Course and Country Club is located to the north of a noncontiguous parcel of the project site at its northwestern boundary. These resort land uses include golf courses, lodging and dining facilities, and other recreational amenities. Both Carmel Valley Ranch and Carmel Valley Golf and Country Club include high-density (up to 10 units per acre) residential subdivisions.

Other development north of the project site includes the residential Hacienda Carmel, the Mid-Valley Shopping Center, the Farm Center commercial complex, Saint Dunstan's Church, a residential subdivision, and the Carmel Associated Sportsmen's Gun Club, comprising a shooting range and clubhouse facilities.

Southwest

South and west of the project site is a mix of small and large land holdings that are generally undeveloped. Several parcels are portions of the original homesteads and are inhabited by their descendants. Larger land holdings include Palo Corona Ranch, Little Horse Ranch, and the Big Sur Land Trust's *"Mitteldorf Preserve"*. ~~Westbrook Land and Timber Property.~~

Southeast

The most intensive developments in the immediate project site vicinity are the White Rock Club and San Clemente Rancho. These two developments are located south and east of the project site. The White Rock Club is located approximately 0.5 mile from the project site's southern boundary at the southern end of Robinson Canyon Road. The White Rock Club consists of approximately 2,300 acres, with approximately 100 second homes and facilities for swimming, hunting, and hiking. The San Clemente Rancho is located in San Clemente Canyon east of the project site and consists of approximately 2,050 acres. The San Clemente Rancho includes approximately 100 second homes and facilities for tennis, swimming, fishing, hunting, and hiking activities.

Existing Open Space and Parklands Surrounding the Project Site

Open space in the vicinity of the project site include two major parks, a 400-acre passive recreation area and 1,100 acres of open space easements. The 2,300-acre Garland Ranch Regional Park shares a 3-mile common boundary along the northeastern portion of the project site at Las Garzas Creek. As a passive recreation area, it is designated for hiking and equestrian uses. East of Garland Ranch Regional Park and contiguous to the project site is the Monterey Peninsula Regional Parks District's 400-acre passive recreation area in Hitchcock Canyon. The Ventana National Wilderness Area in Los Padres National Forest is located just south of the project site. Approximately 1,100 acres of scenic open space on the adjacent Carmel Valley Ranch are available to park users by trail easements granted to the Monterey Peninsula Regional Parks District.

Rancho San Carlos Zoning Designations

In March 1993, the Monterey County Board of Supervisors, recognizing the unique natural and scenic resources of the Rancho San Carlos property, adopted Resolution No. 93-115, amending the GMPAP to designate that portion of the site included in the GMPAP area as a "Comprehensive Planned Use" (CPU) area. The CPU designation is an overlay designation that is intended to be used with the underlying land use designations. The designation requires that the comprehensive development plan prepared for this site include additional portions of land located outside the GMPAP area but within the CVMP area and the Carmel Area CZ. The purpose of this designation is to create a comprehensive development plan that emphasizes siting and planning development compatible with existing resources and adjacent uses, shall be of limited density, and include an open space component that preserves at least 14,450 acres in perpetuity for grazing, recreation, and resource conservation.

Before March 1993, most of the project site within the GMPAP was zoned "Rural Grazing" (RG). A small amount of the project site within this area was zoned "Resource Conservation" (RC). The entire portion of Rancho San Carlos property that falls within the GMPAP is currently zoned Resource Conservation (RC), with a 40-acre-per-unit density, Design Control (D), and a Site Plan Review (S) overlay zoning. In addition, two small areas, the San Francisquito Adobe and Wright/Stevenson Cabin, are designated Historic Resource District (*HR* ~~HS~~) (Rancho San Carlos Partnership 1994a).

Zoning designations on lands surrounding Rancho San Carlos included RG, RC, Permanent Grazing (PG), as well as Public Quasi-Public (PQP). These zoning designations are defined below.

Rural Grazing (RG)

The purpose of the RG zoning district is to preserve and enhance the productive grazing lands of the county while providing the opportunity to establish support facilities for grazing uses and clustered residential uses.

Allowed uses in the RG zoning district include soil-dependent agricultural uses; single-family dwellings for owner, operator, or employees employed onsite (not to exceed three per lot); appurtenant accessory structures; and other similar uses. Additional uses, such as public or quasi-public uses, airports, and public or private riding or hiking clubs, may be allowed with a discretionary permit.

Resource Conservation (RC)

The purpose of the RC zoning district is to allow development in the more remote and mountainous areas of the county while protecting the significant and highly sensitive resources of the area, such as viewsheds, watersheds, plant and wildlife habitat, streams, and riparian corridors. Development is to be carried out by allowing only such development that can be achieved without adverse effect and that will be subordinate to the resources of the particular site and area.

Allowed uses in the RC zoning district include soil-dependent agricultural uses, one single-family dwelling per lot, appurtenant accessory structures, and other similar uses. Additional uses, such as public or quasi-public uses, golf courses, and public or private riding or hiking clubs, may be allowed with a discretionary permit.

Permanent Grazing (PG)

The purpose of the PG zoning district is to preserve, protect, and enhance those productive exclusive grazing lands in the county.

Allowed uses in the PG zoning district include soil-dependent agricultural uses; single-family dwellings for owner, operator or employees employed onsite (not to exceed three per lot); appurtenant accessory structures; and other similar uses. Additional uses, such as the division of property to create a 1-acre minimum building site for family members who earn their livelihood from grazing contiguous land, public or quasi-public uses, agricultural processing plants, and public or private riding or hiking clubs, may be allowed with a discretionary permit.

Public Quasi-Public (PQP)

The purpose of the public/quasi-public zoning district is to allow in designated areas public/quasi-public uses such as schools, parks, regional parks, recreation areas, and uses that serve the public at large.

Allowed uses in the PQP zoning district include crop and tree farming; grazing of sheep, cattle, and goats; water system facilities including wells and storage tanks serving four or fewer service connections; home occupations; and other uses of similar character, density, and intensity. Additional uses allowed with a permit include caretaker facilities for providing onsite security, accessory structures, water system facilities of larger size, public recreational uses, mineral extraction, golf courses and country clubs, hospitals, churches, cemeteries, and other similar uses.

IMPACTS AND MITIGATION MEASURES

Approach and Methodology

Technical information used in the impact assessment was obtained from various Monterey County planning documents including the Carmel Area Land Use Plan and Local Coastal Program, the CVMP, the GMPAP, the GP, conversations with Monterey County planning staff, and a December 1994 site visit.

Significance Criteria

The following significance criteria used to study the proposed project were compiled from Appendices F and G of the State CEQA Guidelines and professional standards. A project will normally have a significant effect on the environment if it would:

- result in the substantial alteration of the present or planned land use of an area;
- conflict with adopted environmental plans and goals of the community where it is located;
- induce substantial growth or concentration of population;
- displace a large number of people;
- disrupt or divide the physical arrangement of an established community;

- conflict with established recreational, educational, religious, or scientific uses of the area;
- convert prime agricultural land to nonagricultural use or impair the agricultural productivity of prime agricultural land;
- conflict with local general plans, community plans, or zoning; or
- create land uses that are incompatible with existing or planned land uses or inconsistent with community goals.

Impact: Potential Incompatibility of Proposed Land Uses with Existing or Planned Land Uses Onsite

The project proposes to develop various types of land uses in the project area. These uses include residential, visitor-serving commercial, and commercial. These uses may be incompatible with the existing uses on the site, which include grazing, residential, and recreation. The proposed project's development plan, however, would result in development for the various proposed land uses being clustered in areas where grazing does not occur and would not be disturbed. This impact is considered less than significant because the proposed land uses are compatible with the existing or planned land uses.

Mitigation Measure: No mitigation measures are required.

Impact: Potential Inconsistency of Proposed Land Uses with Existing Land Use and Zoning Designations

The project proposes to develop various types of land uses within the project area, which has recently been designated a Comprehensive Planned Use (CPU) area. This designation requires that a comprehensive development plan be prepared for the entire property and that it include open space components, very low-density residential, and attention to siting and compatibility with existing resources. The proposed project includes these elements and the comprehensive development plan for the Santa Lucia Preserve fulfills these requirements. This impact is considered less than significant because rezoning is a part of the proposed project and the project is consistent with existing land use designations.

Mitigation Measure: No mitigation measures are required.

Impact: Potential Incompatibility with Adjacent Land Uses

The proposed project has the potential to be incompatible with adjacent land uses, such as grazing, residential, and recreational uses. Incompatibility with adjacent grazing operations would be minimized because a minimal number of residential lots will be located near the Palo Corona Ranch (where grazing occurs) and grazing operations will be maintained in the area of the Santa Lucia Preserve adjacent to the Palo Corona Ranch.

The White Rock Club and San Clemente Rancho are the most intensive developments in the immediate vicinity of Rancho San Carlos. Because hunting is an element common to both these establishments, the potential exists for the project to be incompatible with these land uses. The closest proposed building envelopes to the White Rock Club property line are approximately 666 yards (most of the proposed building envelopes are located approximately 1,000 yards from the property line). Proposed building envelopes are located more than 50 yards from the property line for the Dormody family. California hunting regulations for mammals state that it is illegal to hunt within 150 yards of an established dwelling (California Department of Fish and Game 1994). Additionally, most of the land between the White Rock Club and the proposed project would consist of dense trees and changes in topography, which would serve as additional buffer between the proposed project and adjacent land uses. This impact is considered a less-than-significant impact.

Mitigation Measure: No mitigation measures are required.

Impact: Potential Inconsistency with Relevant Plans and Policies

The project proposes to create a housing development that has the potential to be inconsistent with relevant plans and policies for Monterey County. Table 3-1 lists the relevant policies and indicates whether the project is consistent with those policies. This impact is considered less than significant because the proposed project is consistent with the relevant plans and policies.

Mitigation Measure: No mitigation measures are required.

Resource/Plan	Objectives/Policies	Assessment of Consistency
WATER RESOURCES		
Greater Monterey Peninsula Area Plan	*Policy 5.1.3 states:* Monterey County will encourage development projects to be served by water from public utilities or mutual water companies. If this is not possible, the County shall consider the cumulative effects of the development's water use on wildlife, fish and plant communities, and the supply available to existing users.	Consistent. The project is consistent with this policy because the hydrology study and the analysis in the EIR constitute careful consideration of cumulative effects of the development's water use on wildlife, fish, and plant communities and the supply available to existing users.
Monterey County Board of Supervisors Resolution No. 93-115	This resolution contains policies aimed at protecting water resources. The policies of this resolution and consistency of the proposed project are assessed at the end of this table.	
WATER QUALITY		
Monterey County General Plan	*Policy 21.2.3 states:* Residential, commercial, and industrial developments which require 20 or more parking spaces shall include oil, grease, and silt traps, or other suitable means, as approved by the Monterey County Surveyor, to protect water quality; a condition of maintenance and operation shall be placed upon the development.	Consistent. The project is consistent with this policy because water quality for proposed wells has been and currently is being analyzed and septic tank location will be permanently marked as directed by the Health Department. Additionally, residential and commercial developments that require 20 or more parking spaces will include oil, grease, and silt traps, or other suitable means, as approved by the Monterey County Surveyor, to protect water quality.
Greater Monterey Peninsula Area Plan	*Policy 21.1.6.1 states:* The County shall require water quality analysis for all new domestic wells.	
Carmel Valley Master Plan	*Policy 21.3.9 states:* Septic tank locations should be permanently marked in a manner as directed by the Health Department.	
WATERSHED RESOURCES		
Monterey County General Plan	*Objective 5.1. states:* Protect and preserve watersheds and recharge areas, particularly those critical for the replenishment of reservoirs and aquifers. *Policy 5.1.1 states:* Vegetation and soil shall be managed to protect critical watershed areas. *Policy 5.1.2 states:* Land use and development shall be accomplished in a manner to minimize runoff and maintain groundwater recharge in vital water resource areas.	Consistent. The proposed project incorporates the following watershed resource protection principles:
Monterey County Board of Supervisors Resolution No. 93-115	This resolution contains policies aimed at protecting watershed resources. The policies of this resolution and consistency of the proposed project are assessed at the end of this table.	
Carmel Valley Master Plan	*Policy 3.1.1.2 states:* As part of the building permit process, the erosion control plan shall include these elements: ■ Provision for keeping all sediment onsite. ■ Provision for slow release of runoff water so that runoff rates after development do not exceed rates prevailing before development. ■ Revegetation measures that provide both temporary and permanent cover.	■ Development is sited in areas of low erosion potential, on slopes of less than 30%, and outside riparian corridors. ■ Vegetation removal and the addition of impermeable surfaces are minimized. ■ A program to control the effect of potential pollutants such as pesticides, fertilizers, and petroleum products is formulated in the resource management plan presented in Section 3 and in the Golf Trail Integrated Management Plan.
Carmel Valley Master Plan (continued)	■ Map showing drainage for the site, including that coming onto and flowing off the property. ■ Storm drainage facilities shall be designed to accommodate runoff from 10-year or 100-year storms as recommended by the Monterey County Flood Control and Water Conservation District.	■ Ranch wells will be located sufficiently distant from streams, seeps or springs, and where the static groundwater level is sufficiently below the surface water feature, to avoid any direct water-level impacts that could induce infiltration. ■ Pumping cycles for production wells will be established to limit the radial distance of pumping impacts on adjacent wells, streams, and seeps and springs.

Resource/Plan	Objectives/Policies	Assessment of Consistency
		■ Onsite engineering and construction techniques will avoid potential erosion and siltation. ■ Grazing activities will be limited to suitable portions of the Santa Lucia Preserve and managed through rotation to ensure ample residual forage, minimizing soil erosion and the potential siltation of watersheds. In addition, mitigation measures proposed in the development plan shall contribute to the proposed project's consistency with the various policies. Mitigation measures include reducing erosion and surface runoff, inspecting and replacing failed road crossings, revegetation of eroded areas, water conservation, and operating policies for recreation uses such as golfing and equestrian activity to minimize the potential for water quality degradation of streams.
	Policy 26.1.10.1 states: The County shall prohibit development on slopes greater than 30%. It is the general policy of the County to require dedication of scenic easement on slopes greater than 30%. Exception may be made for development that can further the goals and policies of this plan. *Policy 3.1.5 states:* The amount of land cleared at any one time shall be limited to the area that can be developed during one construction season. This prevents unnecessary exposure of large areas of soil during the rainy season. *Policy 3.1.9 states:* A condition of approval requiring ongoing maintenance of erosion control measures identified in the erosion control plan shall be attached to all permits allowing development in areas prone to slope failure, including, but not limited to, the following: ■ all development in areas classified as highly susceptible to slope failure; ■ all development on sites with slopes of greater than 20%; and ■ where roadways are cut across slopes greater than 30%, or across slopes with thin and highly erosive soils.	
Carmel Area Land Use Plan - Local Coastal Program	*General Policy 2.4.3 states:* The effects of all new development proposals or intensification of land use activities or water uses on the natural character and values of the Carmel coast streams will be specifically considered in all land use decisions. Subjects to be addressed in such evaluations include protection of water quantity and quality, wildlife and fish habitat, and recreational and scenic values. Land use proposals determined to pose unacceptable impacts on the natural integrity of the stream must be modified accordingly. The County should request technical assistance from the California State Department of Fish and Game in determining effects on fish and wildlife habitat and appropriate mitigation measures. *General Policy 2.4.3.2 states:* New development including access roads shall be sited, designed and constructed to minimize runoff, erosion, and resulting sedimentation. Land divisions shall be designed to minimize the need to clear erodible slopes during subsequent development. Runoff volumes and rates should be maintained at predevelopment levels, unless provisions to implement this result in greater environmental damage.	

Resource/Plan	Objectives/Policies	Assessment of Consistency
	Specific Policy 2.4.4 (water availability) states: As part of the permit process, the applicant must also demonstrate that the proposed new water use or use intensification will not adversely affect both the natural supply necessary to maintain the environment, including wildlife, fish, and plant communities, and the supply available to meet the minimum needs of existing users during the driest year. At the County's discretion, the applicant may be required to support his application through certification by a consultant deemed qualified by the County to make such determinations. The County will request that the California Department of Fish and Game provide a written recommendation on each application	
	Specific Policy 2.2.4 (erosion and sedimentation control): All grading requiring a County permit which would occur on slopes steeper than 15% and requiring a County permit shall be restricted to the dry season of the year.	
	Specific Policy 2.2.4 (erosion and sedimentation control): The native vegetation cover, temporary vegetation, seeding, mulching, or other suitable stabilization methods shall be used to protect soils subject to erosion that have been disturbed during grading or development. All cut-and-fill slopes shall be stabilized as soon as possible with planting of native annual grasses and shrubs, appropriate non-native plants, or with approved landscaping practices.	

Resource/Plan	Objectives/Policies	Assessment of Consistency
WILDLIFE CORRIDORS		
Monterey County General Plan	*Policy 9.1.1 states:* Development shall be carefully planned in areas known to have particular value for wildlife and, where allowed, shall be located so that the reasonable value of the habitat for wildlife is maintained.	Consistent. The proposed project incorporates the following wildlife corridor protection principle: Although traditional wildlife corridors are not found, attention must be focused on all the contributory elements to the landscape mosaic and their use by wildlife to ensure that appropriate pathways for wildlife are provided. This will be accomplished by the following provisions in the development plan: ■ The very low-density nature of development and spacing of building envelopes in the Santa Lucia Preserve will ensure adequate space in and around development to allow unencumbered movement by all species throughout the Santa Lucia Preserve. ■ By placing approximately 18,000 acres of the ranch in permanent open space, the proposed comprehensive development plan will ensure the wildlife habitat value of large contiguous areas of the Santa Lucia Preserve in perpetuity.
Greater Monterey Peninsula Area Plan	*Policy 9.1.1.1 states:* Open space areas should include a diversity of habitats with special protection given to ecologically important zones such as areas where one habitat grades into another and areas used by wildlife for access routes to water or feeding grounds.	
Monterey County Board of Supervisors Resolution No. 93-115	This resolution contains policies aimed at protecting wildlife. The policies of this resolution and consistency of the proposed project are assessed at the end of this table.	
VEGETATION AND WILDLIFE HABITATS		
Greater Monterey Peninsula Area Plan	*Policy 7.2.3 states:* Plant materials shall be used to integrate the manmade and natural environments, to screen or soften the visual impact of new development, and to provide diversity in developed areas.	Consistent. The project is consistent with this policy because the Conservancy will require that the design of any "improved" landscape areas surrounding the buildings will be required to reflect the dominant role of the natural landscape utilizing native plant species. Additionally, revegetation of cut-and-fill slopes will conform to prevailing and/or adjoining natural vegetation patterns and make use of appropriate native plant species. Native plant species will be available at an onsite nursery.
WETLAND RESOURCES		
Greater Monterey Peninsula Area Plan	*Policy 7.1.5 states:* In recognition of their function as important habitat for many wildlife species and their substantial contribution to scenic resources within the planning area, coastal and interior wetlands should be retained as open space through conservation easements or, where necessary, fee acquisition.	Consistent. The project is consistent with this policy with proper implementation of the recommended mitigation measures, compensation measures, and long-range management measures set forth in the EIR. The proposed project incorporates the following wetland resource protection principles:

Resource/Plan	Objectives/Policies	Assessment of Consistency
Carmel Area Land Use Plan - Local Coastal Program	*General Policy 2.3.3 states:* Development, including vegetation removal, excavation, grading, filling, and the construction of roads and structures, shall be avoided in critical and sensitive habitat areas, riparian corridors, wetlands, sites of known rare and endangered species of plants and animals, rookeries and major roosting and haul-out sites, and other wildlife breeding or nursery areas identified as critical. Resource-dependent uses, including nature education and research, hunting, fishing, and aquaculture, shall be allowed within environmentally sensitive habitats and only if such uses will not cause significant disruption of habitat values. Only small-scale development necessary to support the resource-dependent uses may be located in sensitive habitat areas if they cannot feasibly be located elsewhere.	▪ Where feasible, wetland resources will be avoided when improvements are made related to grazing, recreation, and development; ▪ ranch wells will be located sufficiently distant from wetland resources and where the static groundwater-level is sufficiently below the surface water feature, to avoid any direct water-level impacts that could induce infiltration from the wetland resource; and ▪ pumping cycles for production wells will be established to limit the radial distance of pumping impacts on adjacent wetland areas. Mitigation of wetland loss will include replacement at a level of 3:1. In addition to possible loss replacement, and with or without actual loss, the Conservancy will restore existing degraded wetland sites and/or create new sites at a rate of approximately 10 acres during a 10-year period after a final map is filed. Long-range management will include periodic monitoring of hydrologic assays and appropriate response to potentially deleterious changes that may be caused by natural or human factors.
REDWOOD FOREST RESOURCES		
Greater Monterey Peninsula Area Plan	*Policy 7.1.3 states:* In recognition of its status as a threatened resource, its function as riparian habitat and its important role in watershed protection, redwood forest habitat should be retained as open space through conservation easements or, where necessary, fee acquisition. *Policy 7.1.4 states:* Redwood forest and chaparral habitat on land exceeding 30% slope should remain undisturbed due to potential erosion impacts and loss of visual amenities.	Consistent. The project is consistent with these policies with proper implementation of the recommended mitigation measures, compensation measures and long-range management measures set forth in the EIR. The proposed project incorporates the following redwood forest resource protection principles: ▪ Where feasible, redwood forest resources will remain undisturbed and retained as open space, and ▪ no existing redwood groves will be lost to development. Tree replacement and replanting shall be based on minimum replacement ratios of 3:1 for non-landmark trees and 5:1 for landmark trees and redwoods. Upon the initiation of development of each project phase, the Conservancy shall implement a long-term monitoring program that will support the evaluation and maintenance of protected forest ecosystems within the respective phase-area.
Carmel Area Land Use Plan - Local Coastal Program	*Specific Policy 2.3.4 states:* Redwood forest and chaparral habitat on land exceeding 30% slope should remain undisturbed due to potential erosion impacts and loss of visual amenities.	
ENVIRONMENTALLY SENSITIVE HABITAT RESOURCES		
Monterey County General Plan	*Policies 9.1.1 and 9.1.2:* These policies require special care in the development of areas known to have particular value for wildlife. *Policy 21.3.5:* Wastewater treatment facilities shall not be sited in, or allowed to expand into, environmentally sensitive habitat areas unless environmental impacts can be mitigated.	Consistent. The proposed project incorporates the following environmentally sensitive habitat resource protection principles:

Resource/Plan	Objectives/Policies	Assessment of Consistency
Greater Monterey Peninsula Area Plan	*Policy 11.1.6 states:* Environmentally sensitive areas as shown on the Greater Monterey Peninsula Environmentally Sensitive Areas Map should be preserved as open space. When an entire parcel cannot be developed because of this policy a low intensity, clustered development may be approved. However, the development should be located on those portions of the land least biologically significant. *Policy 26.1.6.2 states:* Open space, low-intensity educational and recreational uses should be considered to be appropriate and compatible land uses in environmentally sensitive areas and areas of high visual sensitivity.	▪ Where feasible, identified sensitive habitats will be avoided by development uses and infrastructure improvements, and ▪ development will be permitted only where it has been determined by the biological survey that the potential impacts of the proposed use will not harm the long-term, ranchwide maintenance of the resource. Compliance with GMPAP policy 26.1.6.2 includes ongoing educational and interpretive programs.
Monterey County Zoning Ordinance	*Section 21.66.020 states:* This ordinance provides a permitting procedure for the protection, maintenance, and, where possible, enhancement and restoration of environmentally sensitive habitats.	
Carmel Valley Master Plan	*Policy 7.1.1.1 states:* Areas of biological significance shall be identified and preserved as open space. These include, but are not limited to, the redwood community of Robinson Canyon and the riparian community and redwood community of Las Garzas Creek. When a parcel cannot be developed because of this policy, a low-density, clustered development may be approved. However, the development shall occupy those portions of the land not biologically significant or on a portion of the land adjoining existing vertical forms, either onsite or offsite and either natural or human-made, so that development will not diminish the visual quality of such parcels or upset the natural functioning of the ecosystem in which the parcel is located. If this policy precludes development of a parcel because of biological significance, a low level of development (but no subdivision) may be allowed provided impacts on the resource are minimized. Additional such areas include: ▪ all wetlands, including marshes, seeps and springs (restricted occurrence, sensitivity, outstanding wildlife value); ▪ native bunchgrass stands and natural meadows (restricted occurrence, sensitivity); ▪ cliffs, rock outcrops, and unusual geologic substrates (restricted occurrence); and ▪ ridgelines and wildlife migration routes (wildlife value).	

Resource/Plan	Objectives/Policies	Assessment of Consistency
VISUAL RESOURCES		
Monterey County General Plan	*Policy 26.1.9 states:* To preserve the county's scenic and rural character, ridgeline development shall not be allowed unless a special permit is first obtained. Such permit shall only be granted upon findings being made that the development as conditioned by permit will not create a substantially adverse visual impact when viewed from a common public viewing area. New subdivisions shall avoid lot configurations that create building sites that will constitute ridgeline development. Siting of new development visible from private viewing areas may be taken into consideration during the subdivision process.	Consistent. The proposed project incorporates the following visual resource protection principles: ▪ Avoid lot configurations that create building sites that will constitute ridgeline development. ▪ Avoid development that will occur within 100 feet of a scenic corridor right-of-way. ▪ Avoid development within the highly sensitive visual resources area except where siting such development maximizes the goals, objectives, and policies of the GMPAP.
	Policy 40.2.1 states: Additional sensitive treatment provisions shall be employed within the scenic corridor, including placement of utilities underground, where feasible; architectural and landscape controls; outdoor advertising restrictions; encouragement of area native plants, especially on public lands and dedicated open spaces; and cooperative landscape programs with adjoining public and private open space lands. *Policy 40.2.2 states:* Land use controls shall be applied or retained to protect the scenic corridor and to encourage sensitive selection of sites and open space preservation. Where land is designated for development at a density which, should maximum permissible development occur, would diminish scenic quality, the landowner shall be encouraged to voluntarily dedicate a scenic easement to protect the scenic corridor.	In addition, the mitigation measures proposed in the development will (1) minimize the impact of new buildings, roads, and other built improvements through siting and design, including the restrained use of color, non-native building materials, and formal landscaping; (2) establish development/design standards that differentiate between open grassland and forestland to reflect the natural landscape pattern; (3) minimize tree removal; (4) impose special height limits in zoning of identified lots to avoid potential for ridgeline development; and (5) establish strict design controls on site planning, architecture, and building materials, including architectural review procedures. In areas that are confirmed as visually "sensitive" or "highly sensitive", mitigation steps in Policy 40.2.9 of the GMPAP would be followed. These mitigation measures contribute to the proposed project's consistency with these visual resources policies. Additionally, by placing approximately 18,000 acres of the ranch in permanent open space, visual quality of large contiguous areas of Rancho San Carlos will be visible from public viewing areas and scenic corridors.
Greater Monterey Peninsula Area Plan	*Policy 40.2.4 states:* The Greater Monterey Peninsula Visual Sensitivity Map shall be used to designate visually "sensitive" and "highly sensitive" areas generally visible from scenic routes. However, due to map scale, coding an area as visually "sensitive" or "highly sensitive" does not necessarily mean all of that area is visible from the scenic route. All subsequent uses of the terms "sensitive" or "highly sensitive" shall be interpreted within the meaning of this policy. *Policy 40.2.5 states:* Landowners will be encouraged to dedicate scenic easements to an appropriate agency or non-profit organization over portions of their land shown as "sensitive" or "highly sensitive" on the Greater Monterey Peninsula Visual Sensitivity Map or, where easements already exist, to continue this protection. *Policy 40.2.6 states:* Areas shown as "highly sensitive" on the Greater Monterey Peninsula Visual Sensitivity Map should be preserved as open space to the maximum extent possible through scenic easements or, if necessary, fee acquisition.	

Resource/Plan	Objectives/Policies	Assessment of Consistency
Greater Monterey Peninsula Area Plan (continued)	*Policy 40.2.7 states:* New development should not be sited on those portions of property that have been mapped as "highly sensitive". Where exceptions are appropriate to maximize the goals, objectives and policies of this plan, development shall be sited in a manner that minimizes visible effects of proposed structures and roads to the greatest extent possible and shall utilize landscape screening and other techniques to achieve maximum protection of the visual resource. *Policy 40.2.8 states:* In cases where the extent of visibility of development proposed in "highly sensitive" areas is not clear, individual onsite investigations by the Planning Department staff shall be required. *Policy 40.2.9 states:* New development to be located in areas mapped as "sensitive" or "highly sensitive" and which will be visible from the scenic route shall maintain the visual character of the area. In order to adequately mitigate the visual impacts of development in such areas, the following shall be required. a) Development shall be rendered compatible with the visual character of the area using appropriate siting, design, materials, and landscaping. b) Development shall maintain no less than a 100-foot setback from the scenic right-of-way. c) The impact of any earth movement associated with the development shall be mitigated in such a manner that permanent scarring is not created. d) Tree removal shall be minimized. e) Landscape screening and restoration shall consist of plant and tree species consistent with surrounding native vegetation. f) Architectural review of projects shall be required to ensure visual compatibility of the development with the surrounding area. g) New development in open grassland areas shown as "sensitive" or "highly sensitive" on the Visual Sensitivity Map should minimize its impact on the uninterrupted viewshed. h) Exceptions to the above may be considered if compelling circumstances are demonstrated.	

Resource/Plan	Objectives/Policies	Assessment of Consistency
Carmel Valley Master Plan	*Policy 26.1.9.1 states:* In order to preserve the County's scenic and rural character, ridgeline development shall not be allowed unless a Use Permit is first obtained. Such permit shall only be granted upon findings being made that the development as conditioned by permit will not create a substantially adverse visual impact when viewed from common public viewing area. New subdivisions shall avoid lot configurations which create building sites that will constitute ridgeline development. Siting of new development visible from private viewing areas, may be taken into consideration during the subdivision process. (Note: verbatim from 1982 County General Plan) *Policy 26.1.10.1 states:* Materials and colors used in construction shall be selected for compatibility with the structural system of the building and with the appearance of the buildings [sic] natural and man-made surroundings.	
Carmel Area Land Use Plan - Local Coastal Program	*General Policy 2.2.3 states:* New subdivision which creates commitment to new development of the coastal hills and ridges east of Highway 1 shall be permitted only where every parcel to be created has an adequate building site that cannot be seen from public viewing points and corridors. New lots and access roads shall also be designed to minimize tree removal and visually intrusive grading.	
HIGH FIRE HAZARD		
Monterey County General Plan	*Policies 17.3.1 through 17.3.14 state:* Provide detailed standards for the use, location, type, and design of roadways to reduce fire hazard risk. *Policies 17.4.1 through 17.4.12 state:* Provide detailed standards for regulating the type, density, location, and/or design and construction of development to reduce fire hazard risk.	Consistent. The project is consistent with these policies with the proper implementation of the recommended mitigation measures and the Fire Safety Management Plan set forth in the EIR. The mitigation measures require the homeowners to maintain a firebreak around and adjacent to buildings and structures and that fire flow standards are satisfied. The Fire Safety Management Plan includes the following fire prevention strategies in the proposed project. New homes and facilities will be located outside of identified high fire hazard areas. Road widths, surface materials, and alternative routes will provide emergency access to the project area. Architectural Design Guidelines incorporated in the CC&Rs will require the use of noncombustible materials for roof and exterior wall construction. Additionally, fuel modification zones will be maintained and monitored by resource managers of the Stewardship Company.
Greater Monterey Peninsula Area Plan	*Policies 17.2.1.1. through 17.4.13 state:* Provide extensive fire safety standards with emphasis on access issues.	
Carmel Valley Master Plan	*Policy 17.4.13 states:* All existing or new residential structures, at time of sale or resale, shall provide smoke detectors and shall have one-half inch mesh screen on all chimneys to be verified by the County. Sprinkler systems, fire alarm systems, and one-half inch mesh chimney screens are recommended in residential developments. *Policy 17.4.15 states:* In high and very high fire hazard areas, as defined by the California Department of Forestry and Fire Protection and shown on California Department of Forestry Fire Hazard Maps, roof construction (except partial repairs) of fire-retardant materials, such as tile, asphalt or asbestos combination, or equivalent, shall be required ad per Section 3203 (e).	

Resource/Plan	Objectives/Policies	Assessment of Consistency
Carmel Valley Master Plan (continued)	(excluding 11) of the Uniform Building Code, or as approved by the fire district. Exterior walls constructed of fire resistant materials are recommended but not required. Vegetation removal will not be allowed as a means of removing high or very high fire hazard designation from an entire parcel.	
Carmel Area Land Use Plan - Local Coastal Program	*Specific Policy 2.7.4 (fire hazards) states:* Where development is approved within or adjacent to areas of high to extreme fire hazard, the County should require the use of fire-resistant materials in the construction of exterior walls and fire-retardant (tile, asphalt, treated fire-retardant shingles) materials in the construction of roofs. *Specific Policy 2.7.4 (fire hazards) states:* The County shall require all new development to have adequate water available for fire suppression. The Fire Districts and the Planning and Building Inspection Department shall determine the adequacy and location of individual water storage to be provided.	
EROSION CONTROL		
Monterey County General Plan	*Objective 3.2 states:* The prevailing slope of the land shall be used as an additional criterion in evaluating land use activities. *Policy 3.2.2 states:* Lands having a prevailing slope above 30% shall require adequate special erosion control and construction techniques.	Consistent. The project is consistent with these policies with the proper implementation of all recommended mitigation measures described in Chapter 6, "Geology and Minerals", of the EIR. Implementation of these mitigation measures would minimize erosion and designate an onsite staff erosion control coordinator who would be responsible for implementation of the erosion control plans and for any necessary erosion control measures. In addition, no building envelope will contain slopes in excess of 30% and mitigation measures to reduce erosion would be implemented during project construction.
Greater Monterey Peninsula Area Plan	*Policy 3.1.1.1 states:* Erosion control procedures shall be established and enforced for all private and public land clearing projects.	
GEOLOGIC AND SEISMIC HAZARDS		
Monterey County General Plan	*Policies 15.1.1 through 15.1.13 state:* Provide detailed requirements for geotechnical investigations and soils reports.	Consistent. The proposed project incorporates the following geologic and seismic hazard principles: ▪ Avoid all potentially active faults identified and mapped by the geologic and geotechnical investigation by establishing minimum setbacks for all habitable structures; and ▪ avoid locating any new buildings on potentially active landslides as identified and mapped by the geologic and geotechnical investigation. In addition, mitigation measures proposed in the development plan shall contribute to the proposed project's consistency with these policies.
Greater Monterey Peninsula Area Plan	*Policies 15.1.1.1 and 15.1.11.1 state:* Refer to the County's seismic hazard categories and the requirement for detailed geologic investigation and soils report, in identified high-hazard areas.	

Resource/Plan	Objectives/Policies	Assessment of Consistency
Greater Monterey Peninsula Area Plan (continued)		These mitigation measures include construction techniques for road and driveway improvements where they cross inactive faults or potentially active slides and designing structures that are located in areas potentially subject to liquefaction using special mat or grid foundations and/or soil replacement and densification techniques.
FLOOD HAZARD		
Monterey County General Plan	*Policies 16.2.1 through 16.2.10 state:* Establish the means for regulating land uses within floodprone areas and reducing erosion potential.	Consistent. The proposed project incorporates the following flood hazard principle: ▪ Avoid development of habitable structures in areas potentially at risk from a 100-year flood occurrence. In addition, the following mitigation measure is proposed in the development plan and shall contribute to the proposed project's consistency with these Monterey County General Plan policies. Where construction of roads, bridges, and utilities is necessary within a 100-year flood zone, all the appropriate FEMA mitigation measures for flood proofing will be complied with.
LAND USE		
Monterey County General Plan	*Policy 26.1.2 states:* The County shall discourage premature and scattered development.	Consistent. The proposed project is consistent with this policy because the project includes clustered development for the homelands in the least environmentally sensitive portions of the ranch.
	Policy 27.3.3 states: Residential subdivisions shall be sited with sufficient distance from normal agricultural activities to prevent these activities from becoming hazardous or attractive nuisances to the residents of the subdivisions. *Policy 27.3.4 states:* In areas designated for agricultural uses where development of legally subdivided land would promote incompatible residential development, the County shall solicit and encourage the voluntary donation of conservation easements or other development restrictions to the County or to a qualified private nonprofit organization in order to preserve the agricultural use of the land.	Consistent. The proposed project is consistent with these policies because building envelopes are sited with sufficient distance from agricultural activities and the proposed project is compatible with adjacent land uses.
Greater Monterey Peninsula Area Plan	*Policy 26.1.6.1 states:* Development proposals should include compatible open space uses located between other developed areas in order to maintain a rural atmosphere and to protect scenic resources. *Policy 26.1.9.1 states:* Development on canyon edges and hilltops shall be designed to minimize the visual impact of the development.	Consistent. The project is consistent with these policies because open space is located throughout the proposed project, the design of the Homelands provides expansive areas of contiguous open space, and buildings will not be visible as silhouettes on ridgelines. Please refer to the consistency determination for "visual resources" for visual resource protection principles for the proposed project.
Monterey County Board of Supervisors Resolution No. 93-115	a. Uses which may be considered for Rancho San Carlos may consist of residential, visitor accommodation, neighborhood serving commercial, and recreational uses on approximately 2,500 acres. The balance of no less than 14,467 acres shall be retained in perpetuity for grazing, recreation and resource conservation.	a. Consistent. The proposed project calls for residential, visitor accommodation, neighborhood-serving commercial, and recreational uses on approximately 18,000 acres and the balance (approximately 2,000 acres) will be retained in perpetuity for grazing, recreation, and resource conservation.

Resource/Plan	Objectives/Policies	Assessment of Consistency
Monterey County Board of Supervisors Resolution No. 93-115 (continued)	b. At 40 acres per unit the maximum potential allowed density for that portion of Rancho San Carlos within the Greater Monterey Peninsula Area Plan, subject to policy 1-c below, is 424 units which may consist of a mix of residential and visitor accommodation units with a maximum of 150 visitor accommodation units. In the event the developer of Rancho San Carlos prepares and submits, and the County approves, a comprehensive development plan pursuant to policy 1-c below, the developer may transfer development rights of up to 76 residential units from portions of Rancho San Carlos located within the Carmel Valley Master Plan and within the coastal zone to that portion of Rancho San Carlos located within the Greater Monterey Peninsula Area Plan; however, no more than 350 single family residential units shall be developed on Rancho San Carlos.	b. Consistent. The applicant has submitted a comprehensive development plan and the proposed project calls for 350 residential units.
	c. The density provided in policy 1-b above shall be allowed only if: (1) An application for development includes a comprehensive development plan for the 16,967 acres of Rancho San Carlos within the Greater Monterey Peninsula Area Plan, the approximately 2,400 acres of the Rancho San Carlos within the Carmel Valley Master Plan, and the approximately 600 acres of the Rancho San Carlos within the coastal zone; (2) The total density included within the entire comprehensive development plan does not exceed 150 visitor accommodation units and 350 single-family residential dwelling units; and, (3) Each owner of property within Rancho San Carlos applies for and agrees to be bound by the comprehensive development plan. If all of the conditions of this policy 1-c are not complied with, the total potential allowed density for the 16,967 acres of Rancho San Carlos within the Greater Monterey Peninsula Area Plan shall be 160 acres per unit, for a maximum of 106 units, the transfer of development rights pursuant to policy 1-b above shall not be allowed, and visitor accommodation and neighborhood serving commercial shall not be allowed.	c. Consistent. (1) A comprehensive development plan addressing the entirety of Rancho San Carlos was submitted with the combined development permit. (2) The total density included within the comprehensive development plan does not exceed 350 single-family dwellings units and 150 visitor accommodation units. (3) Each owner within Rancho San Carlos has applied for and agrees to be bound by the comprehensive development plan.
	d. Development shall be in one or more clusters located in the least environmentally sensitive portions of the property.	d. Consistent. The proposed project locates development in clusters in the least environmentally sensitive portions of the property. Impacts can be further reduced to less-than-significant levels through the implementation of mitigation measures recommended in this EIR.

Resource/Plan	Objectives/Policies	Assessment of Consistency
Monterey County Board of Supervisors Resolution No. 93-115 (continued)	e. Any discretionary development application for the property shall include a proposed draft Resource Management Plan which is consistent with the mitigation measures identified in EIR #87-013 (Rancho San Carlos Subsequent EIR), and consistent with the mitigation measures identified in the project level environmental impact report. The Resource Management Plan shall: (1) Identify unique and valuable resources to be protected, including but not limited to, all sensitive habitats, wetlands, riparian corridors, wildlife corridors, watersheds and visually sensitive areas; (2) Establish standards for building and road construction, design and siting such that the resources are not adversely impacted; (3) Specify one-time and on-going actions to protect the resources from development; (4) Propose implementation for resource protection and conservation measures identified, and coordination of implementation programs at each stage of development; (5) Develop a monitoring program to assure compliance with the standards set forth in the Resource Management Plan.	e. Consistent. A Resource Management Plan which identifies unique and valuable resources to be protected, establishes standards for resource protection, specifies actions to protect resources from development, proposes implementation measures, and establishes a monitoring program was submitted with the combined development permit application. The Resource Management Plan is consistent with mitigation measures identified in EIR 87-013 and with the mitigation measures recommended in this EIR.
	f. To reduce traffic impacts, development shall include employee housing.	f. Consistent.. The proposed project calls for 53 units of employee housing.
	g. Rancho San Carlos Road shall be improved and serve as the main access for Rancho San Carlos. Robinson Canyon Road should be used for emergency access and agricultural ranch operations on Rancho San Carlos. The design and improvement of any project shall minimize the use of Robinson Canyon Road for traffic associated with, or generated by, uses maintained on Rancho San Carlos. Minimization of use may be achieved through various techniques, including, but not limited to, dedication of access rights, development of interior roads and alternative access, and installation or construction of such other improvements as may deter or discourage the use of Robinson Canyon Road.	g. Consistent. The proposed project proposes to improve Rancho San Carlos Road as the main access for the project. The design and proposed improvement of the project will minimize use of Robinson Canyon Road by dedication of access rights along Robinson Canyon Road, avoidance of development which would access on substandard sections of Robinson Canyon Road, development of interior roads which limit access to Robinson Canyon Road to east-west links through established ranch gates, improvement to Rancho San Carlos Road as a faster and safer link to Carmel Valley, and the establishment of a Traffic Management Association to manage on and offsite trip patterns.
	h. (1) Development shall be permitted on Rancho San Carlos to a level consistent with safe yield of the proven water resources, provided that the level of development has no adverse impact on off-site water resources. Before deeming a discretionary development application complete, an applicant must submit a comprehensive hydrological study to the Director of Environmental Health and the Water Resources Agency for review and approval.	h. Consistent. (1) The proposed project with the implementation of mitigation measures recommended in this EIR would not exceed the safe yield of the proven water resources and there would be no significant adverse effect on offsite water resources. A comprehensive hydrologic study containing all required components was submitted for review and approval before the application was deemed complete.

Resource/Plan	Objectives/Policies	Assessment of Consistency
Monterey County Board of Supervisors Resolution No. 93-115 (continued)	Unless modified by the Director of Environmental Health and the Water Resources Agency, the comprehensive hydrological study shall include, at minimum, the following:	
	(a) Delineation of aquifers and hydrogeologic units where any production well is located.	
	(b) Detailed hydrogeologic characterization of aquifer and hydrogeologic units including transmissivity and storage capacities.	
	(c) Delineation of recharge areas for aquifers and hydrogeologic units on the ranch.	
	(d) Detailed water balance for the ranch as a whole and for each aquifer or hydrogeologic unit where any production well is located for existing and proposed uses. The water balance should quantify precipitation, recharge, runoff, evaporation, evapotranspiration, soil absorption, as well as domestic and grazing demands, and should quantify in each case the safe yield and cumulative impacts of all wells in production.	
	(e) Extended pumping tests of up to 30 days shall be conducted on selected wells to be performed during the driest time of the year.	
	(f) Delineate interconnection of each aquifer and hydrogeologic unit to off-site basins and aquifers. Quantify development impacts to off-site basins and aquifers and development impacts to on-site and off-site vegetation within the accuracy limits of standard hydrogeologic practices, as determined by the Director of Water Resources and the Director of Environmental Health.	
	(g) Evaluate the impact of the occurrence of a drought of record on the water resources of the ranch and the order of magnitude impact, if any, to related off-site basins and aquifers.	
	(2) The Division of Environmental Health or the Water Resources Agency may, at their discretion, request a third party review of the hydrology report prepared by the applicant's consultant. The third party review will be at the expense of the applicant. If the reviewing hydrologist reasonably determines that additional data is required to provide the conclusions required under section (h), the applicant shall provide said data at applicant's expense. The Comprehensive hydrogeologic study shall be submitted to the Monterey Peninsula Water Management District for review and comment.	(2) The county has retained an independent third-party consultant to review the hydrologic information.
	(3) Water systems serving development on the ranch shall be coordinated and managed on a ranchwide basis. Formation of mutual water system(s) will be prohibited.	(3) The proposed project provides for a ranchwide water system to be managed by a CSA.
	(4) Wastewater systems serving development on the ranch shall be coordinated and managed on a ranch-wide basis.	(4) Wastewater systems for the ranch, including both a proposed wastewater treatment facility and individual septic systems, are proposed to be managed on a ranchwide basis through a CSA.

Resource/Plan	Objectives/Policies	Assessment of Consistency
Monterey County Board of Supervisors Resolution No. 93-115 (continued)	(5) Before deeming a development applicant complete, an applicant must submit to the Director of Environmental Health for review and approval a comprehensive wastewater disposal plan which includes the following: (a) Adequate soil testing to establish that the soils are capable of receiving the expected wastewater flow. (b) Estimated sewage flow from the proposed uses and a plan which details the proposed method of disposal from each use. (c) A nitrogen loading study for each of the aquifers and/or hydrologic units identified in the hydrology report. The nitrogen study must identify and consider all sources of nitrogen, including background levels; provide a nitrogen equilibrium level based on full buildout of the development.	(5) A comprehensive wastewater disposal plan containing all the required components was submitted for review and approval before the application was deemed complete.
	(6) Community septic systems are prohibited. Collection and treatment facilities (other than individual) shall be privately owned and operated, or fall within a County Service Area.	(6) The proposed project does not involve community septic systems, and collection and treatment will be managed by a CSA.
	(7) Wastewater, other than individual systems, shall be reclaimed to the maximum extent feasible, as determined by the Director of Environmental Health. Reclamation shall be in a manner consistent with Federal, State, and local regulations.	(7) The project proposes to reclaim wastewater other than from individual septic systems, including wastewater from irrigated portions of the golf trail, to the maximum extent feasible in accordance to all applicable regulations.
	i. To ensure that the level of service does not fall below County standards on any County or State road within the County that may be affected by development within Rancho San Carlos, all road improvements which may be required as a condition of approval of any discretionary entitlement or development, shall be: (1) installed and constructed, or (2) guaranteed through an appropriate agreement and secured by adequate security prior to the issuance of any grading or building permit for any development within Rancho San Carlos. In the event improvements are located outside the boundaries of Rancho San Carlos which may be affected by development within Rancho San Carlos, such improvements may be provided through: (1) the payment of appropriate fees as may be, or may have been, established by the Board of Supervisors and/or (2) an agreement or covenant with the County consenting and agreeing to participate in improvement financing techniques, including, but not limited to, assessment districts, that the Board of Supervisors may approve or establish.	i. Consistent. If mitigation measures recommended in this EIR or equivalent mitigation measures are made conditions of approval, the level of service on roads affected by the project will not fall below County standards.

Resource/Plan	Objectives/Policies	Assessment of Consistency
Monterey County Board of Supervisors Resolution No. 93-115 (continued)	j. The Comprehensive Development Plan shall include an open space component which shall specifically describe the manner in which at least 14,467 acres of Rancho San Carlos will be retained in perpetuity for grazing, recreation and resource conservation. The open space component shall be submitted to the Monterey Regional Parks District for review and comment.	j. Consistent. The proposed project calls for approximately 18,000 acres of open space to be used for grazing, recreation, and resource conservation and has been submitted to the Monterey Regional Parks District for review and comment.
COMMERCIAL LAND USE		
Monterey County General Plan	*Policy 28.1.2 states:* Commercial uses shall be developed in a compact manner; no new areas of strip commercial development shall be allowed. *Policy 28.1.4 states:* A mix of residential and commercial uses shall be allowed in instances where good site design and utilization of the property can be demonstrated. *Policy 28.2.2 states:* Commercial areas shall be designated in a manner which offers convenient access.	Consistent. The proposed project is consistent with these policies because the project includes clustered commercial development in the center of the ranch community that is easily accessible from other project components. Visitor accommodations and the ranch center are located on Rancho San Carlos Road, a main thoroughfare of the project site. The ranch center will include a post office, grocery store, gas station, retail stores, offices, and eight inclusionary housing units. The inclusionary housing units at the ranch center will create a convenient living environment for employees of Rancho San Carlos.
RESIDENTIAL DENSITY		
Monterey County General Plan	*Policy 3.2.4 states:* Except in areas designated as medium or high density residential or in areas designated as commercial or industrial where residential use may be allowed, the following formula shall be used in the calculation of maximum possible residential density for individual parcels based upon slope: ▪ Those portions of parcels with a cross-slope of between zero and 19.9 percent shall be assigned 1 building site per each 1 acre. ▪ Those portions of parcels with a cross-slope of between 20 and 29.9 percent shall be assigned 1 building site per each 2 acres. ▪ Those portions of parcels with a cross-slope of 30 percent or greater shall be assigned zero building sites. ▪ The density for a particular parcel shall be computed by determining the cross-slope of the various portions of the parcel applying the assigned densities listed above according to the percent of cross-slope and by adding the densities derived from this process. The maximum density derived by the procedure shall be used as one of the factors in final determination of the actual density that shall be allowed on a parcel. Where an entire parcel would not be developable because of plan policies, an extremely low density of development should be allowed.	Consistent. The proposed project is consistent with these policies because the portions of parcels with a cross-slope of between zero and 19.9% are assigned 1 building site per acre, portions of parcels with a cross-slope of between 20 and 29% are assigned 1 building site per 2 acres; and portions of parcels with a cross-slope of 30% or greater have no building sites.

Resource/Plan	Objectives/Policies	Assessment of Consistency
Greater Monterey Peninsula Area Plan	*Policy 3.2.4.1 states:* Except in areas designated as medium or high density residential or in areas designated as commercial or industrial where residential use my be allowed, the following formula shall be used in the calculation of maximum possible residential density for individual parcels based upon slope: a. Those portions of parcels with a cross-slope of between zero and 19.9 percent shall be assigned 1 building site per each 1 acre. b. Those portions of parcels with a cross-slope of between 20 and 29.9 percent shall be assigned 1 building site per each 2 acres. c. Those portions of parcels with cross-slope of 30 percent or greater shall be assigned zero building sites. d. The density for a particular parcel shall be computed by determining the cross-slope of the various portions of the parcel applying the assigned densities listed above according to the percent of cross-slope and by adding the densities derived from this process. The maximum density derived by the procedure shall be used as one of the factors in final determination of the actual density that shall be allowed on a parcel. Where an entire parcel would not be developable because of plan policies, an extremely low density of development should be allowed. *Policy 36.0.4.1 states:* Except in areas designated as medium or high density residential or in areas designated as commercial or industrial where residential use may be allowed, an applicant wishing to apply for a subdivision under the countywide General Plan and the Greater Monterey Peninsula Area Plan must use the following procedures to calculate the maximum density that can be considered in order to prepare an application consistent with, or less than, the maximum allowable density: a. One factor in density determination shall be the land use designation. The maximum density allowable under the Area Plan for a parcel shall be divided into the total number of acres found within the parcel. For example, a 100-acre parcel with a maximum density of 1 unit per 2.5 acres would have a potential of 40 building sites. b. The slope of the property shall be determined and the slope density formula defined in this Area Plan applied. For example, a 100-acre parcel might consist of 50 percent of the land having a slope of over 30 percent and the other 50 percent below 19 percent. The maximum density allowable on that parcel as calculated according to slope would be 50 sites.	

Resource/Plan	Objectives/Policies	Assessment of Consistency
Greater Monterey Peninsula Area Plan (continued)	c. All of the policies of the Area Plan and countywide General Plan must be applied to the parcel. Any policies resulting in a decrease in density must be tabulated. This decrease in density would then be subtracted from the maximum density allowable under the slope formula. d. The maximum density allowable according to the Area Plan land use designation (Step A above) and the maximum density allowable according to the Plan policies (Steps B and C above) shall then be compared. Whichever of the two densities is the lesser shall be established as the maximum density allowable under this Area Plan. e. The calculations of maximum density made by an applicant will be reviewed during public hearings prior to the approval of any permits or quota allocation pursuant to this Area Plan.	
TRANSPORTATION		
Monterey County General Plan	*Policy 27.2.1 states:* Residential areas shall be located with convenient access to employment, shopping, recreation, and transportation. High density residential areas should also be located with convenient access to public transit.	Consistent. The proposed project is consistent with this policy because shopping, employment, recreational facilities, and recreational trails are located at the project site. The ranch center, located in the center of the community, will provide residential-serving uses such as a post office, grocery store, gas station, retail stores, and offices. Recreational facilities will include swimming, tennis, golf, and equestrian facilities. Additionally, the project includes a system of conservancy trails that will connect the ranch center with central portions of the Santa Lucia Preserve. Additional employment, shopping, and transportation are available in Carmel Valley and Monterey.
	Policy 27.2.2 states: Adequate circulation rights-of-way shall be delineated within each residential area.	Consistent. The proposed project is consistent with this policy because driveway easements are a component of the project for all residential areas.
Greater Monterey Peninsula Area Plan	*Policy 41.1.2.1 states:* If new sites for office employment, services, and local conveniences are found to be appropriate, such sites should incorporate designs and be located to allow use of alternate modes of transportation such as public transit buses, bicycles and walking.	Consistent. The proposed project is consistent with this policy because the project includes a system of trails that will connect the ranch center with central portions of the Preserve. These trails will allow employees of various residential-serving commercial facilities who live at the Preserve to walk or use bicycles as an alternative mode of transportation.
1994 Regional Transportation Plan	*Policy 1.1.1 states:* Land use planning shall be coordinated with transportation planning to fully mitigate the traffic impacts of new development.	Consistent. One of the fundamental purposes of the environmental review processes is to consider the impacts of projects (including consistency with local plans) and to mitigate impacts. The environmental review process of the proposed project will result in the adoption of mitigation measures to reduce traffic impacts to a less-than-significant level.

Resource/Plan	Objectives/Policies	Assessment of Consistency
1994 Regional Transportation Plan (continued)	*Policy 1.1.2 states:*	Consistent.
	(1) Public transit, ridesharing, carpooling, bicycle and pedestrian access; park and ride facilities, and other transportation demand management strategies shall be pursued as preferred alternatives over transportation construction projects where feasible.	(1) The proposed project includes a trip reduction program including the formation of a Traffic Management Agency and a program to minimize traffic on Robinson Canyon Road. The principal features include onsite production, stockpiling, and delivery of construction materials; the reduction of offsite trips through vanpooling of employees and students; the consolidation of deliveries from an offsite location; onsite convenience retail services; onsite recreation; onsite concierge and building maintenance facilities; onsite construction, maintenance, landscaping, and gardening services; and a signage information education program. In addition, the proposed project will provide some employee housing that will reduce offsite traffic impacts.
	(2) Bicycle and pedestrian facilities and high occupancy vehicle treatments should be provided as part of construction or improvements to all major roadways where feasible.	(2) No new major roadways are proposed under the proposed project; the primary access road would be Rancho San Carlos Road, which will be improved to meet county and CDF requirements, including providing two 10-foot-wide travel lanes and two 2-foot-wide paved shoulders. This roadway is not considered appropriate for bicyclists because it is a winding roadway and will only be widened to 24 feet maximum (including shoulders); further widening to accommodate bicyclists is not considered feasible because of adverse environmental impacts including impacts on sensitive habitats (e.g., wetlands and riparian habitats), landmark trees, water quality, fisheries, aesthetics, and soils. A pedestrian path will be added to the Rancho San Carlos Road bridge over the Carmel River. Pedestrian facilities are proposed throughout the ranch center area; in addition, a system of trails is proposed to link the ranch center to the interior of the preserve; these trails will be suitable for bicycle use.
	Policy 1.2.2 states: To ensure long-range effectiveness for new or expanded transportation facilities, a design standard of LOS C should be striven for in the twenty year RTP. This does not preclude consideration of other improvements that would improve safety or level of service. These improvements must maintain or improve traffic level of service on streets and provide for alternative transportation modes. Multimodal alternatives to major road construction shall be evaluated and analyzed by the implementing agency.	Consistent. If the mitigation measures recommended in this EIR or other conditions that achieve the same result are adopted, then levels of service on affected roadways will be maintained or improved. The proposed project also proposes to implement a trip reduction program that includes van pooling of employees and students and a series of conservancy trails linking the ranch center with central portions of the preserve.
	Policy 1.1.4 states: New recreational and visitor oriented development should be designed to encourage visitor use of alternative modes of transportation.	Consistent. The plans for the ranch center include a visitor-serving lodge and other amenities. Pedestrian facilities are proposed throughout the ranch center area to promote walking access to points within this area. The applicant also proposes to develop a shuttle/van pool service that will transport visitors to the ranch and will also transport visitors to the golf trail clubhouse. The proposed golf trail has been designed to allow many of the players to walk rather than use a golf cart. In addition, equestrian trails will promote this form of recreation and encourage visitor use of this alternative form of transportation.

Resource/Plan	Objectives/Policies	Assessment of Consistency
1994 Regional Transportation Plan (continued)	*Policy 3.3.1 states:* Well-defined pedestrian and bicycle facilities, including standard signing and alternative routing, should be encouraged to enhance safety.	Consistent. The project proposes a series of conservancy trails linking the ranch center with central portions of the preserve. In addition, the applicant proposes to provide a segment of the Carmel River Trail, which is proposed by Monterey County Public Works/TAMC Bicycle Committee to connect Highway 1 with Carmel Valley. See consistency discussion regarding bicycle facilities above under Policy 1.1.2.
RECREATION		
Greater Monterey Peninsula Area Plan	*Policy 51.1.4 states:* Riding and hiking trails should be acquired and developed with the intent of creating a coordinated, areawide trails system. All motorized vehicles shall be prohibited from using these trails. In supporting a coordinated areawide trails system, the County should give the highest priority to establishing the following trails systems: a. establish a permanent riding and hiking trail from Roach Canyon to Jacks Peak Park; b. establish an easterly ridgeline trail from Jacks Peak Park to Laureles Grade; c. establish a major trail link which generally traverses in a southeasterly direction from Carmel Valley and forms a trail connection with the Los Padres National Forest trail system; and d. establish a connection trail from the Jacks Peak Park/Laureles Grade ridgeline trail to the entrance of Laguna Seca Recreation Area to be used as a point of departure to Toro Regional Park along Highway 68. *Policy 51.2.4.1 states:* Each development proposal shall be evaluated to determine the extent to which such development may help further the County's park and recreation facility goals, objectives and policies.	Consistent. Although the proposed project does not aide in establishing the trail systems regarded by the County as having the highest priority, the proposed project is consistent with these policies because two public trails will be created and licensed to an appropriate public agency. A loop trail will link Peñon Peak with Garland Park and in the Carmel Valley a segment of the proposed Carmel Valley Trail will cross the proposed Santa Lucia Preserve parallel to the Carmel River.
INCLUSIONARY HOUSING		
Greater Monterey Peninsula Area Plan	*Policy 62.1.14 states:* All development proposals shall make provision for low or moderate income housing in accordance with the Inclusionary Housing Ordinance.	Consistent. The proposed project is consistent with this policy because the applicant is proposing to comply with the Inclusionary Housing Ordinance by including 53 affordable housing units in the project. Compliance with the ordinance shall be subject to review and approval by the Monterey County Planning and Building Inspection Department before approval and recordation of the final map.

Chapter 4. Population and Housing

INTRODUCTION

This chapter discusses the population and housing impacts that may result from the proposed project. Sources of information for this chapter include the Monterey County General Plan, the Monterey County Inclusionary Housing Ordinance, and the 1994 Regional Population and Employment Forecast prepared by the Association of Monterey Bay Area Governments (AMBAG). Additional 1990 census information (as detailed in the State Department of Finance Summary Tape File 1 Standard Profile) was used for both Monterey County and the adjacent city of Carmel-by-the-Sea (Carmel). Specific details on the project were obtained through review of the proposed project's Comprehensive Development Plan and personal communications with the project applicant and associated project consultants.

SETTING

Population

The current population of the project site is 22 persons. This figure includes 15 of the ranch's current 20 employees and seven family members (Wilcoxon pers. comm.). The site is located in the unincorporated County of Monterey. The population for the unincorporated county in 1990 was 100,474. The population for Carmel in 1990 was 4,241. Table 4-1 identifies the historical, present, and future population for the unincorporated areas of the county and Carmel, as prepared by AMBAG.

Table 4-1. Historical, Current, and Future Population

	Year					
	1990	1995	2000	2005	2010	2015
Carmel	4,241	4,350	4,671	4,791	4,846	4,930
Unincorporated Monterey County	100,474	96,673	100,058	109,129	113,080	115,817

Source: U.S. Bureau of the Census 1990.

The proposed project includes 350 housing units. According to the 1990 census, the average number of persons per housing unit is approximately 1.82 persons in the city of Carmel and 2.79 persons in Monterey County. With this range, the project is expected to generate a population of approximately 637-977 persons at buildout. Projected employment for the proposed project at buildout *has been estimated by the project applicant* ~~is estimated~~ at 200 employees (Froke pers. comm.), which may further affect the population of the county. *An independent assessment of direct employment generated by the proposed project indicates that up to 258 full-time, onsite jobs could be generated by project operations (refer to Table 5-1).*

Housing

Currently, a total of 14 existing and approved dwelling units are on the property. These include the ranch house, guest accommodations, and employee housing.

As of January 1, 1991, the California Department of Finance estimated the total number of housing units in the unincorporated area of the county to be 34,645. The number of occupied units totaled 31,577, leaving 8.86% vacant. The unincorporated area of the county is expected to gain 9,000 new residents by 1995 and needs 5,800 new housing units, most of which will be required by lower income residents. The Monterey County Housing Authority currently has 7,000 people with less than 80% of the median income for the county, on a waiting list for affordable housing. Because of the county's water constraints, its desire for environmental preservation, and the competition for available land by agriculture, providing that quantity of housing will be difficult or impossible.

In response to this need, the Monterey County Board of Supervisors has had an Inclusionary Housing Ordinance in effect since 1981. The intent of the ordinance was to encourage production of low- and moderate-income units along with market rate units, either onsite or through offsite transfers, or donation of land or a fee in lieu of providing such units. In 1985, the board of supervisors changed the Inclusionary Housing Ordinance to require onsite contributions for projects that are seven or more units in size. This change requires that 15% of all housing units onsite be designated for low- and/or moderate-income households.

The proposed project includes 350 dwelling units: 297 market-rate single-family residences and 53 housing units to be occupied by project employees. Resort accommodations planned for the site include a 110-room lodge and a 40-room hotel. Two kinds of single-family market-rate housing will be available:

- "estates", lots consisting of approximately 2.5-acre building envelopes ("homeland") surrounded by a 10- to 100-acre conservation easement, and
- "villas", lots consisting of approximately 1-2.5-acre building envelopes surrounded by a 2- to 7-acre conservation easement.

The value of undeveloped lots is anticipated to range from $500,000 to $1 million (Duffy pers. comm.). Development of the Santa Lucia Preserve project is planned to be accomplished in a total of 24 phases. Full buildout of the project is anticipated to take approximately 20 years.

According to the Monterey County Inclusionary Housing Ordinance, 15% of the total number of units proposed (or 53 units) must be set aside for low- to moderate-income households.

IMPACTS AND MITIGATION MEASURES

Approach and Methodology

This section discusses the environmental impacts related to population and housing resulting from the proposed project. For population, impacts will be determined based on whether the increased population associated with the proposed project exceeds the future population projections for the unincorporated area of Monterey County. For housing, impacts will be determined based on whether the proposed project increases the need for affordable housing in the project area.

Significance Criteria

The environmental impacts on population and housing will be assessed using the significance criteria presented in this section. The significance criteria use two parameters identified by Monterey County. Impacts on population are considered significant if growth from the project causes a substantial exceedance of the AMBAG population projections for the unincorporated area of Monterey County. Impacts on housing are considered significant if the project creates a need for affordable housing yet does not comply with the Monterey County Inclusionary Housing Ordinance.

Population

Impact: Increased Population Exceeding AMBAG Projections for Unincorporated Area of Monterey County

As discussed above, buildout of the proposed project will add approximately 637-977 residents and 200 employees (some of whom are included in the resident estimate) to the population of the county. Because the population growth associated with the proposed project does not exceed the AMBAG population projections for the unincorporated area of Monterey County, this impact is considered less than significant. The impact of the population increase on public services is described in Chapter 16, "Public Services and Utilities".

Mitigation Measure: No mitigation measures are required.

Housing

Impact: Increased Need for Housing

The impact of the proposed project on the housing market is *considered negligible, although* ~~beneficial because~~ it *would provide* ~~provides~~ additional housing units in a county where there is a current housing shortage. In total, 350 housing units will be added to the housing supply. According to the Monterey County Inclusionary Housing Ordinance, 15% of the total number of units proposed must be set aside for low- to moderate-income units. This equates to 53 units;~~.~~ *however, these units are not expected to offset the increased demand for affordable housing generated by the estimated 258 onsite employees, even though the residual demand for additional affordable housing within Monterey County is expected to be relatively small because of the following factors:*

- *The proposed project would provide 53 employee housing units that would be affordable to low- and moderate-income households, as defined by the Monterey County Inclusionary Housing ordinance.*

- *Of the remaining 205 employees requiring housing, a large portion of these employees probably already reside within Monterey County and would not require additional affordable housing.*

- *Not all of the onsite employees would fall into the low- and moderate-income categories and therefore would not require housing affordable to low- and moderate-income households.*

Because of these factors, the residual demand for new affordable housing within Monterey County generated by the proposed project is not expected to be large, resulting in adverse, but small, housing market effects.

The project applicant is proposing to comply with the Inclusionary Housing Ordinance. Compliance with the ordinance shall be subject to review and approval by the Monterey County Planning and Building Inspection Department before approval and recordation of the final map. Because the proposed project is consistent with the Inclusionary Housing Ordinance, this impact is considered less than significant.

Mitigation Measure: No mitigation measures are required.

Chapter 5. Economics

INTRODUCTION

Economic effects are not normally considered environmental effects under CEQA. CEQA generally applies to project-related effects on the physical environment; however, the economic effects may be considered in an EIR under two conditions.

First, if the economic effects of a project may result in a physical change in the environment, the physical change (not the economic effect) must then be evaluated to determine the significance of the change. For example, the economic effects of the project (i.e., generation of onsite employment, income, and housing demand) could result in traffic, air quality, and housing-related impacts. The significance of these potential physical effects are evaluated in other chapters of this EIR.

Second, the adverse economic effects resulting from a project-related physical change may be used to judge the significance of the physical change; however, the economic effects of the Santa Lucia Preserve project, including the generation of employment and spending in the regional economy, are expected to be beneficial, as discussed later in this chapter.

A lead agency, however, has the discretion to include relevant discussions of project-related economic effects within an EIR. This chapter discusses various economic issues related to the proposed Santa Lucia Preserve project. These issues include the following:

- the generation of direct employment through project-related construction, operations, and maintenance activities;
- the creation of secondary economic activity within the region through project-related expenditures on goods and services; and
- the effect of the project on the region's existing jobs/housing balance.

An independent assessment of the project's impact on Monterey County's fiscal conditions was not conducted as part of this EIR. Most of the public services provided to the project site would be financed through a CSA. A CSA is an administrative mechanism used by the County of Monterey to finance services in unincorporated areas. CSAs may establish zones of benefit, issue bonds, charge user fees, and enter into contractual agreements to provide services. CSAs can provide a wide variety

of services, including sewer, street lighting, water, drainage control, police protection, fire, and open space maintenance. A CSA presumably would be created to encompass the proposed project site.

CSAs have the authority to levy benefit assessments on properties within the CSA's boundary. The benefit assessment levied on individual properties and users of public services would depend on the type and level of services provided by the CSA. According to the Monterey County LAFCO (Cook pers. comm.), CSA benefit assessments have provided secure financing for public services and have minimized the potential for future financial problems. Property and sales tax revenue generated by the project would also help to offset public costs not directly offset through benefit assessments levied by the CSA. Public services issues related to the project are addressed in Chapter 16, "Public Services and Utilities".

The financial and market feasibility of the proposed project are also not addressed in this EIR. This information, considered privileged by the project applicant (Duffy pers. comm.), is not normally included in an EIR.

Information contained in this chapter was provided by the project applicant (Duffy pers. comm.), the California Employment Development Department (1994), previous environmental documents prepared for the project (Planning Analysis & Development 1992), and the California Department of Finance (1994).

SETTING

Employment

Existing Onsite Employment

Most of Rancho San Carlos (the project site) is leased and operated primarily as a cattle ranch. A small amount of land on the site is also leased to a farmer who produces row crops. Land near the entrance of Rancho San Carlos is leased for a racquet, swim, and fitness center and for a daycare center. The owners of Rancho San Carlos maintain the ranch house, guest house, and recreational amenities (i.e., tennis court, swimming pool, and equestrian facilities) at San Francisquito for their use and that of guests and ranch employees. (Planning Analysis & Development 1992.)

The existing ranch operations recently employed 18 permanent full-time staff, including a ranch manager, cowboys, ranch hands, house helpers, and a groundskeeping staff. Additional temporary employees are occasionally hired to supplement the ranch, house, and groundskeeping staff. (Planning Analysis & Development 1992.)

The operation of the ranch and the spending of ranch employees generate a small amount of additional employment and income in the region. Specifically, ranch purchases generate employment

in the ranch and farm supply retail sectors, while employee expenditures are spread across numerous retail and services sectors.

Regional Employment

Monterey County's economy is largely supported by tourism, agriculture, and the military. The county's economic base is undergoing changes, however, with the closure of Fort Ord, and the resulting transfer of troops to Fort Lewis, Washington, and the eventual loss of 2,000 civilian jobs. Reuse of Fort Ord is expected to ultimately offset the closure-related loss of employment and provide a broader economic base in the county; however, full redevelopment of the base is likely to take many years.

The effects of Fort Ord closure began to be felt during mid-1993 as troop transfers and civilian layoffs began. Department of Defense civilian employment in the county fell from 4,700 to 3,900 jobs during 1993 (California Employment Development Department 1994). Reduced military spending and civilian employment reductions likely were responsible for employment reductions or slow employment growth in other sectors such as retail trade during 1993.

The combined effects of the recent recession and Fort Ord closure have slowed overall employment growth in Monterey County. Employment in the county increased by 17% over the 5-year period from 1983-1988, but increased by only 3% between 1988 and 1993. Employment in the county is dominated by the agriculture, retail trade, services, and government sectors. Together, these four sectors accounted for 79% of the 138,200 civilian wage and salary jobs in Monterey County in 1993. (California Employment Development Department 1994.)

Monterey County's economy, which produces a large number of seasonal jobs related to agriculture and tourism, is generally characterized by unemployment rates higher than California's overall unemployment rate. Unemployment in the county averaged 12.3% in 1993, compared with 9.2% in California. Monterey County's unemployment rate represented an estimated 21,400 unemployed workers in 1993. (California Employment Development Department 1994.)

Jobs/Housing Balance

The adequacy of an area's housing supply can be generally characterized by evaluating the ratio of jobs to housing in an area. Achieving a jobs/housing balance is believed to reduce excessive commute distances, reduce automobile-related air pollution and traffic congestion, and decrease upward pressure on housing prices.

A jobs/housing ratio is often used to evaluate the balance between local jobs and housing, even though income distribution and housing prices play an important role in achieving a realistic balance. Jobs/housing ratios, however, provide an indication of whether a local area provides a sufficient supply of housing to meet the needs of the local workforce. Characteristics such as the average number of workers per household, average household size, and the mix of housing in an area help determine the ratio of jobs to housing that reflects a realistic balance in an area; however, communities are generally considered to be in balance when the ratio of jobs to housing lies within the range of 0.75-1.25 (Sedway & Associates 1992).

The overall Monterey County jobs/housing ratio of 1.11 in 1993, based on 138,200 jobs and 124,170 housing units (California Department of Finance 1993) in the county indicates a generally balanced relationship between jobs and housing in the county. This ratio indicates an improvement in the recent balance between jobs and housing in the county and likely reflects the effects of slow employment growth in the county in recent years.

IMPACTS AND MITIGATION MEASURES

Approach and Methodology

The primary economic effect of the proposed project would be the generation of employment, both onsite and offsite. Employment would be directly generated by project construction and operations and indirectly generated elsewhere in the economy by the expenditures of onsite businesses and their employees. Indirect employment refers to jobs generated offsite by the demand for goods and services by onsite business (e.g., onsite restaurants buy food products and other goods from offsite businesses). Induced employment refers to jobs created offsite by the consumer purchases of onsite employees (e.g., employees spend portions of their income on food, gasoline, and furniture). Indirect and induced employment are hereafter referred to as secondary employment.

Construction of project facilities and housing would generate temporary construction employment during the project's construction period. The number of construction jobs that could be generated by the project cannot be accurately estimated because of the lack of information regarding construction costs and details concerning construction phasing. Construction-related employment is qualitatively discussed based on the amount of construction that would result from the project.

Permanent employment generated by operation of the project was estimated using the following methods.

- Onsite employment was estimated based on the square footage of employment-generating development and the number of guest rooms proposed as part of the project (Table 5-1). Employment was then estimated using appropriate square-feet-per-employee estimates (Association of Bay Area Governments 1987) for onsite land uses and estimates of employees required per guest room (Planning Analysis & Development 1992) that would be developed as part of the lodge and the hacienda. *Employment generated by the operation of horse stables and equestrian facilities was estimated based on professional judgment.*

- Offsite secondary employment generated by operations of the project was estimated using employment multipliers from an economic input-output model developed by the Association of Bay Area Governments (1987). The multipliers predict the number of secondary jobs that would be generated offsite for every job created onsite. The estimates of secondary employment include all jobs that would be generated by onsite activities. These estimates represent the most optimistic estimate of secondary jobs that would be generated in Monterey County because many of these jobs would likely be generated in businesses located outside the county.

The project's effect on Monterey County's jobs/housing balance was evaluated based on the number of housing units and jobs that would be generated onsite by the proposed project. Secondary employment generated by the project was not considered in the evaluation of jobs/housing effects because the location of these jobs and the availability of housing near secondary jobs are not known.

Significance Criteria

As discussed previously, economic effects alone are generally not considered significant impacts on the environment under CEQA. The economic effects described below are characterized as either beneficial or adverse. Employment and income growth is generally characterized as a beneficial economic effect because jobs growth provides new employment opportunities for the local and regional workforce and income growth usually stimulates additional jobs creation within the region.

The proposed project's effect on the county's jobs/housing balance is characterized by how the addition of housing and jobs resulting from the project changes the county's overall jobs/housing ratio. As discussed previously, areas are generally considered to be in balance when the ratio of jobs to housing units lies within the range of 0.75-1.25. The significance of environmental effects such as increased traffic congestion and decreased air quality that could result from an adverse change in the balance of jobs and housing are addressed in other chapters of this EIR.

Table 5-1. Estimated Employment Generated by the Proposed Project

Employment-Generating Facilities	Employees per Room[a]	Number of Rooms	Square Feet per Employee[b]	Square Feet	Estimated Number of Onsite Jobs (FTE)	Estimated Number of Secondary Jobs[c] (FTE)
Lodge						
Guest rooms	0.6	110			66	87
Meeting rooms			840	7,500	9	12
Lounge/lobby/gift			450	2,500	6	7
Dining			*300* ~~600~~	2,750	*9* ~~5~~	20
Services			860	12,600	15	25
Horse stables/paddocks			*N/A*	*N/A*	*2*	*3*
Hacienda						
Rooms	0.6	40			24	32
Dining room/kitchen			*300* ~~600~~	3,080	*10* ~~5~~	23
Ranch center						
Post office			250	500	2	5
Retail			450	5,000	11	13
Cafe			*300* ~~600~~	1,000	*4* ~~2~~	7
Offices			300	5,500	18	98
Miscellaneous commercial[d]			450	3,000	7	8
Library/gallery			500	2,000	4	6
Meeting/multi-purpose rooms			840	5,000	6	8
Administration			350	5,000	14	24
Golf trail, clubhouse and practice range[e]			N/A	N/A	19	8
Sporting center[f]			870	6,000	7	9
Ranch operations center						
General storage/maintenance			1,400	10,000	7	8
Equipment maintenance			860	5,000	6	10
Equestrian Center			*N/A*	*N/A*	*4*	*5*
Employee recreation center[g]			870	2,000	2	3
Wastewater treatment plant[h]			N/A	N/A	6	15
Total employment					*258* ~~241~~	*436* ~~428~~

Notes: FTE = full-time equivalent jobs (i.e., two part-time jobs equal one full-time job).
N/A = not applicable.

[a] Source: Planning Analysis & Development 1992.

[b] Source: Association of Bay Area Governments 1987.

[c] Secondary employment includes the indirect and induced employment generated by onsite activities. These estimates represent the most optimistic estimate of additional of employment generated in the region. These estimates were prepared based on employment multipliers developed by the Association of Bay Area Governments (1987).

[d] Includes ATM/banking space and commercial storage space.

[e] Employment estimated based on U.S. Bureau of the Census 1989.

[f] The sporting center includes buildings for a pro shop, lockers, exercise and fitness rooms, massage and spa therapy facilities, and a snack bar. The center also includes six tennis courts and a swimming pool.

[g] The employee recreation center will include a multipurpose community building, a basketball court, a softball/soccer field, outdoor picnic facilities, a tot lot, and a swimming pool.

[h] Estimated assuming three two-person shifts per day.

Employment

Impact: Generation of Construction-Related Employment

Construction of project facilities and housing would probably require at least 20 years to complete, generating construction-related jobs over a long period of time. General development plans prepared for the project indicate that nearly 207,000 square feet of lodging, commercial, administrative, and recreational building space would be constructed as part of the project. Additionally, infrastructure development and the construction of outdoor recreation facilities would also generate construction jobs. The construction of 297 custom homes and 53 employee housing units would generate additional employment in the residential construction sector.

No estimates are available on the number of construction jobs that would be generated by project-related construction; however, the number of direct and secondary jobs generated by construction activities could be substantial. Phasing of construction activities over 20 years would likely allow Monterey County's construction sector to absorb much of this work, reducing the need for large numbers of construction workers to move into the county. Competitive bidding for construction contracts, however, could result in the temporary in-migration of construction firms and workers to the local area.

The generation of construction-related employment is considered a beneficial economic effect of the project because it provides new employment opportunities for construction workers and generates income in the construction industry and related sectors.

Mitigation Measure: No mitigation measures are required.

Impact: Generation of Operations-Related Employment

The proposed project includes a number of employment-generating land uses, including the lodge and hacienda facilities that will comprise guest rooms, dining facilities, a lounge and gift shop, meeting rooms, and other visitor services; the ranch center, which will offer a post office, resident-serving retail shops, offices, a library and gallery, meeting rooms, and administrative facilities; a golf course, clubhouse, and practice range; a sporting center for residents and a recreation center for ranch employees; the ranch operations center that will contain storage and maintenance facilities; *an equestrian center;* and a wastewater treatment plant.

The project applicant estimates that onsite employment would total approximately 200 jobs, including operations and maintenance jobs (Duffy pers. comm.). Employment estimates (Table 5-1) indicate that onsite employment could reach *258* ~~241~~ full-time positions. As Table 5-1 shows, *55%* ~~54%~~ of the estimated employment would be generated by the operations of lodging and related facilities located at the lodge and the hacienda developments. Much of the remaining employment (*26%* ~~27%~~) would be related to retail, office, and administrative uses at the ranch center development.

No payroll estimates related to onsite employment are available (Duffy pers. comm.). Many of the jobs, including those related to the lodging facilities, restaurants, retail businesses, and recreation facilities, are likely to be low-wage jobs. For example, according to the California Employment Development Department (1994), a retail clerk in Monterey County can expect to earn approximately $4.25 per hour; a dining room attendant, $4.42 per hour; a food service manager, $9.40 per hour; a gardener/groundskeeper, $9.14 per hour; a housekeeping supervisor, $7.52 per hour; a maid, $6.22 per hour; and a grocery stock clerk $7.00 per hour. Facility managers, administrative workers, and office employees would likely earn much higher wages; however, these jobs would account for a relatively small proportion of onsite employment.

Even though many of the onsite jobs would be low paying, the expenditures of onsite businesses and their employees would generate a substantial amount of secondary employment. As Table 5-1 shows, secondary employment is estimated to total *436* ~~428~~ jobs. As discussed previously, many of these jobs would likely be located outside Monterey County; however, a number of secondary jobs would probably be generated in communities in the Monterey Peninsula.

The employment generated by project operations would provide new opportunities for the local and regional labor force, especially for low-skilled workers. This economic effect is considered beneficial.

Mitigation Measure: No mitigation measures are required.

Jobs/Housing Balance

Impact: No Change in Monterey County's Jobs/Housing Balance

Implementation of the proposed project would result in the construction of 350 housing units (297 market rate homes and 53 inclusionary housing units) and the generation of an estimated *258* ~~241~~ onsite jobs. The addition of project-related jobs and housing would have little effect on Monterey County's existing jobs/housing ratio; the county's ratio would remain at approximately 1.11 jobs per housing unit.

The onsite relationship between jobs and housing indicates that many employees would live offsite and commute to their onsite jobs. Only 53 of the 350 housing units that would be constructed onsite would likely be affordable for most of the estimated *258* ~~241~~ onsite workers. Workers and their families would seek housing in nearby communities such as Carmel and Monterey; however, the search for affordable housing could result in workers commuting from communities such as Marina and Seaside, where the closure of Fort Ord has caused the vacancy of low-cost housing units.

The potential environmental and housing effects of the imbalance in onsite jobs and housing are discussed in other chapters of this EIR, including Chapter 4, "Population and Housing", Chapter 13, "Traffic", and Chapter 14, "Climate and Air Quality". The economic effect of higher commute costs for onsite workers would be adverse, but would probably not represent a substantial cost for most workers. In addition, the applicant is proposing to operate an employee shuttle service at buildout of the proposed project.

Mitigation Measure: No mitigation measures are required.

Chapter 6. Geology and Minerals

INTRODUCTION

This chapter describes the geology and mineral resources of the project site, constraints to development and impacts on these resources. Geologic hazards and constraints addressed include seismicity, landsliding, liquefaction, and paleontological resources. Additional information on geologic conditions is found in Chapter 8, "Groundwater Hydrology, Stream Base Flow, and Water Supply and Demand".

The principal source of geologic information for this chapter is the Geological and Geotechnical Investigation, Vesting Tentative Map Submittal, Rancho San Carlos, Monterey County, California, prepared for the Rancho San Carlos project (Cleary Consultants 1994). This report is available at the Monterey County Planning and Building Inspection Department. The Cleary Consultants report covers the 16,540-acre portion of the site that lies within the GMPAP. The scope of the geological and geotechnical investigation included literature review; historical aerial photograph analysis; a geologic reconnaissance; magnetometer surveys; excavation of 20 exploratory trenches and 20 fault test pits; compilation of the seismic history of the area; detailed geologic mapping and subsurface investigation (borings) of three old, large landslides in the vicinity of proposed home sites; laboratory testing of soil strength; and engineering and geotechnical engineering analyses for the Vesting Tentative Map (VTM) stage of the development.

A third-party review of the Cleary Consultants report was conducted by Weber, Hayes & Associates (Appendix C). This review found the Cleary Consultants report to be generally comprehensive and competently executed, but several issues were identified that needed to be resolved. Weber, Hayes & Associates later discussed these issues with Cleary Consultants, with some issues being resolved and other issues determined to require further site investigations (Cleary and Nolan pers. comms.). The results of these discussions have been incorporated into this draft EIR. Some of Weber, Hayes & Associates' conclusions and recommendations for additional geologic and geotechnical investigations relate to individual building site viability. Accordingly, these recommendations are included with the impacts and mitigation measures in this report.

Revisions were made to the text of this chapter in response to additional geotechnical investigations by Cleary Consultants (1995a, b, and c). Table 1 in Appendix C was also revised to reflect the results of the additional investigations.

This description of mineral resources at the site is partly based on information in the Geological and Geotechnical Investigation prepared for the Rancho San Carlos Project (Cleary

Consultants 1994). Additional information was taken from a report by the California Division of Mines and Geology (1966), personal communications, and unpublished material provided by Rancho San Carlos Partnership (Panzer pers. comm.).

SETTING

Regional and Site Geology

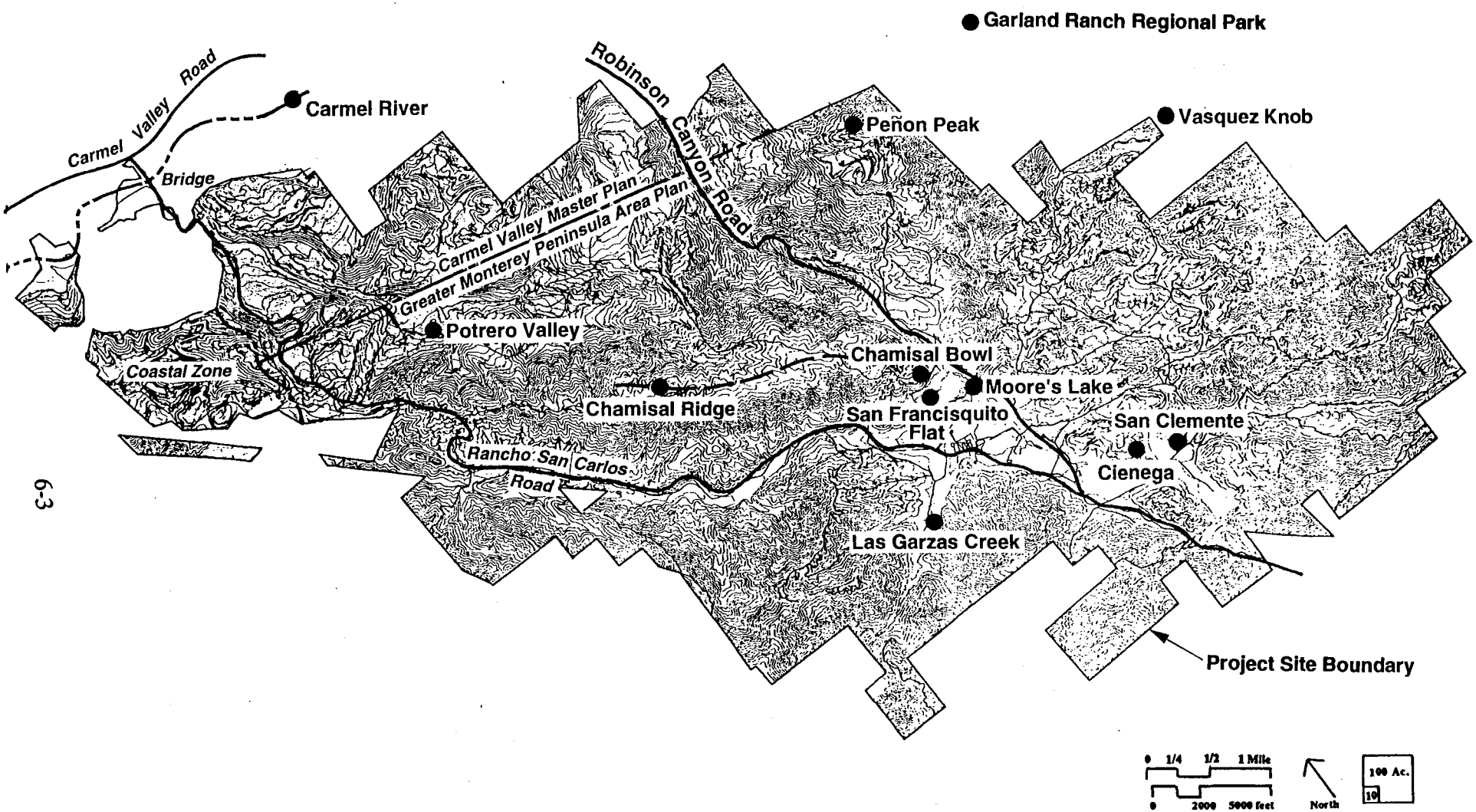
Topography

The project site is located at the northern terminus of the Santa Lucia Range, beginning at the southern edge of the Carmel River floodplain and rising toward the south. Elevations at the project site range from approximately 30 feet to more than 3,000 feet. The highest elevations are found along the southwest boundary of the site along the crest of the Santa Lucia Range (Figure 6-1). *Approximately 59% of the site has slopes in excess of 30% (Figure 6-2), 17% has slopes of 20-29%, and 24% has slopes less than 20%.* ~~Most of the site has steep to very steep slopes, ranging from 30% to more than 85% (Figure 6-2).~~ The largest area of more gentle slopes, ranging from 0 to 30%, are centered around San Francisquito Flat and San Clemente Flat, located in the central and southeastern portions of the project site. Other large areas with slopes less than 30% are also found along San Jose Creek; portions of Chamisal, Long, and Peñon Peak Ridges; and in the Potrero, Mesa, and Vasquez Knob/Touche Pass areas.

Bedrock and Surface Geology

The granitic bedrock in the region forms a portion of the Pacific (crustal) Plate known as the Salinian Block. The Salinian Block is bounded on the northeast and separated from the North American Plate by the active San Andreas fault and is bounded on the southwest by the inactive Sur-Nacimiento fault (Figure 6-3). The Pacific Plate (including the Salinian Block) is moving to the northwest along the San Andreas fault relative to the North American Plate. The relative movement of the two crustal plates have caused considerable pressure, folding, faulting, and uplift within the Salinian Block. These tectonic (crustal movement) forces have caused the formation of the abrupt rise and rugged terrain of the Santa Lucia Range, which originated within the last 5 million years.

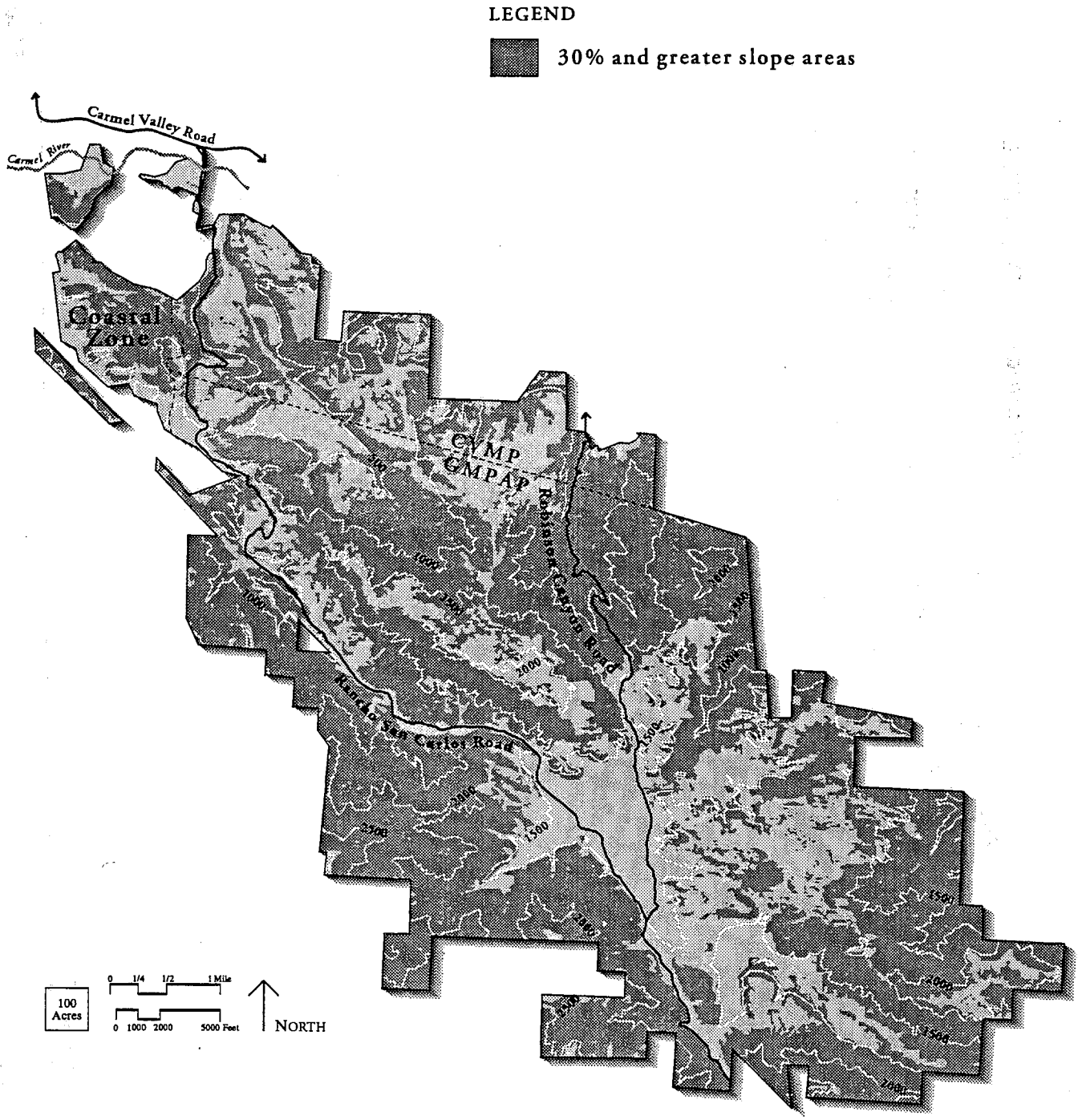
All of the bedrock and part of the surface rocks of the project site (Figure 6-4) consist of granodiorite and quartz diorite, both types of granitic rock. Small areas of metasedimentary rock (sedimentary rock altered by heat or pressure) occur in association with the granitic rocks. Overlying the granitic rocks in places are sandstone and conglomerate of the Temblor (or Chamisal) formation (consisting of the Robinson Canyon ~~formation~~ nonmarine sandstone *member* and the Los Tularcitos ~~formation~~ marine sandstone *member*). Fossils occur locally in the Temblor formation. Small areas of volcanic rock, such as basalt and andesite, occur as ridge caps within the Temblor formation. The Monterey formation, consisting of marine shale and some sandstone, also overlies the granitic rocks



Source: Camp Dresser & McKee, Balance Hydrologics et al. 1994a.

Jones & Stokes Associates, Inc.

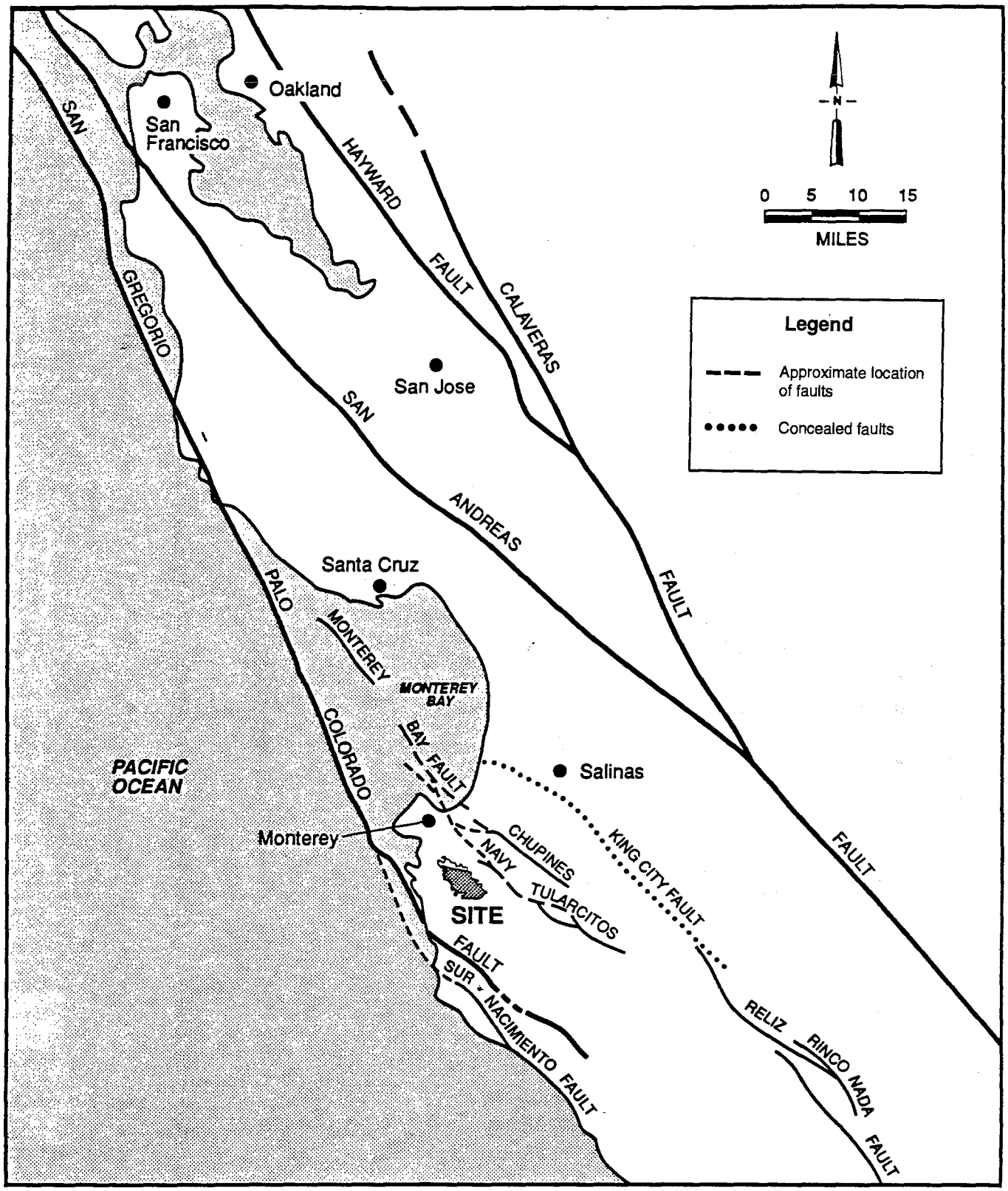
Figure 6-1
Project Site Topography



Source: Rancho San Carlos Partnership 1994a.

Jones & Stokes Associates, Inc.

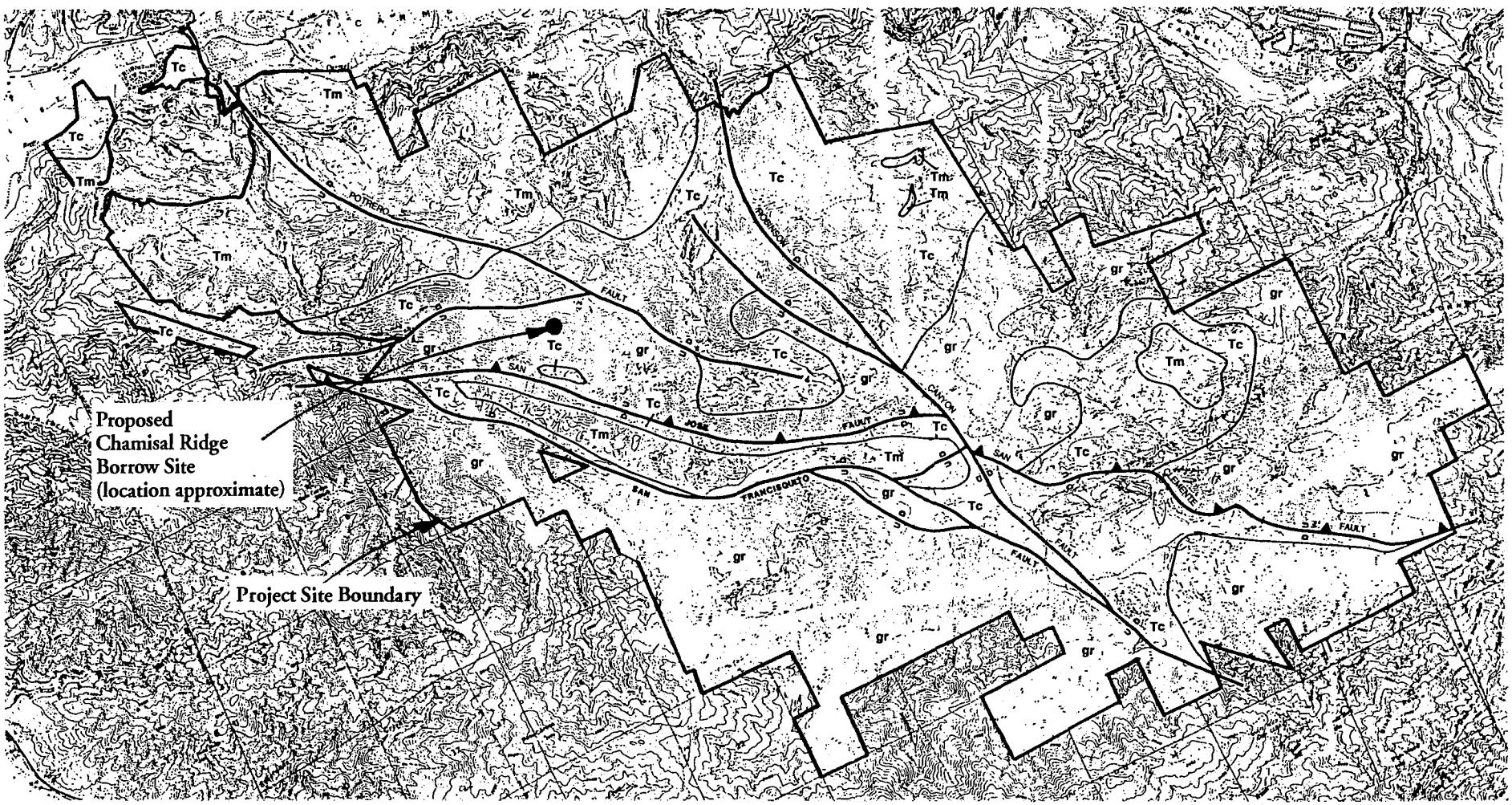
Figure 6-2
Slopes in Excess of 30%



Source: Cleary Consultants 1994.

Jones & Stokes Associates, Inc.

Figure 6-3
Regional Fault System



LEGEND

Tm	**Monterey formation**
Tc	**Temblor (Chamisal) formation**
gr	**Granitic rocks**

Contact

Fault, questioned where uncertain
(**U** = upthrown side, **D** = downthrown side,
barbs indicate dip of fault plane)

0 1/4 1/2 1 Mile
0 2000 5000 feet
North
100 Ac.
10

Source: Camp Dresser & McKee, Balance Hydrologics et al. 1994a.

Jones & Stokes Associates, Inc.

Figure 6-4
Generalized Site Geology Map

and Temblor formation sandstone. In the valleys and along creek floodplains are recent deposits of mostly sandy alluvium (Cleary Consultants 1994). (A more detailed discussion of the geologic formations is found in Chapter 8, "Groundwater Hydrology, Stream Base Flow, and Water Supply and Demand".)

Regional and Site Faulting and Seismicity

The project site is located in a seismically active region. In addition to the San Andreas fault (30 miles from the site, as measured from San Francisquito Flat), other active faults capable of causing strong ground shaking at the site include the Palo Colorado-San Gregorio fault complex (6 miles from the site) and the Monterey Bay fault zone (11 miles from the site) (Figure 6-3). Other regional faults, such as the King City, Cypress Point, Tularcitos-Navy, and Chupines faults, have potential to be active. Hundreds of earthquakes of varying magnitude have occurred along these faults during the 20th century (Cleary Consultants 1994).

The site is in Seismic Hazard Zones III to VI, indicating that the area is subject to earthquakes rated as moderate to very high in intensity. The maximum credible earthquake, defined as the maximum earthquake appearing capable of occurring under known tectonic conditions, for regional faults ranges in Richter scale magnitude from 6.0 on the Chupines fault to 8.5 on the San Andreas fault (Cleary Consultants 1994).

Five faults, the San Francisquito, San Jose thrust, San Clemente thrust, Potrero, and Robinson faults, have been mapped *by Cleary Consultants* on the project site (Figure 6-4). (See Chapter 8, "Groundwater Hydrology, Stream Base Flow, and Water Supply and Demand", for a detailed description of the structural features of these faults.) *An additional fault, the San Clemente Ridge fault, was identified by Nolan Associates (1995) subsequent to Cleary Consultants' investigations. The San Clemente Ridge fault was determined to be pre-Holocene, in contrast to the five faults.* The faults are generally of the normal or reverse types, in which one block has moved upward or downward relative to the adjacent block. Cleary Consultants conducted an investigation of these five faults by digging exploratory trenches and concluded that there was no evidence of recent activity. (Nevertheless, the lack of evidence of activity does not prove that a fault is inactive.) Evidence of strong past activity was found, however, to the extent of finding zones of granodiorite folded and faulted over the top of younger sandstone. The high natural rate of erosion, landslide occurrence, soil creep, prevalence of poorly developed soils, and recent alluvial deposition all tend to obscure evidence of recent fault activity (Cleary Consultants 1994). *Because there is no clear evidence of fault activity or inactivity, the six faults are considered potentially active, as defined by California Division of Mines and Geology guidelines.*

Landsliding

Slope instability and mass movement features are common in the Santa Lucia Range. Slope failures, such as earth flows, debris flows, slumps, and soil slips, may be caused by grading, vegetation removal, intense wildfire (including formation of water-repellant soils), and periods of high rainfall. Such mass failures may be activated by earthquakes. The layered sedimentary rock and weathered rock and soil of the Temblor and particularly the Monterey formations are subject to massive landslides, both on disturbed and undisturbed slopes. Although the granitic and metamorphic rocks of the Santa Lucia Range are less prone to landsliding than other rocks in the region, they are nevertheless subject to failure. For example, the town of Big Sur was extensively damaged by a mudflow generated from hillslopes underlain by granitic and metamorphic rocks in winter 1972 following a relatively small wildfire (Henson and Usner 1993).

Cleary Consultants (1994) analyzed slope instability in areas of the site proposed for development. Landslides were classified into three categories according to their level of activity: active, dormant, and old. Active landslides show recent movement and are not suited to development. Dormant landslides show no evidence of current movement but are potentially unstable; development should be avoided. Old landslides are not currently moving and are moderately stable to stable. They are generally suitable for development under static and dynamic (e.g., ground movement acceleration during a seismic event) conditions and are now stable and have a low potential for renewed movement under the existing geomorphic and climatological conditions. Their stability, however, should be confirmed through more detailed geological and geotechnical investigations if development could be affected (Cleary Consultants 1994).

Landslide types on the site identified by Cleary Consultants (1994) include rotational and translational bedrock slump and rock block glides, earth flows, debris flows, rock falls, and rock topples. Abundant medium to massive old landslides and relatively smaller dormant and active landslides have been identified, mostly on the Temblor and Monterey formations. The massive old landslides, up to 3,200 feet long and 1,900 feet wide, are believed to date from the early Holocene (i.e., the past 12,000 years) or *earlier* ~~later~~, during the last Pleistocene ice age, when the climate was generally wetter than at present. The larger landslides appear to be primarily complex, bedrock slump and rock block slides controlled by the underlying bedrock orientation. Recent landslides occurring on naturally steep slopes are primarily debris flows and earth flows. The latter are the most hazardous for public safety because they are the fastest moving and are the least predictable.

Liquefaction and Lateral Spreading

Liquefaction is the relatively rapid loss of soil shear strength caused by strong ground shaking resulting from an earthquake. Sediments most susceptible to liquefaction are clean, unconsolidated, saturated fine sands lying within about 50 feet below the soil surface. Lateral spreading is a failure of soil/sediment within a nearly horizontal zone (possibly due to liquefaction), which causes the soil

to move toward a free face *(such as a streambank)* or down a gentle slope. Lateral spreading can occur on slopes as gentle as one half a degree.

~~The~~ Cleary Consultants *(1994 and 1995a)* ~~report~~ evaluated liquefaction hazard by boring ~~in the San Francisquito Flat area at two locations: one~~ at the proposed equestrian center, ~~and the other at~~ the proposed ranch center, *and at building lots identified by the draft EIR as having possible liquefaction hazard.* The equestrian center site was determined to have a possible liquefaction hazard due to saturated silty sand at 13 feet depth (Cleary Consultants 1994). *Lots 19 and 65 were also identified to have a liquefaction hazard sufficient to warrant special engineering considerations for foundations.* ~~Based on the soil survey map (U.S. Soil Conservation Service 1978), other sites proposed for development, such as in San Francisquito Flat and San Clemente Flat (e.g., Lots 95, 96, and 97) and in the narrow floodplains of San Jose Creek and Potrero Canyon, may also have a liquefaction hazard.~~

The boring at the ranch center revealed no apparent liquefaction hazard. Site conditions at the proposed hacienda site similar to the ranch center suggest the hacienda site has no liquefaction hazard (Cleary Consultants 1994).

Mineral Resources in Monterey County

Overview

The most important mineral-bearing geological formations in the county are the Sur Series (containing dolomite, limestone, and barite); the Franciscan formation and associated serpentine (gold, chromite, mercury, and asbestos); older granitic rocks (stone and feldspar); Miocene sedimentary rocks (oil, gas, coal, dimension stone, and diatomite); and Quaternary alluvial, beach, and dune deposits (sand, gravel, and clay) (California Division of Mines and Geology 1966).

Mineral resources found on the project site are discussed below in the context of their occurrence and use in the county.

Sand and Gravel Deposits

A variety of sand and gravel resources are found in the county, including Quaternary (approximately 2 million years old or less) beach and dune sands, sand and gravel from stream deposits, and older formations of sand and gravel. Much of the sand and nearly all the gravel extracted in the county that is used for construction purposes is taken from Quaternary stream channel deposits (California Division of Mines and Geology 1966).

Dimension Stone

Dimension stone, taken from several geologic formations in the county, is used as an architectural building material (California Division of Mines and Geology 1966). Dimension stone that is taken from the Monterey formation siliceous shale is called Carmel Stone in the Carmel area (Cleary Consultants 1994).

Regionally, the Monterey formation crops out from Monterey to San Luis Obispo County (California Division of Mines and Geology 1966).

Crushed Rock

A variety of rocks in the county are used for landscaping and (nondimension stone) construction purposes and for riprap. Sources of these materials in the county are granitic rocks (including granodiorite), sandstone, siliceous shale, chert, greenstone, and other rocks. Some of these rocks are extensive throughout the county.

Mineral Resources at the Project Site

Sand and Gravel Deposits

Sand and gravel deposits occur within the active stream channel of the Carmel River at the extreme northern end of the site and cover a 5- to 10-acre area. These deposits consist of unconsolidated, unsorted fine to coarse sands and gravels, with lesser quantities of cobbles and boulders (Cleary Consultants 1994). The sand and gravel deposits on the site are not currently being extracted, nor is there evidence that any significant extraction of these materials has ever occurred in this area.

Dimension Stone

On the project site, the Monterey formation, the source of dimension stone, primarily occurs in the northern portion (Cleary Consultants 1994). The project site has one existing, active quarry located near the Rancho San Carlos Road entrance to the site. The quarry, located in Monterey formation siliceous shale, has been used since the turn of the century to extract Carmel Stone for onsite use (Cleary Consultants 1994). A cluster of now abandoned quarries, operated by Santa Lucia Quarries, Ltd., is described as existing near this quarry by the California Division of Mines and Geology (1966).

Because the Carmel Stone material taken from the existing quarry is used only for onsite use, it is exempt from requirements of the County Use Permit and the state Surface Mining and Reclamation Act (SMARA).

Crushed Rock

As described previously, the predominant rocks underlying the site are granodiorite, Monterey shale (some of it siliceous), and sandstone. Relatively small amounts of these materials were probably used in constructing roads and other pavements on the site. Because crushed rock material will be taken from a proposed borrow site on the property and will be used only for onsite use, the use of this rock is exempt from the requirements of the County Use Permit and the state Surface Mining and Reclamation Act (SMARA).

IMPACTS AND MITIGATION MEASURES

Approach and Methodology

Potential impacts and constraints to development related to geologic hazards and constraints and to the use of mineral resources are evaluated. The evaluation was based on review and analysis of existing literature including the geologic and geotechnical investigations discussed previously under "Introduction".

Significance Criteria

The following significance criteria, derived from Appendices G and I of the State CEQA Guidelines and from professional judgment, are applicable to the proposed project under review. The project would result in a significant impact if it would result in:

- exposures of people or property to geologic hazards, such as earthquakes, landslides, debris flows, liquefaction, or similar hazards;
- a substantial change in topography or ground surface relief features;
- unstable earth conditions or changes in geologic substructures;
- destroying, covering, or modifying any unique geologic or physical feature, such as a disruption or other adverse effect on a paleontological resource of limited surface exposure;

- substantial depletion of a limited mineral resource; and
- preclusion of a substantial amount of an economically extractable mineral resource that is of limited regional abundance from being used in the future.

Topography and Paleontological Resources

Impact: Change in Topography/Ground Surface Relief

Approximately 425,000 cubic yards of soil and rock will be excavated, cut and filled, or otherwise graded for use as engineered fill, road subbase and base material, asphalt aggregate, riprap, and topsoil (Cleary Consultants 1994). For reference, this is equal to a 176-acre area graded to a depth of 1.5 feet. Cut-and-fill amounts are expected to balance onsite. Because this amount of grading is small in relation to the overall project site size, this impact is not considered significant, provided other indirect effects associated with grading (e.g., erosion) are properly mitigated. Similarly, although site grading would significantly alter individual site microtopographical contours and relief features, the extent of earth movement is not expected to constitute a significant impact on the large-scale relief of the site. The exception to this assessment is effects associated with the proposed aggregate borrow site, which is discussed later in this section.

Mitigation Measure: No mitigation measures are required.

Impact: Possible Disruption and Destruction of a Limited Paleontological Resource Resulting from Site Grading

The Temblor/Chamisal formation is described as locally fossiliferous (fossil-bearing) (Cleary Consultants 1994) and has limited surface exposure in northern Monterey County. Most of the extent of this formation is present on the project site. Grading, excavation, and other bedrock-disturbing construction activities within this formation could significantly disturb or destroy the geologic record contained in this formation. This impact is considered significant. To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Mitigation Measure *1*: Implement a Paleontological Site Mitigation Plan. A mitigation plan should be prepared and implemented in conformance with Title 21, Chapter 21.66.050.D of the County Zoning Ordinance. The plan should include the provision that in the event that any fossils are found during bedrock-disturbing construction activities in Temblor/Chamisal formations, grading should be discontinued to allow analysis of the significance or recovery of fossils, as required. The mitigation plan should be submitted to and approved by the Monterey County Planning and Building Inspection Department.

Seismicity

Impact: Potential Structural Damage and Threat to Public Safety Resulting from Fault Displacement during a Seismic Event

Onsite fault activity investigations by Cleary Consultants (1994) have concluded that the known faults on the project site do not show evidence of recent activity. Geologic conditions (see "Setting" section) at the site, however, do not allow for precise determination of the date of the last fault movements. Approximately 45 proposed building envelopes are crossed by or are in proximity to the five faults investigated by Cleary Consultants. The location of structures and facilities on, over, or near any of the faults on the project site could result in structural damage and personal injury from fault displacement, including ground surface rupture, at the surface in a seismic event.

The Cleary Consultants report concluded that because of the apparent low potential for future fault movement on the project site, no special mitigation measure for road construction and underground utility placement is required.

The third-party review conducted by Weber, Hayes & Associates (Nolan pers. comm.) also determined that Lots 157 and 206 may be located on the lip of the overthrust block of the San Clemente thrust fault. Surface displacement/ground surface rupture along this fault could result in structural damage and personal injury.

The potential structural damage and threat to public safety resulting from fault displacement is considered significant. Implementation of the applicant's mitigation measure and the additional mitigation measure described below would reduce the impact to a less-than-significant level.

Applicant's Proposed Mitigation Measure *2*: Establish 50- or 100-Foot (Depending on the Degree of Fault Trace Definition) Habitable Structure Setbacks from Fault Lines. The applicant's VTM shows the required setbacks within the proposed development lots (Table 6-1) from faults identified by Cleary Consultants. Because of the additional hazards identified by Weber, Hayes & Associates *and by Nolan Associates*, an additional mitigation measure is required to reduce the hazard of ground surface displacement to a less-than-significant level.

Additional Mitigation Measure *3*: Provide Sufficient Setback from Additional Faults or Provide a Mat or other Engineered Foundation. The applicant should conduct additional site investigations of lots affected by the San Clemente thrust (Lots 157 and 206), *splay of the Potrero fault,* and provide sufficient setbacks (as required) from the San Clemente thrust, or provide a mat or other engineered foundation, as appropriate. *For the San Clemente Ridge fault, structures should not be placed directly over the trace of the San Clemente Ridge fault, as recommended by Nolan Associates (1995).* The investigations should occur and contingency mitigation (i.e., setback or foundation) should be determined before issuance of a building permit.

Table 6-1. Recommended Setbacks for Habitable Structures from Fault Traces

Lot Number	Causative Fault	Dwelling Setback from Fault (Feet)
8	Potrero Fault	100
10	San Jose Thrust Fault	50
11	San Jose Thrust Fault	50
12	San Jose Thrust Fault	100
13	San Jose Thrust Fault	50
14	San Jose Thrust Fault	100
17	San Jose Thrust Fault	100
18	San Francisquito Fault	50
19	San Francisquito Fault	50
20	San Francisquito Fault	50
21	San Francisquito Fault	50
22	San Francisquito Fault	100
26	San Francisquito Fault	50
27	San Francisquito Fault	50
30	Robinson Fault	100
32	San Francisquito Fault	50
33	San Francisquito Fault	50
37	San Francisquito Fault	100
53	San Francisquito Fault	50
55	San Francisquito Fault	50
57	San Francisquito Fault	50
58	San Francisquito Fault	50
59	San Francisquito Fault	50
62	San Francisquito Fault	50
64	San Francisquito Fault	50
65	San Francisquito Fault	50
67	San Francisquito Fault	100

Table 6-1. Continued

Lot Number	Causative Fault	Dwelling Setback from Fault (Feet)
68	San Francisquito Fault	50
73	San Francisquito Fault	50
75	San Francisquito Fault	50
77	Robinson Fault	100
83	San Francisquito Fault	100
85	Robinson Fault	100
93	Robinson Fault	50
99	Robinson Fault	100
100	San Francisquito Fault	100
119	San Clemente Thrust Fault	100
157	San Clemente Thrust Fault	50
169	San Clemente Thrust Fault	50
~~197~~	~~Potrero Fault~~	~~100~~
~~198~~	~~Potrero Fault~~	~~50~~
~~199~~	~~Potrero Fault~~	~~50~~
206	San Clemente Thrust Fault	100

Note: Additional lots may require setbacks based on additional site investigations.

Source: Cleary Consultants 1994, *1995c*.

Impact: Potential Structural Damage and Threat to Public Safety Resulting from Ground Shaking during a Seismic Event

Strong ground shaking caused by regional earthquakes could result in severe damage to structures and utilities and pose a significant risk to public safety. Unless constructed to withstand the shaking caused by an earthquake, structures could collapse or be shifted off their foundations, aboveground and underground utilities could fail, and loss of life or injury could occur. This impact is considered significant. To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Applicant's Proposed Mitigation Measure *4*: Design and Construct New Buildings in Accordance with Current Standards of Earthquake-Resistant Construction. Structures would be designed and constructed according to Uniform Building Code Zone IV criteria. This would reduce the impact of strong ground shaking to a less-than-significant level, given current construction technology.

Impact: Potential Increased Earthquake Activity Due to Groundwater Withdrawal and Consequent Potential Structural Damage and Threat to Public Safety

It has been well established theoretically and empirically that motion along fault planes is affected by the pressure of fluid (e.g., groundwater) in the fault plane. High fluid pressure counteracts the normal stress between the structural blocks on either side of the fault plane, thereby decreasing the frictional resistance to slippage along the plane. Hubbert and Rubey (1959) demonstrated that this decrease in frictional resistance is the mechanism that makes thrust faulting possible over large distances. A dramatic demonstration of the relationship between fluid pressure and seismicity was the close correlation between the frequency of small earthquakes and the rate of deep injection of waste fluids at high pressure at the Rocky Mountain Arsenal near Denver during 1962-1965 (Evans 1966). *However, only a very high <u>increase</u> in fault plane fluid pressure would cause an increased likelihood of fault movement. No impact is expected.*

~~However, because the faults on the site were not found to be active by Cleary Consultants and because the nearest active faults to the site, the Cypress Point-Tularcitos faults, are well beyond the cones of depression (extending no more than several hundred feet) of the proposed water supply wells, no increased fault movement/earthquake activity due to groundwater withdrawal is expected. Moreover, the Cypress Point-Tularcitos faults are more likely to be affected by groundwater withdrawal from the Carmel Valley alluvium than by groundwater withdrawal from onsite wells. No impact is expected.~~

Mitigation Measure: No mitigation measures are required.

Landsliding

Impact: Potential Structural Damage and Threat to Public Safety Resulting from Landsliding or Other Slope Failure

As described in the "Setting" section above, the steep slopes of the project site are susceptible to landsliding and other types of slope instability. Large areas of old, dormant, and active landslides occur on the project site, primarily on the Temblor and Monterey formations. The Cleary Consultants report concludes that the old landslides are stable and suitable for development. Recommendations were made and incorporated within the VTM (Cleary Consultants 1994) to relocate road alignments and building envelopes, thereby avoiding small areas within old landslides judged to be unstable and the mapped areas of dormant and active landslides. The report concludes that factors that could destabilize currently stable slopes, such as removal of landslide toe support, or changes in groundwater regime, such as introduction of landscape irrigation and septic effluent water to existing old landslides, would not substantially affect slope stability. No examples of anticipated slope undercutting or steepening by either grading or existing erosion were identified. The amount of added water from landscape irrigation and septic effluent was judged to be minor in comparison to normal runoff and rainfall (Cleary Consultants 1994). The conclusion by Cleary Consultants that septic tank leachate would not affect the stability of deep-seated slides is confirmed by Weber, Hayes & Associates. According to Weber, Hayes & Associates, however, movement of small, shallow failures (e.g., soil slips) could be activated by introduction of septic leachate into slopes.

There is the possibility of landslides or other types of mass movement occurring on slopes that do not now show evidence of past or present instability. The absence of landslides is not an indication for the low potential of future landslides in an area of steep slopes and bedded and porous sedimentary bedrock. Just as the occurrence of an earthquake on a given fault may relieve stress on that fault and reduce the potential for near-term future earthquakes, so the occurrence of a landslide lowers the potential instability of that earth material by moving it to a lower and less steep slope and closer to its angle of repose. In general, areas of steep slopes and bedding planes parallel to the slope that do not show evidence of landsliding should be of concern for future landsliding. Most of the proposed building envelopes, *driveways, and roads* are on topographic high points, saddles, and slopes of less than 30%. Although the potential for landsliding is less for gentler slopes, it is not eliminated.

Geographic variations in precipitation in the Santa Lucia Range are also a concern for landslide hazard. The abrupt elevation rise of the range directly in the typical winter storm path results in potentially high rainfall amounts within short time periods. At elevation 3,800 feet on Anderson Peak, 134 inches of rainfall were recorded during the El Niño winter of 1982-1983, and at 4,800-foot elevation on Mining Ridge, 173 inches of rainfall were recorded during the same winter up to the time the rain gauge broke (Henson and Usner 1993). The project site is situated on the rising mountain slopes directly in the path of advancing winter storms, with a varied topography causing large differences in rainfall over short distances. Disturbances such as cutting and filling of existing slopes for road alignments and building pads, combined with minor, yet additional, subsurface

water input from septic systems and increased surface runoff inputs from impervious surfaces, and coincident with appreciable ground shaking from a seismic event, may act to substantially increase the landslide hazard in some areas during wetter-than-average conditions.

Debris flows are most likely to occur during extended periods of high rainfall and following wildfire. *Building envelopes at proposed* ~~Proposed~~ lots identified as being ~~particularly~~ subject to debris flows *are discussed in a report by Cleary Consultants (1995b), and include Lots 19, 21, 22, 52, 91, 101, and 189.* ~~are indicated in Table 1 of the Weber, Hayes & Associates report (Appendix C).~~

~~Weber, Hayes & Associates' report also indicated that the exposure of the Potrero fault trace identified in Clearly Consultants' trench 2 may actually be a landslide slip surface. The landslide, if present, would include lots 194 to 200.~~

Dipslopes (i.e., slopes in which the rock *strata* ~~bedding~~ is generally parallel to the land surface slope) of the Monterey formation were also reported by Weber, Hayes, & Associates to be susceptible to slope failure, including slopes usually too shallow for mass movement on other rock types.

The landslide hazards or other slope failure constitute a significant environmental impact by exposing people and property to the hazard of landsliding. To reduce this impact to a less-than-significant level, the following mitigation measures *shall* ~~should~~ be implemented.

Applicant's Proposed Mitigation Measure 5: Provide 50-Foot Building Envelope Setbacks from the Base of Slopes, Dormant or Active Landslide Scarps, Stream Cutbanks, Erosion Gullies, and Steep Slopes for Lots 8, 188, and 247. Fifty-foot building envelope setbacks from the base of slopes, dormant or active landslide scarps, stream cutbanks, erosion gullies, and steep slopes have been specified for Lots 8, 188, and 247.

Final geotechnical reports containing individual soil and foundation studies during the design phase of building construction would be conducted and would include a landslide or other slope instability evaluation on any building sites located on sloping Monterey and Temblor formation areas, or areas on granitic rocks exceeding 30% slope.

Unconsolidated and unstable earth material and colluvium in areas of slopes within building envelopes and subject to a landslide hazard would be excavated down to solid and stable bedrock and replaced as compacted and engineered fill. Keyways would be excavated into the stable material and then backfilled with compacted material. Appropriately engineered buttresses and retaining walls; debris benches; catchment and deflection structures; and surface, subsurface, and keyway drainage structures would be constructed where necessary. The final geotechnical report would contain 40-scale grading and engineering plans specifying all mitigation measures.

Road widening, road reconstruction, and new road construction guidelines would be established. Proposed new roads on the project site would cross a number of areas of old, dormant,

and active landslides, and slopes greater than 30%. Some of the existing roads, which would be widened, also cross such features.

Additional Mitigation Measure *6*: Provide Setbacks from Unstable Slopes for Additional Lots or Implement Appropriate Engineering Design as Required. The stability of any recognized landslides containing sites for development should be analyzed using appropriate parameters and geometrics. The potential for secondary landslides should be included in the evaluation. Based on the results of the calculations, proper setbacks from unstable slopes should be provided.

~~In addition to the three lots that would contain setbacks, lot-specific geotechnical evaluations or soils/foundation analyses should be conducted for additional lots during the building permit process to determine the need for 50-foot building envelope setbacks from the base of slopes, dormant or active landslide scarps, stream cutbanks, gullies, and steep slopes to mitigate debris flow hazards for~~ *Building envelope setbacks of 50-100 feet shall be established from possible debris flow paths or slough walls shall be constructed to avoid debris flow hazards at* Lots ~~18,~~ 19, ~~20,~~ 21, 22, ~~49, 50, 51,~~ *52,* ~~66, 67,~~ *91,* ~~92,~~ ~~and~~ 101, *188, and 189.* ~~If it is determined that an appropriate 50-foot setback cannot be provided, an effective engineering design should be implemented based on proper design studies conducted before issuance of a building permit.~~ *The VTM has been revised to reflect these setback and engineering requirements for these lots (See Appendix J).*

~~As specified in the Cleary Consultants report, Lot 188 is in an area subject to debris flow hazard. Structures on this lot should be set back at least 50 feet from the base of slopes and from sideslopes.~~

~~**Additional Mitigation Measure: Provide Setbacks for Lots 194 to 200 if Required Based on Additional Field Investigations at the Potrero Fault Trace/Landslide Slip Surface.** This potential landslide exists at Lots 194 to 200. The feature should be retrenched to determine its actual orientation and movement and appropriate setbacks should be determined for Lots 194 to 200.~~

Additional Mitigation Measure *7*: Prepare Contingency Plan That Provides Alternative Access Routes. The applicant should prepare a contingency plan that provides alternative access routes to and from the project site if an access road is closed by a landslide. *The contingency plan must include a stipulation that landslide debris removed from roads be disposed of such that it does not affect sensitive habitats and is not subject to subsequent erosion.* The contingency plan should be submitted to Monterey County Planning and Building Inspection Department for approval.

Liquefaction and Lateral Spreading

Impact: Potential Structural Damage and Threat to Public Safety Resulting from Earthquake-Induced Liquefaction and Lateral Spreading

Earthquake-induced liquefaction could cause destruction or damage to structures and aboveground and underground utilities and pose a threat to public safety. This impact is considered significant.

The Weber, Hayes & Associates report indicated lateral spreading could occur at sites located adjacent to incised stream channels. Such an event could cause damage to structures and pose a threat to public safety. This impact is considered significant. To reduce this impact to a less-than-significant level, the following mitigation measures should be implemented.

Applicant's Proposed Mitigation Measure *8*: Use Appropriate Engineering Techniques to Reduce Liquefaction *and Lateral Spreading* Hazard. ~~The use of appropriate~~ *Appropriate* engineering techniques, such as installing a grid *or mat systems,* ~~system or other specialized foundation;~~ *soil densification, in-place treatment with grout, construction of retaining walls,* in areas subject to liquefaction *and lateral spreading shall be used. These measures would reduce the level of liquefaction and lateral spreading hazard to a less-than-significant level.* ~~would reduce the level of liquefaction hazard at known liquefaction areas to a less-than-significant level.~~

~~**Additional Mitigation Measure: Avoid Development in Areas of Liquefaction Potential or Use Appropriate Engineered Foundation.** As recommended by Weber, Hayes & Associates, a liquefaction hazard assessment should be conducted at all proposed development sites underlain by recent alluvium, such as San Clemente Flat and along San Jose Creek and Potrero Canyon. Areas identified as having significant liquefaction hazard should be avoided, building envelopes should be reconfigured, or foundations should be specially engineered, as appropriate. Where site conditions indicate that avoidance is not feasible, mitigation could include the use of mat, grid, or deep foundations, soil densification, in-place treatment with grout, construction of retaining wells, or other method. These measures would reduce the level of liquefaction hazard to a less-than-significant level.~~

~~The hazard of lateral spreading should be evaluated for sites at which structures are proposed to be located adjacent to cutbanks of streams. Any building sites where lateral spreading conditions are determined to exist may require *insitu* soil treatment, such as densification or grouting, in lieu of, or in addition to, the installation of special foundations.~~

Golf Trail Clubhouse Geologic Hazards

Impact: Potential Geologic Hazards Associated with the Golf Trail Clubhouse

Based on the geological data review and prior site exploration in this area, the Cleary Consultants report concluded that there are no geological hazards that would preclude construction of the proposed clubhouse. The site is on top of a low, rounded hilltop underlain by sandstone bedrock of the Temblor formation at an elevation of approximately 1,570 feet and slopes in the range of 20 to 30%. The site is not in an area subject to liquefaction, and no evidence of landsliding or erosion was observed in the proposed building area or the immediately adjoining downslope areas.

In addition, there do not appear to be any problems with faulting since the clubhouse site is about 800 feet southwest of the San Clemente thrust fault, a northwesterly trending moderately dipping reverse fault that offsets sandstone bedrock on the southwest side against granodiorite bedrock on the northeast side. The proposed clubhouse lies well outside the recommended fault setback limits for construction near the San Clemente thrust fault. Therefore, the potential geologic hazards associated with the clubhouse are considered less than significant. The applicant will, however, conduct an in-depth geotechnical investigation for building design purposes at the time of project design.

Mitigation Measure: No additional mitigation measures are required.

Mineral Resources

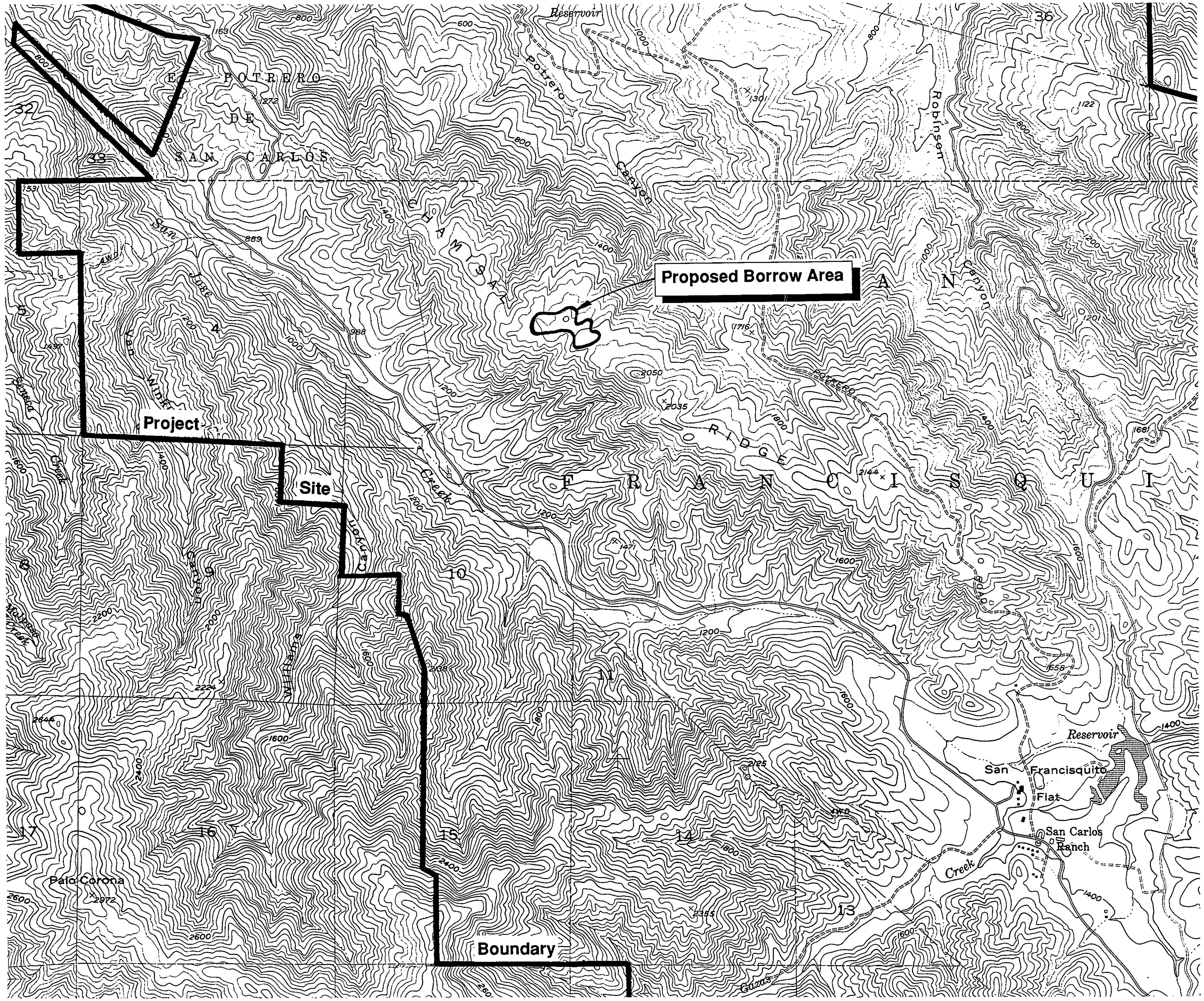
Impact: Extraction of Dimension Stone and Aggregate

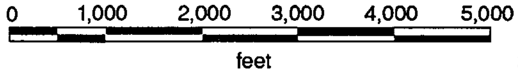
The applicant proposes to use dimension stone *from the existing quarry* for landscape improvements associated with the commercial and recreational facilities and aggregate from a borrow *area* ~~site~~ (*Figures* ~~Figure~~ 6-4 *and 6-5*) for various construction purposes. Because the amounts that would be used would not represent a substantial depletion of a limited resource or preclude extraction of a limited resource in the future, this impact is considered less than significant.

Because the dimension stone and aggregate would be used only onsite, extraction will be exempt from requirements of the County Use Permit and SMARA.

Mitigation Measure: No mitigation measures are required. *Potential impacts relating to erosion and sedimentation at the aggregate borrow area are described in the following chapter.)*

Figure 6-5
Proposed Borrow Area Vicinity Map





Base map: USGS Mt. Carmel 7.5-minute quadrangle.

Jones & Stokes Associates, Inc.

Chapter 7. Soils

INTRODUCTION

This description of existing soil conditions is primarily based on the Soil Survey of Monterey County, California (U.S. Soil Conservation Service 1978). Additional information was also taken from the Geological and Geotechnical Investigation Vesting Tentative Map Submittal, Rancho San Carlos, Monterey County, California, prepared by Cleary Consultants (1994). The Cleary Consultants report covers the 16,540-acre portion of the site that lies within the GMPAP and analyzes soil expansion potential and soil stability as related to building foundations. The Rancho San Carlos Cattle Grazing Plan, Rancho San Carlos Partnership, Carmel, California, prepared by Sage Associates (1994a), describes past and proposed grazing practices, which influence erosion and sedimentation. The Rancho San Carlos Preliminary Drainage and Erosion Control Report, Monterey, California, prepared by Bestor Engineers (1994a), describes the types of erosion and sediment control practices that will be implemented for the project in general. The Santa Lucia Preserve Golf Trail Erosion and Sedimentation Control Plan, prepared by Sage Associates (1994b), describes detailed erosion and sediment control measures for the golf trail.

SETTING

Soil Characteristics

The U.S. Soil Conservation Service (1978) has mapped approximately 20 soil series on the site. Because of the large size of the project site and variety of parent rocks, soil characteristics vary widely.

Soils on the site range in depth from less than 11 inches over hard bedrock to more than 80 inches in alluvial areas. The texture of the surface horizons and subsoils ranges from sandy loam to clay loam (U.S. Soil Conservation Service 1978). Deep soils especially exist in old landslide areas and on gentle sideslopes and drainages (Cleary Consultants 1994).

The drainage class of the soils ranges from somewhat poorly drained to excessively drained. Runoff rates range from slow to very rapid. The soils' erosion hazard varies from slight to rapid when vegetation is disturbed or removed (U.S. Soil Conservation Service 1978). Alluvial soils along creeks are highly subject to erosion because of the effects of stream cutting (Cleary Consultants 1994). The

decomposed granite underlying many of the soils on the site is particularly erodible because of its low cohesion (Megahan 1992). Decomposed granite exposed along road ditches and roadcuts is especially subject to erosion.

Most of the soils on the site have low to moderate expansion-contraction potential. Soils with a high expansion-contraction potential exist in several areas but primarily in the northwestern portion of the site and in association with old landslides (Cleary Consultants 1994).

The tendency of the soils to corrode concrete and uncoated steel, such as that found in underground utilities, ranges from low to high. Acid soils on the site tend to be more corrosive than the alkaline soils (U.S. Soil Conservation Service 1978).

Limitations due to the structural load-bearing capacity of the site soils range from low to severe. Soils with low load-bearing capacity exist at the site because of steep slopes, high expansion-contraction potential, or high sand content (U.S. Soil Conservation Service 1978).

The site soil's suitability for onsite wastewater disposal systems (septic tanks and leach fields) varies widely. The primary limitations on the site are the shallow depth of the soil over bedrock, slow permeability, and steep slope.

A large portion of the project site is underlain by the Junipero and Santa Lucia soil series. Because of their widespread occurrence on the site, these two series are discussed in detail below.

The Junipero series consists of well-drained, sandy loam soils approximately 30 inches deep over granitic and schistose rocks. Junipero soils on the site are found on uplands with slopes ranging from 30% to 70%. The runoff rate is rapid, permeability is moderately rapid, and the erosion hazard is generally high. Junipero soils are slightly acidic and have a high potential to corrode concrete and uncoated steel. The expansion-contraction potential is low. They have poor structural load-bearing capacity. Junipero soils have low suitability for onsite wastewater disposal because of their steep slopes and shallow depth to bedrock.

The Santa Lucia series consists of well-drained, shaley clay loam soils approximately 24 inches over hard, fractured shale. Santa Lucia soils on the site are found on uplands with slopes ranging from 2% to 50%. The runoff rate is rapid, permeability is moderate, and the erosion hazard is high. Santa Lucia soils are strongly acidic and therefore highly corrosive to concrete and uncoated steel and concrete. The expansion-contraction potential is low. They have poor structural load-bearing capacity. Santa Lucia soils have low suitability for onsite wastewater disposal because of their steep slopes, high clay content in the subsoil, and shallow depth to bedrock.

Soils in the areas proposed for commercial development (i.e., San Francisquito Flat and San Clemente Flat) are the San Andreas, Gorgonio, and Pfeiffer series.

Part of the proposed lodge site (Lot 255) is underlain by San Andreas soils, which are shallow, sandy loams over sandstone on slopes varying from 15% to 30%. The soils are primarily limited by high runoff rate, high erosion hazard, and poor structural load-bearing capacity.

The remainder of the proposed lodge (Lot 256), and the hacienda (Lot 257), ranch center (Lot 258), and sporting center (Lot 259) are underlain by the Pfeiffer series. This series consists of deep, fine sandy loams over a variety of parent rocks on slopes varying from 2% to 85%. The soils have no significant limitations, except for high erosion hazard in steep areas.

The proposed equestrian center and employee housing units (Lot 260) are underlain by San Gorgonio soils, which are deep, sandy loams over sandy sediments on slopes varying from 0% to 5%. The soils are primarily limited only by poor structural load-bearing capacity.

Watershed Conditions and Land Management Practices

Historically, livestock grazing occurred on over 17,000 acres of the 20,000-acre site. Valley areas on the project site, containing large annual grassland meadows, have been grazed for more than a century (Sage Associates 1994a). *Historical* ~~Assuming the~~ cattle *grazing consisted of approximately* ~~were~~ 850 cow-calf pairs grazing year-round (equates to 850 animal~~-~~*units/year* ~~unit years~~) and 250~~-to~~ 500-pound yearlings grazing for 4 months (equates to approximately 42 animal-units/year ~~unit years~~), the total amount of grazing was approximately 892 animal-units/year ~~unit years~~ (Sage Associates pers. comm.).

Sage Associates (1994a) determined that approximately 14,000 acres of the 20,000-acre site are unsuitable for grazing. Some of this acreage has been overgrazed, causing soil compaction, vegetation removal, and accelerated erosion. Overgrazing decreases vegetative cover that stabilizes and aerates the soil. Without vegetation, compacted soil usually cannot self-remediate its structure.

Approximately 11,400 acres (57%) of the project site have slopes in excess of 30% (Rancho San Carlos Partnership 1994a). Most of these slopes are heavily forested and therefore have not been subject to intensive grazing (Sage Associates 1994a).

The project site has a network of more than 100 miles of paved and dirt roads, varying in width between 10 and 30 feet. A major portion of those roads is on cross slopes, resulting in cut-and-fill slopes ranging from 1 foot to 15 feet. Some cutslopes are eroded and produce sediment flowing onto roadways and into creeks, such as on the southwestern side of Rancho San Carlos Road (Cleary Consultants 1994).

Past cultivation practices on a slope on the north side of San Clemente Road, near the proposed golf course, resulted in a network of severe gullying. The gullies are apparently stabilizing since modification of livestock stocking rates by the current owners (Panzer pers. comm.). The slope

below Chamisal Pass in Potrero Canyon is undergoing accelerated erosion. Active gullying is occurring in some of the drainages on the project site and below some of the roads (Cleary Consultants 1994).

IMPACTS AND MITIGATION MEASURES

Approach and Methodology

Potential soil-related hazards and constraints to development are evaluated based on review and analysis of existing literature. Other than a brief site reconnaissance, no field surveys were conducted.

Significance Criteria

The following significance criteria, based on Appendix G of the State CEQA Guidelines and on professional judgment, are applicable to the proposed project. The project would result in a significant effect on the environment if it would result in:

- significant accelerated wind or water erosion, significant sedimentation of receiving waters, substantial reduction in onsite soil productivity or revegetation potential;
- substantial failure of or damage to structures due to soil expansion-contraction or poor load-bearing capacity;
- substantial failure of underground utilities due to soil corrosion; or
- hazard to human health or creation of objectionable odors due to failure of onsite septic systems.

Impact: Potential Accelerated Erosion, Sedimentation, and Reduction in Soil Productivity and Revegetation Potential

The project would entail cutting, filling, and removal of vegetation to construct or widen roads, driveways (some of which would be constructed on slopes over 30%; see Appendix H), building pads, utility lines, and other features. This activity could cause substantial accelerated soil erosion and sedimentation of receiving waters if erosion and sediment control measures are not properly implemented. Eroded and compacted areas could have reduced productivity and

revegetation potential. Cutslopes and fill slopes, if not properly constructed, could be highly erodible, particularly on steep slopes (i.e., those over 30%). Water quality and fisheries habitat could be degraded, and flooding could increase. (Impacts of sedimentation and mitigation measures are discussed in detail in Chapter 9, "Runoff, Flooding, and Water Quality".) The highest rates of accelerated erosion are expected to occur during development of a particular site and the first few years following completion of construction at that site. Once vegetation is established, erosion and sediment rates are expected to decline. Potential accelerated erosion, sedimentation, and reduction in soil productivity is considered a significant impact.

A reduction in acreage being grazed and better grazing practices, compared to the existing condition, would, however, decrease erosion and sedimentation from areas that would otherwise not be affected by the project. This would result in a beneficial impact.

Applicant's Proposed Mitigation Measure *9*: Implement Erosion Control Plans. The applicant is proposing to implement erosion control plans for the development areas and the golf trail as described below.

Preliminary Erosion Control Report. The applicant's preliminary erosion control report (Bestor Engineers 1994a) outlines the types of erosion control measures that will be implemented for the project in general; these measures are presented in the following discussion.

Site-specific erosion control plans, to be approved by the Monterey County Planning and Building Inspection Department and Water Resources Agency, would be prepared for each project component. The plans would prescribe appropriate Best Management Practices and be prepared in accordance with Monterey County Erosion Control Ordinance Number 2806. The erosion control plans would specify the precise placement and types of erosion and sediment control materials and measures. These materials and methods may include, for example, soil binders, straw bales, silt fencing, sand bags, and use of erosion control blankets and hydroseeding. In addition, a supply of erosion control materials would be kept onsite for emergency erosion and sedimentation control measures.

The Conservancy would designate an onsite staff erosion control specialist who will be responsible for implementation of the erosion control plans and necessary emergency erosion control measures.

Generally, cutslopes would not exceed 2:1 (horizontal to vertical) to minimize erosion and sedimentation and to enhance revegetation efforts. Some cutslopes may be steeper than 2:1 to conform to adjacent topography, as appropriate, and to minimize the area of disturbance. Cutslopes would be only as steep as is practical for site-specific soil properties and would be left rough rather than finished with a sloping bar. Where practical, surface flow above cuts would be intercepted by swales, temporary berms, sediment traps, or drainage systems to minimize flow down cutslopes and unnecessary sedimentation. Grading would be conducted along contours; cutslopes and fill slopes would follow the curves of the natural topography where possible. The tops of cutslopes would be

rounded off to minimize cutslope erosion. Where feasible, fill slopes will be track-walked with a crawler tractor to compact the fill. All fill slopes will be hydroseeded or mulched with straw.

Driveway design for cross-slope sites (including those on slopes over 30%) would include one or more of the following features to control runoff: rock-lined ditches, rolling dips, in-sloping and/or out-sloping of roadbeds, culverts, and energy dissipaters. All private driveways will be surfaced and positive drainage control will be provided. Water bars would be constructed on steep dirt roads that would not sustain winter use. Water bars on dirt roads used during the wet season would be checked during storms and repaired as problems are detected. Water bars on dry season roads would be checked each spring and repaired as necessary.

After clearing, grading, earthmoving and/or excavation is completed, the entire area of disturbed ground would be treated immediately by watering, seeding, ~~revegetation,~~ or applying soil binders to control wind erosion until the area is revegetated, paved, or otherwise developed. When feasible, grading would occur in phases to minimize the amount of surface area that is disturbed at any one time. All grading spoils would be deposited on alluvial flats or gentle swales or used as road or trail fill material. If spoils are to be deposited in flats or swales, these would be dispersed and stabilized according to instruction from the designated erosion control specialist.

All topsoil ~~Topsoil~~ removed from *graded* areas *will* ~~to~~ be *used for revegetation purposes* ~~revegetated or landscaped~~ *The soil* would be stockpiled until it can be put back in place. *No topsoil suitable for use in revegetation or landscaping would be spoiled or covered by spoils.* Stockpiled soil would not be compacted. Soil stockpiled for more than 1 day would be covered, kept moist, or treated with soil binders to prevent dust generation, erosion, and sedimentation. If a construction site is graded and must be left undeveloped for more than 3 weeks, the site would be seeded and/or plugged with non-invasive, naturalized annual grasses. (The applicant's proposed mitigation measure specifies use of native plants, which are generally perennials, for erosion control. Use of native plants may not provide the early germination and establishment required for rapid erosion control.) These plantings would be irrigated to promote vegetation growth and inhibit dust generation.

Unless otherwise approved by the Monterey County Planning and Building Inspection Department and Monterey County Water Resources Agency, grading would be prohibited from October 15 through April 15, and no excavation or grading would be allowed when it is raining. Section 16.12.090 of the County Erosion Control Ordinance permits grading and land clearing in certain areas during this period with approval by the county. The use of heavy equipment would be limited to areas immediately within the construction site. Natural groundcover outside the areas of approved grading and landscaping would be retained.

Golf Trail Geological Report. Grading as well as reshaping of existing topography (rather than substantial regrading) will require approximately 292,000 cubic yards of earth movement. Cut and fill requirements have been balanced *within the project* ~~on~~ site (Cleary Consultants 1994).

Golf Trail Erosion and Sedimentation Control Plan. The applicant's golf trail erosion and sediment control plan (Sage Associates 1994b) provides the detailed erosion and sediment control measures that would be implemented for the golf trail area of the project. The plan provides all the required elements of a comprehensive erosion and sediment control plan, including preconstruction, construction, postconstruction measures; implementation, maintenance, and monitoring schedules; and emergency preparedness procedures. Proper implementation of the plan would reduce potential accelerated erosion and sedimentation to a less-than-significant level.

Additional Mitigation Measure *10*: Monitor Effectiveness and Modify Erosion Control Measures as Necessary. The Monterey County Planning and Building Inspection Department and Monterey County Water Resources Agency should conduct inspections of the effectiveness of the erosion and sediment control measures at least two times each rainy season while the project is under construction. If problem areas are observed, erosion control measures should be modified to correct erosion problems.

Impact: Potential Damage to Structures and Underground Utilities Caused by Soil Expansion-Contraction or Poor Load-Bearing Capacity

Underground utilities, such as water supply pipelines and stormwater drains, could be damaged because of the effects of soil expansion-contraction or poor load-bearing capacity. Additionally, foundations, driveways, and sidewalks could shift or crack due to the movement of the soil. Because all underground utilities and aboveground structures must comply with the Uniform Building Code to withstand such soil conditions, however, these impacts are considered less than significant.

Mitigation Measure: No mitigation measures are required.

Impact: Possible Failure of Structures and Utilities Due to Soil Corrosion

Both aboveground and below-ground structures and utilities could be damaged or fail if unprotected metals or concrete are exposed to soils with high corrosivity. Because all underground utilities and aboveground structures must comply with the Uniform Building Code to withstand such soil conditions, however, these impacts are considered less than significant.

Mitigation Measure: No mitigation measures are required.

Impact: Potential Water Quality Degradation or Human Health Hazard Due to Onsite Septic System Failure

Soil suitability for onsite septic systems is controlled by such factors as slope, depth to rock, permeability, and drainage. Failure of an onsite wastewater disposal system can cause effluent to seep onto the soil surface or reach groundwater without adequate treatment. Effluent seepage to the soil surface could threaten human health if contact is made with the effluent or could create objectionable odors.

Based on field evaluations, the Monterey County Division of Environmental Health has approved all lots for either installation of onsite septic systems (162 residential lots) or connection to the wastewater treatment plant (94 lots including all commercial facilities and employee housing). All sites that will be on a septic system have passed rigorous Division of Environmental Health soil and percolation testing and setback requirements. The Division of Environmental Health has required that some sites originally proposed for onsite septic systems to be connected to the wastewater treatment plant, thereby reducing the potential for onsite system failure on more marginal sites. This impact is less than significant.

Mitigation Measure: No mitigation measures are required.

Impact: Vegetation Removal and Potential Accelerated Soil Erosion and Sedimentation Caused by Establishment of a New *Borrow Area* ~~Quarry~~

The applicant has identified a borrow *area* ~~site~~ (Figure 6-4) where rock would be extracted for use as base rock, aggregate, and other construction materials (Panzer pers. comm.). The 12-acre *area* ~~site~~, referred to as the Chamisal Ridge site, is underlain by granodiorite. *A maximum of approximately 300,000 cubic yards of material would be taken from the borrow area.*

In addition to material taken from the Chamisal Ridge borrow *area* ~~site~~, base rock material would also be acquired during grading for roads and structures; this material and the overlying topsoil will be used for construction and landscaping uses. The applicant intends for cuts and fills to balance onsite (Panzer pers. comm.).

The applicant also intends to continue using the established Carmel Stone *quarry* ~~borrow~~ area to acquire building materials (Panzer pers. comm.). The continued extraction of Carmel Stone at the quarry would represent no change in the existing condition or land use at the site.

If appropriate erosion and sediment control measures are not implemented at the borrow *area* ~~site~~, removal of vegetation and soil disturbance to facilitate extraction could cause accelerated soil erosion and sedimentation in downstream receiving waters. This impact would be considered significant. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Additional Mitigation Measure *11*: Prepare an Erosion and Sediment Control/ Revegetation Plan for New Borrow *Area* ~~Site~~. The plan *shall* ~~should~~ provide for temporary stabilization of the borrow *area* during the extraction process and long-term revegetation after extraction is complete. *The plan shall also require that, once borrowing operations are complete, the borrow area be recontoured.* The plan *shall* ~~should~~ be prepared by a qualified revegetation/restoration professional and should be submitted to another such professional for critical review. The reviewing professional should notify the Monterey County Planning and Building Inspection Department and Monterey County Water Resources Agency of the adequacy of the plan. Because the material would be used only onsite, the extraction would be exempt from County Use Permit and SMARA permitting and reclamation planning requirements.

Erosion control/revegetation measures required for road grading operations, during which aggregate would be acquired for onsite construction purposes, are included in the applicant's erosion ~~and sediment~~ control report (Bestor Engineers 1994a). No additional mitigation measure is required to control erosion and sedimentation from the road grading/aggregate extraction operations.

Impact: Potential Accelerated Soil Erosion and Sedimentation Caused by Development on Slopes in Excess of 30%

The proposed project involves limited driveway development on slopes in excess of 30% (see Appendix *H* ~~I~~), which requires a use permit. Development of driveways on steep slopes could cause accelerated soil erosion and sedimentation if proper erosion control measures are not implemented. (See discussion above under "Potential Accelerated Erosion, Sedimentation, and Reduction in Soil Productivity and Revegetation Potential" for more details regarding the associated affects of erosion and sedimentation.) This impact is considered significant. To reduce this impact to a less-than-significant level, the applicant is proposing the following mitigation measure.

Applicant's Proposed Mitigation Measure *9*: Implement Erosion Control Plans. This mitigation measure has been previously described for the impact, "Potential Accelerated Erosion, Sedimentation, and Reduction in Soil Productivity and Revegetation Potential".

Chapter 8. Groundwater Hydrology, Stream Base Flow, and Water Supply and Demand

INTRODUCTION

This chapter addresses the feasibility and environmental impacts of meeting the water demands of the project with onsite wells. Feasibility is an issue because the project area is underlain by fractured bedrock, and the yields of wells drilled in fractured rock aquifers are more variable and difficult to measure than yields of wells in alluvial aquifers. The feasibility issue principally concerns water supply reliability. Specifically, it is a question of whether available well test information is sufficient to conclude that the wells will be able to supply maximum day demand and maximum seasonal demand during a drought. Reliability is related to environmental impacts because an unreliable supply would result in water delivery shortages that could lead to mortality of irrigated landscape vegetation or prompt the project to seek water from some other source on an emergency basis. With the mitigation measures proposed in this EIR, the supply would be reliable and these potential environmental impacts would be avoided.

The project applicant retained five technical consulting firms (Camp Dresser & McKee, Inc.; Balance Hydrologics; David Keith Todd Consulting Engineers; Geoconsultants Inc.; and Luhdorff & Scalmanini Consulting Engineers) to perform extensive preliminary studies of surface water and groundwater hydrology at the project site. These included geological and geophysical surveys, drilling of 51 boreholes and wells, aquifer tests at 43 wells, gaging of streamflow on several creeks, development of a long-term average water balance for the project site, measurement of surface water and groundwater quality, and preparation of detailed water demand estimates for the proposed project. The results of these studies were compiled into a Comprehensive Hydrological Study report released in March 1994 (Camp Dresser & McKee, Balance Hydrologics et al. 1994a), which was reviewed by a third-party consultant (Ogden Environmental and Energy Services 1994) and by local agencies. Three supplements to the report dealing with specific technical details and potential environmental impacts were prepared by Camp Dresser & McKee, Balance Hydrologics et al. (1994b, 1995a, 1995b). Two technical memoranda regarding the water system design have also been prepared recently (Luhdorff & Scalmanini Consulting Engineers 1995a, b). Finally, two technical studies have been prepared addressing the golf trail, including design features related to irrigation water supply and water quality protection (Rancho San Carlos Partnership 1994a, 1994b).

The analysis in this chapter draws principally on information presented in the Comprehensive Hydrological Study and its three supplements, which are available for review at the Monterey County Planning and Building Inspection Department. Unless otherwise noted, information presented in this chapter was obtained from those documents, which are collectively referred to as the Comprehensive Hydrological Study. Where supplements or technical memoranda provided revised or more complete information, they were used instead of the information in the original study. Additional information for this analysis was obtained from a site visit, discussions with members of the consulting team that prepared the hydrological study, discussions with local agency officials, and review of literature related to selected topics.

SETTING

Hydrogeology

Geology

Rancho San Carlos is underlain by several bedrock units, principally granitic basement rocks, continental and marine sandstones and conglomerates of the Chamisal Formation, and marine shales and sandstones of the Monterey Formation. Geophysical and borehole data indicate that these formations extend at least several thousand feet below the land surface, or greater than the depth of any proposed water supply wells.

Unconsolidated alluvial deposits less than 100 feet deep are present along some of the creek channels. Although these deposits store and transmit groundwater more readily than the bedrock units, their contribution to the overall groundwater resources at Rancho San Carlos is small because of their limited depth and areal extent.

The bedrock formations are all of Miocene age or older (greater than 5 million years old) and are distributed in a complex spatial pattern resulting from depositional contacts and faults. Five faults have been mapped within the boundaries of Rancho San Carlos. The faults were active during the Miocene epoch and offset all of the granitic and sedimentary bedrock units. *Investigation revealed no evidence of recent fault activity.* ~~None of the faults are presently active, however.~~ The nearest active fault is the Tularcitos Fault, which approximately follows the Carmel River valley upstream of the Narrows (near the lower end of Robinson Canyon Road). See Chapter 6, "Geology and Minerals", for additional information about the geology of the project site and region.

Flow Boundaries

The Comprehensive Hydrological Study concluded that there are no major barriers to groundwater flow within or near the project site and that the area can be considered as a single hydrogeologic unit for the purpose of estimating the overall availability of groundwater to supply the project. This conclusion was supported by the lack of significant discontinuities in groundwater levels across faults and the lack of consistent or large boundary effects in the drawdown patterns measured during aquifer tests.

In the absence of barriers, groundwater theoretically could flow freely between any two points within the rancho. In practice, the groundwater flow system naturally subdivides itself into functionally separate local flow systems corresponding approximately to the creek watersheds. Groundwater levels are relatively high beneath topographic ridges, not because recharge is greater on ridges but because recharge occurs at a higher elevation. Groundwater levels are relatively low along the creeks because seepage into the creeks prevents adjacent groundwater levels from rising substantially above the level of the creek. The flow boundaries along ridges and creeks are flexible divides that reflect the present balance between recharge, discharge, and aquifer characteristics. They are not flow barriers. Thus, a well located near a ridgetop could capture some groundwater from the local groundwater flow system in the neighboring watershed, and a well on one side of a creek could draw groundwater from the opposite side of the creek.

Although the area can be considered a single hydrogeologic unit because there appear to be no major internal barriers to groundwater flow, groundwater throughout the area may not be readily accessible to the proposed network of water supply wells because of the low permeability of the fractured bedrock. This issue is discussed in greater detail as it relates to water supply reliability in the "Impacts and Mitigation Measures" section, below. Also, the present number and locations of wells might not be large enough to reveal local discontinuities in the groundwater flow system associated with contacts between geologic formations or variations in fracture continuity.

Aquifer Characteristics

The transmissivity and storage coefficient (storativity) of the fractured bedrock aquifer system were measured by aquifer tests at 43 wells, of which 12 were tested more than once. Tests consisted of measuring drawdown during pumping at the pumping well and at six locations in a nearby observation well. Most tests lasted 24 hours, although 23 wells were pumped for 72 hours and five wells were pumped for 30 days. Details of the testing procedure and plots of the drawdown data are provided in Chapter 6 ~~,"Geology and Minerals",~~ and Appendix E of the Comprehensive Hydrological Study.

The hydraulic conductivity (permeability) of fractured bedrock is typically much lower and more variable than the hydraulic conductivity of alluvial aquifers. Measured hydraulic conductivities at the wells ranged from 0.02 to 13.60 gallons per day per square foot (gpd/ft^2), although most of the

values were between 0.02 and 2.0 gpd/ft^2. This is a reasonably narrow range of values, given that hydraulic conductivities of naturally occurring geologic materials can range over 13 orders of magnitude (Freeze and Cherry 1979). The distribution of hydraulic conductivity was similar for all of the fractured bedrock formations. The geometric mean (average) hydraulic conductivity of the porphyritic granodiorite (0.44 gpd/ft^2) was 70% greater than the mean for all bedrock formations combined (0.26 gpd/ft^2), but the difference might not be statistically significant because of the fairly small number of wells sampled. The test results *may* ~~probably~~ slightly overestimate the average permeability of the bedrock because five boreholes with very low initial yields were not completed as wells and included in the testing program. *However, this bias would be somewhat offset by the tendency for tests with large drawdowns in unconfined aquifers to underestimate hydraulic conductivity.*

Hydraulic conductivity was found to decrease with depth below the land surface. Values decreased from greater than 1 gpd/ft^2 for most wells less than 400 feet deep to less than 0.1 gpd/ft^2 for most wells greater than 1,000 feet deep. The hydraulic conductivity (or transmissivity) was used in the Comprehensive Hydrological Study to calculate the radius of influence of pumping wells and subsurface outflow to offsite areas.

Aquifer storativity was estimated for the Comprehensive Hydrological Study by two methods. Analysis of test results at the two wells with suitable data indicated storativity values between 0.5% and 1.2%. This range includes the uncertainty created by effects of partial penetration of the wells. A larger estimate of storativity (3%) resulted from a comparison of the average water-level rise in wells during the recharge season (10 feet) with the estimated unit rate of groundwater recharge (0.29 foot per year). The Comprehensive Hydrological Study indicates that the larger storativity obtained from the recharge calculations could be representative of water table fluctuations in relatively porous weathered bedrock at shallow depths, whereas the smaller storativity obtained from the aquifer tests could represent storativity at greater depths. *Decreasing storativity with depth has been documented in other fractured rock systems (Bedinger et al. 1986) and could result from decreasing fracture porosity with depth. Also, seasonal storage responses would be expected to be larger than responses to short-term stresses such as well tests because the water-table response to pumping at depth is delayed by the low vertical permeability of the intervening depth interval. It should be noted, however, that the amplitude of seasonal hydrographs does not appear to correlate with depth to water.* ~~This implies that the storage response to short-term stresses, such as aquifer tests lasting a few days, is smaller than the response to long-term stresses, such as recharge occurring over a period of months. Although this type of delayed yield effect is common in deep, layered alluvial aquifer systems, the physical mechanism for causing those types of delays in fractured bedrock aquifers is not as obvious. Also, the seasonal amplitude of water table fluctuations does not correlate with depth to water, which would be expected if near-surface water tables were fluctuating within porous, weathered material.~~

Other factors could also account for the discrepancy between the storativity estimates. The average annual groundwater recharge rate could have been overestimated (as explained below). Also, the recharge rate during the relatively dry years included in the water-level record (1990-*1992* ~~1993~~) could have been substantially less than the average recharge rate used in the storativity calculation.

Aquifer storativity affects the radius of influence of a pumping well. More important, it is a crucial factor for determining the volume of groundwater storage beneath Rancho San Carlos. Assuming an average well depth of 800 feet (the "optimal" depth for future wells and approximately the yield-weighted average depth of the existing bedrock wells (842 feet), an average depth to water of 150 feet, and the smallest measured value of storativity (0.5%), the amount of groundwater in storage is 64,675 acre-feet (af). Because the storativity was calculated from the amount of water actually yielded to wells, the total storage amount represents usable storage. If average storativity is 1.0% and wells are drilled to a depth of 2,000 feet, the total amount of usable groundwater storage is 398,000 af. The ability of project wells to reach this storage is discussed in the section on "Water Supply Reliability".

The second supplement to the Comprehensive Hydrological Study addressed questions raised by local agencies related to anisotropy (permeability that varies with direction) and the assumption that the fractured bedrock aquifer can be treated as an equivalent porous medium. The drawdown pattern for a well pumping from a linear, vertical fracture system would theoretically create a concave-downward pattern on semilogarithmic drawdown plots. Although many of the drawdown plots presented in the Comprehensive Hydrological Study deflected downward, most of the deflections were abrupt and more likely indicative of boundary conditions or casing and borehole storage effects than fracture flow. Only the plot for well T-29 showed a continuous downward curvature. A carefully instrumented aquifer test in fractured bedrock in Maine found that drawdown patterns in the pumping well and nearby observation wells showed some evidence of fracture flow but that patterns in distant observation wells (greater than about 150 feet from the pumping well) conformed to theoretical drawdown patterns for porous media (Muff 1993). These results confirm that for the temporal and spatial scales of interest for this impact analysis, it is reasonable to assume that the fractured bedrock aquifer is equivalent to a porous medium.

Anisotropy creates an asymmetric cone of depression around a pumping well. Drawdown data for two well pairs at Rancho San Carlos were suitable for detecting the presence of anisotropy, but none was found. If anisotropy were present, the radius of influence of the pumping well could be underestimated in one direction and overestimated in another. However, anisotropy would not affect the estimated well yield.

Water Levels

Figure 8-1 is a map of groundwater levels at Rancho San Carlos in April 1993. The water-level contours were based on water levels measured at the wells and the constraint that water levels beneath creeks not exceed the elevation of the creekbed. Although the well data are somewhat

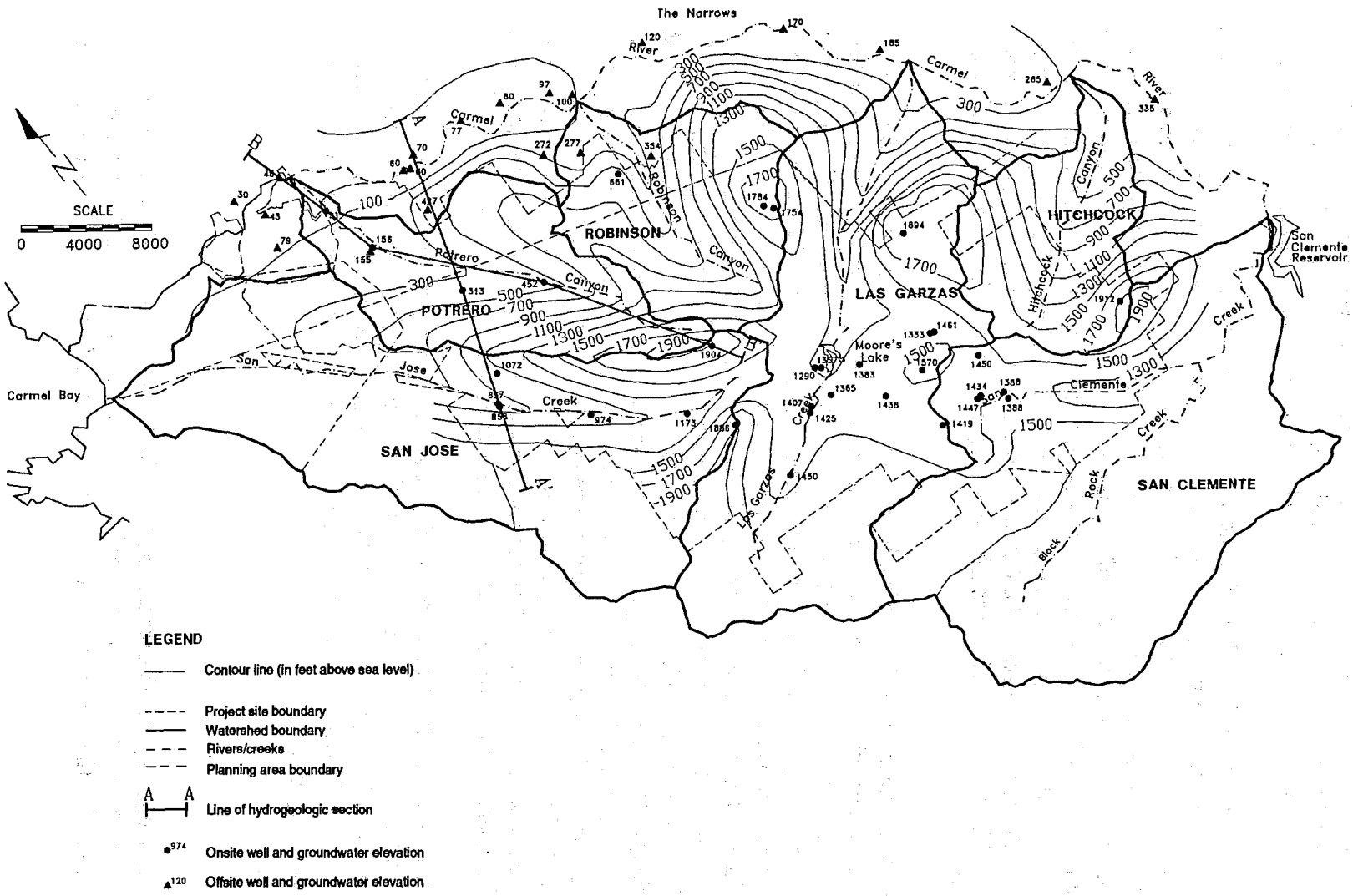


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Figure 8-1
Groundwater Elevations on Rancho San Carlos in April - May 1993

clustered, they indicate that water levels are generally higher beneath ridges and lower along the creeks. This pattern indicates that groundwater generally flows toward the nearest creek, whereupon much of the groundwater flow seeps into the creek and becomes streamflow.

The water-level data are also consistent with smooth, continuous contours that mimic the overlying land surface topography. The data do not indicate any local discontinuities in water levels such as might result from flow barriers along fault planes. Thus, the data support the conclusion that the fractured bedrock aquifer is effectively a single hydrogeologic unit throughout the area.

Vertical water-level gradients are present in some locations. At seven locations, pairs of wells were installed at different depths, allowing vertical water-level differences and gradients to be measured. Vertical water-level differences were detected at only two of the locations. The hydrographs for well pairs T-6 and T-9 indicated downward gradients of about 0.28 and 0.038 foot per foot, respectively. At well pairs T-18, T-26, and T-29, water levels in the shallow and deep wells were essentially the same. Well pairs T-11 and T-14 are located next to creeks. The water levels in the shallow and deep wells remained constantly at or near the ground surface, indicating that the water levels were *higher than the level of the creek and that groundwater probably discharges into the creek.* ~~constrained by seepage into the adjacent creek.~~ Under these conditions of groundwater discharge, small upward gradients are normally present.

The presence of springs and seeps on hillsides above the creeks indicates that in at least a few areas, the geometry of the bedrock fracture systems impedes downward movement of rainfall recharge sufficiently to cause the percolating water to flow horizontally and emerge on the hillside. In general, however, the data do not indicate the widespread presence of perched or vertically separate groundwater flow systems. This means that base flow in the creeks is not hydraulically separated from the adjacent aquifer and that water can move freely between the creek and the aquifer. This conclusion is also supported by water-level contour patterns and the presence of persistent dry-season base flow supported by groundwater discharge along some reaches of most creeks.

Hydrographs of water levels at 33 wells during 1990-1993 were presented in the Comprehensive Hydrological Study. At 12 wells, the period of record was too brief or water levels were too strongly affected by well development or pump tests to indicate the amount of natural seasonal water-level fluctuation. At four wells near creeks, the water level remained constantly at the level of the creek. The seasonal fluctuations in the remaining 17 wells ranged from 1 to 20 feet and averaged about 8 feet.

Water Balance

An average annual water balance for Rancho San Carlos was described in the Comprehensive Hydrological Study. The analysis treated the area (including the parts of the creek watersheds upstream of the rancho boundary) as a single, lumped hydrologic system. Rainfall was the inflow to

the system, and interception, evapotranspiration, streamflow, phreatophyte use of groundwater, and subsurface outflow ~~(assumed equal to groundwater recharge)~~ were the outflows. Budgets were calculated annually for 1961-1990, but only the average annual budget was considered reliable.

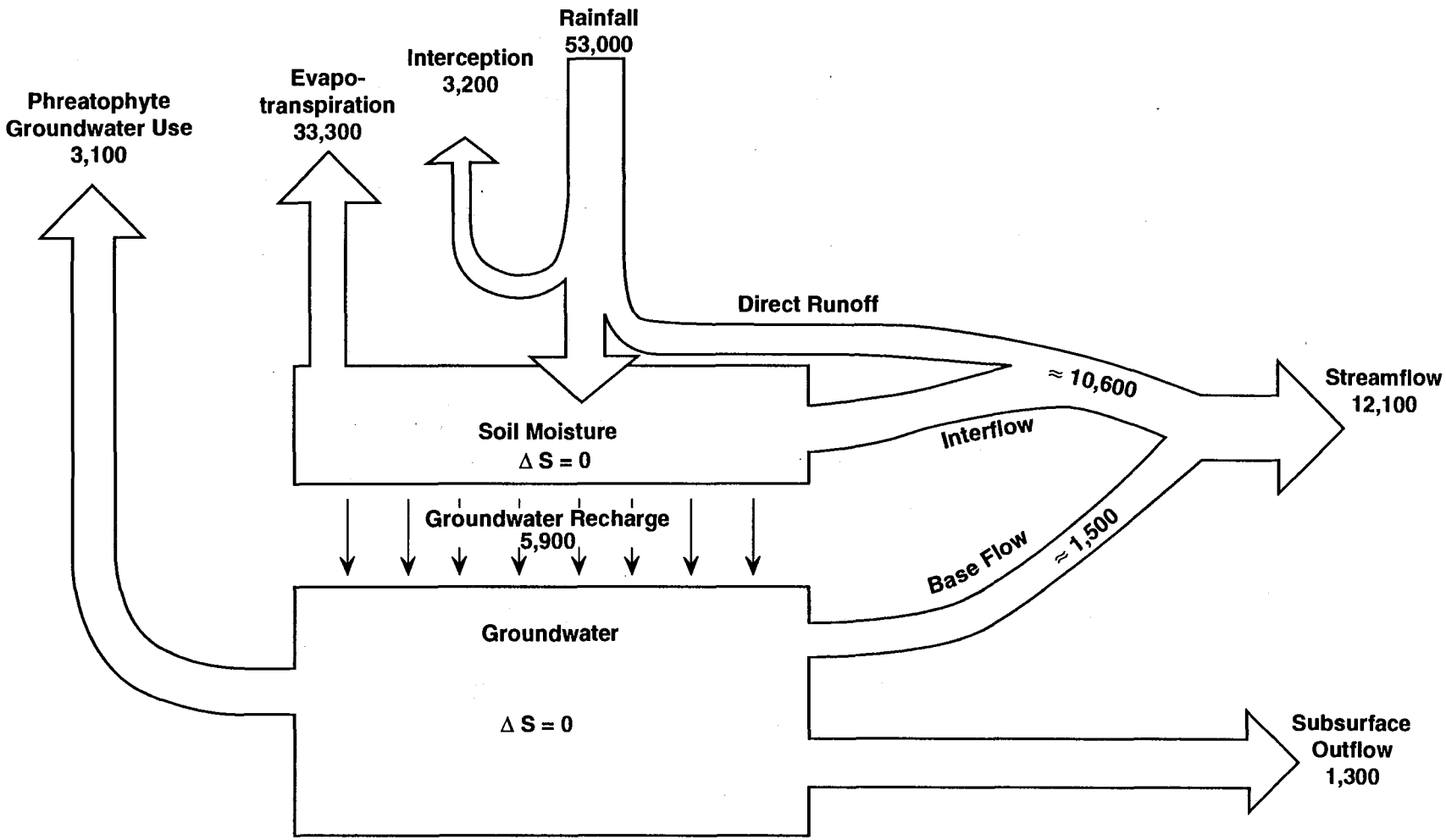
The purpose of the water balance was to determine whether average groundwater recharge and the overall groundwater budget were substantially larger than the estimated project water demand and thus capable of supporting the project on a long-term basis. The analysis concluded that average annual recharge is approximately 6,800 af/yr, which is much larger than the average annual project net water demand at buildout (400 af/yr).

The water balance was revised slightly for this environmental impact analysis. The purpose of the revisions was to facilitate the evaluation of impacts by representing more explicitly some of the physical processes in the hydrologic system. In particular, accurate partitioning of flows within the hydrologic system is important for estimating impacts. For example, direct runoff needs to be differentiated from base flow because groundwater pumping would affect the latter and not the former. The original water balance treated all streamflow equally as a single item in the balance. Similarly, subsurface groundwater outflow was not clearly differentiated from groundwater recharge in the water balance. In reality, these flows are governed by different processes, and groundwater pumping could affect one and not the other. Thus, the processes need to be estimated separately.

A conceptual diagram of the revised water balance is shown in Figure 8-2. The estimated flows in the budget reflect a balanced, long-term average budget under existing conditions. There is assumed to be no net long-term change in soil moisture or groundwater storage. Individual flows in the budget are discussed in the following paragraphs.

Rainfall and interception flows are the same as those in the original water balance (53,000 and 3,200 af/yr, respectively). Average annual rainfall was estimated using an isohyetal map developed from several rain gage records and is probably reasonably accurate. (An isohyete is a line on a map connecting points having equal amounts of annual precipitation.) Average annual interception was assumed to equal 6% of annual rainfall, based on data from studies in other areas. The accuracy of this assumption for the Rancho San Carlos area is unknown.

Total streamflow is the same as that in the original water balance (12,100 af/yr), but it is partitioned into direct runoff, interflow, and base flow. Total annual streamflow was estimated by a combination of gage records and regression and is probably reasonably accurate. Direct runoff consists principally of overland flow of rainwater that never enters the soil. Direct runoff occurs rapidly in response to rainfall and ceases within hours after rainfall stops. Interflow is streamflow generated from water that infiltrates into the soil but moves rapidly downslope to the creek through macropores. Interflow might persist for a few days following the cessation of rainfall. Base flow consists of groundwater discharge that occurs where groundwater levels adjacent to a creek channel are higher than the surface elevation of the creek. Because of the large volume of groundwater storage and the generally low hydraulic conductivity of the fractured bedrock aquifers, base flow is



Note: Values are in acre-feet per year.

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Figure 8-2
Conceptual Diagram of Average
Annual Water Balance for Rancho San Carlos,
Including Upstream Watershed Areas

relatively constant. It can persist all year in places, but it is typically highest in late spring after the recharge season and gradually recedes during the dry season.

Hydrographs of monthly stream discharge data reported in the Comprehensive Hydrological Study do not reveal distinct differences between periods of runoff and periods of base flow. A rough estimate of base flow can be obtained by assuming that all streamflow measured during May through October is base flow. During 1989-1993, the combined discharge during these months at gages on four of the six watersheds ranged from 24 af to more than 696 af. A reasonable average would be on the order of 300-500 af. Streamflow data were incomplete for some months and gages so actual base flow was larger by an unknown amount. Assuming groundwater discharge to streams is somewhat greater in winter than in summer and increasing the estimates for both seasons to account for ungaged watershed areas within Rancho San Carlos (18% of the total water balance area) result in an estimated average annual base flow of approximately 1,000-2,000 af/yr. Although this estimate is rough, it indicates that base flow is a relatively small fraction (less than 20%) of the total annual stream discharge.

Evapotranspiration of soil moisture by plants is perhaps the most difficult flow to estimate because of large variations in root depths, "crop coefficients", soil type, and slope and aspect. For the revised water balance, this term was estimated as the residual in the water balance. Although evapotranspiration is one of the largest terms in the water balance, it would not be affected by groundwater pumping. It could be affected by the proposed changes in grazing management, but the effect would probably be beneficial. Thus, estimating this term by difference is reasonable and probably as accurate as other simple methods.

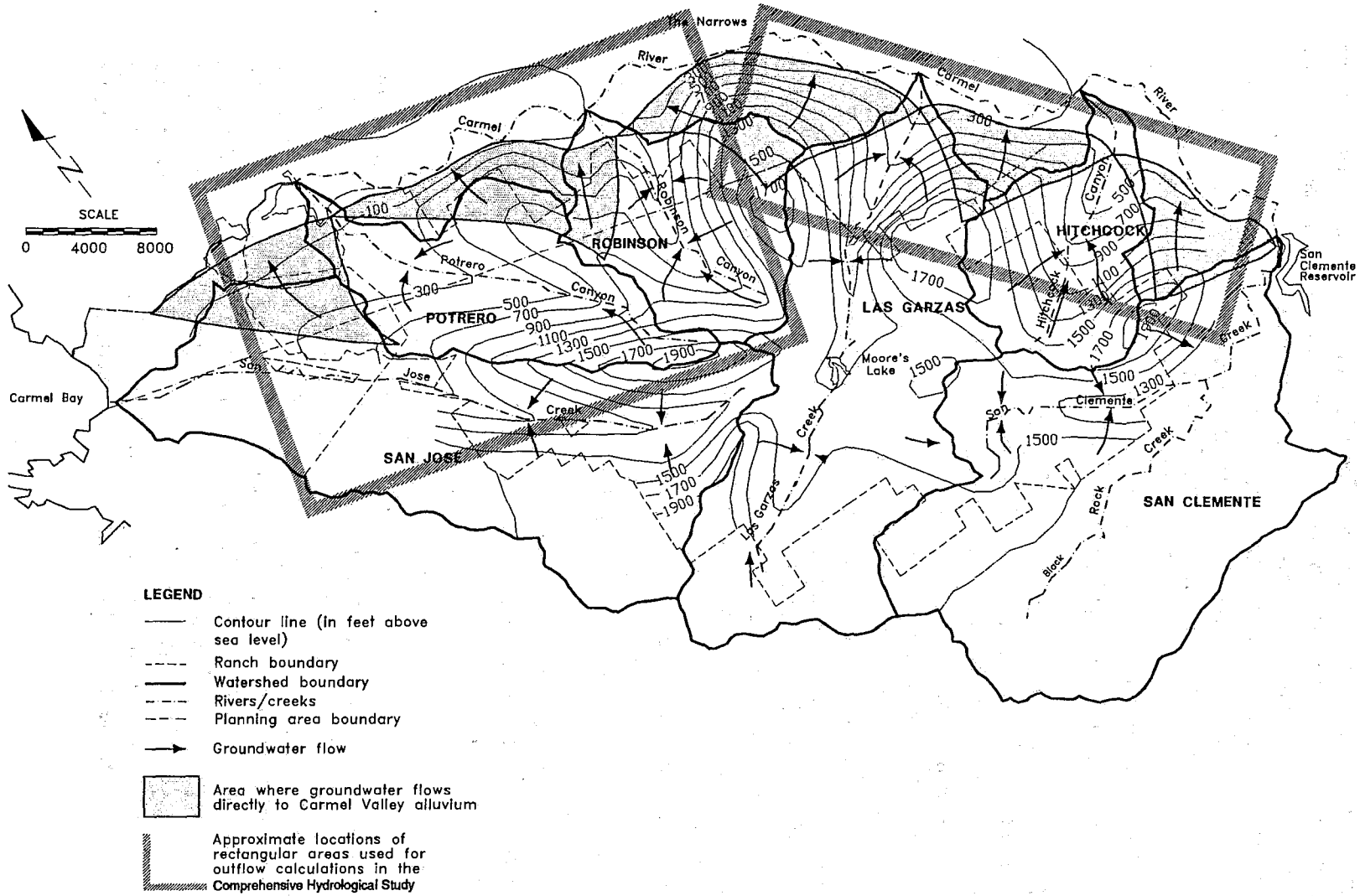
The revised estimate of average annual evapotranspiration is 33,300 af/yr, or 5,500 af/yr more than that in the original water balance. The increase is balanced by a decrease in groundwater recharge. This shift is considered reasonable because the root depth assumed in the original water balance (5 feet) may have been unrealistically small and consequently groundwater recharge would have been overestimated. An independent indication that groundwater recharge might have been overestimated in the original water balance is the discrepancy between the storativity estimate derived from well tests and the estimate derived from recharge and seasonal water-level fluctuations. A smaller recharge estimate would decrease the discrepancy. *It should be noted, however, that other assumptions in the original water balance might have tended to underestimate recharge. For example, native vegetation was assumed to transpire at the same rate as well-watered turf.*

Direct use of groundwater by phreatophytic vegetation was estimated for the original water balance by multiplying the area of riparian vegetation by the difference between potential evapotranspiration and available soil moisture. In other words, riparian vegetation was assumed to transpire at a rate equal to reference evapotranspiration (evapotranspiration by well-watered short-cropped grass), and any of the transpiration demand that could not be met by infiltrated rainfall was assumed to be met by groundwater. These assumptions introduce some errors, but the errors probably counteract each other. Not all of the vegetation types mapped as riparian are obligate phreatophytes. In other areas, for example, California bay and redwood trees commonly grow on

hillsides where a shallow water table is not present. In other words, they can grow solely on rainfall if rainfall is adequate. Also, unlike the grasses used to define reference evapotranspiration, many of the species included in the riparian vegetation map units have physiological characteristics designed to minimize water loss, such as stomatal hairs and waxy cuticles on leaves. These factors indicate that the water demand for riparian vegetation may have been overestimated. On the other hand, the original water balance assumed all net rainfall (after interception losses) infiltrated into the soil and became available to plants. With direct runoff not estimated, available soil moisture was probably overestimated in some years, and the amount of evaporative demand met by groundwater was consequently underestimated. In the absence of additional information to resolve these uncertainties, the original estimate of phreatophyte use of groundwater (3,100 af/yr) was retained.

Subsurface groundwater outflow to the Carmel Valley was calculated for the original water balance by applying an unconfined groundwater flow equation to a simplified geometric representation of the flow system. The flow domain was conceptualized as two trapezoidal prisms, one upstream of the Narrows and one downstream of the Narrows. The approximate locations of the prisms are shown in Figure 8-3, and a diagram of the downstream prism is shown in Figure 8-4. Given the slope of the water table, the hydraulic conductivity of the fractured bedrock aquifer, and the length of the outflow boundary, subsurface outflow to the Carmel Valley was estimated to equal 2,200 af/yr. This estimate would be reasonably accurate if groundwater were forced to remain underground along the entire length of the assumed flow paths. However, the region of groundwater flow represented by the calculations includes Las Garzas Creek and Potrero, Robinson, and Hitchcock Canyons. The water-level contours (Figure 8-3) indicate that much of the groundwater assumed to exit as subsurface outflow actually flows locally toward the creeks and exits the watershed as base flow in the creeks. Flow lines drawn perpendicular to the contours indicate that flow from approximately two-thirds of the area included in the original prismatic flow tubes probably enters local creeks rather than the Carmel Valley alluvium. Direct subsurface outflow to the alluvium appears to occur in five triangular areas at the ends of the ridges separating the creek valleys (see Figure 8-3). Applying the same equation and hydraulic conductivity used in the original calculations to these revised flow areas results in an estimated average annual outflow of approximately 1,300 af/yr, or 60% of the original estimate.

An independent estimate of subsurface inflow to the Carmel Valley was developed during calibration of the Carmel Valley Simulation Model (CVSIM) used to simulate reservoir operations and groundwater flow for water resources planning studies. The model initially included no subsurface inflow. When the model was first calibrated in 1988, simulated drawdown in storage unit 3 (between the Narrows and Potrero Canyon) during the 1976-1977 drought was too large. The lack of drawdown in the measured data was assumed to have resulted from subsurface inflow. An inflow of 5.12 af per day (equivalent to 1,870 af/yr) to storage unit 3 improved the simulated water levels during the drought but resulted in water levels that were too high during normal conditions (Fuerst pers. comm.). Thus, this estimate of inflow is probably a high one. Even if the estimate is decreased somewhat to account for subsurface inflow from the north side of the Carmel Valley (where drainage areas are smaller and drier than on the Rancho San Carlos side), it would still be substantially larger



Source: Base map and water levels from Camp Dresser & McKee, Balance Hydrologics et al. 1994a.

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Figure 8-3
Groundwater Flow Directions and Groundwater Subareas Used for Outflow Calculations

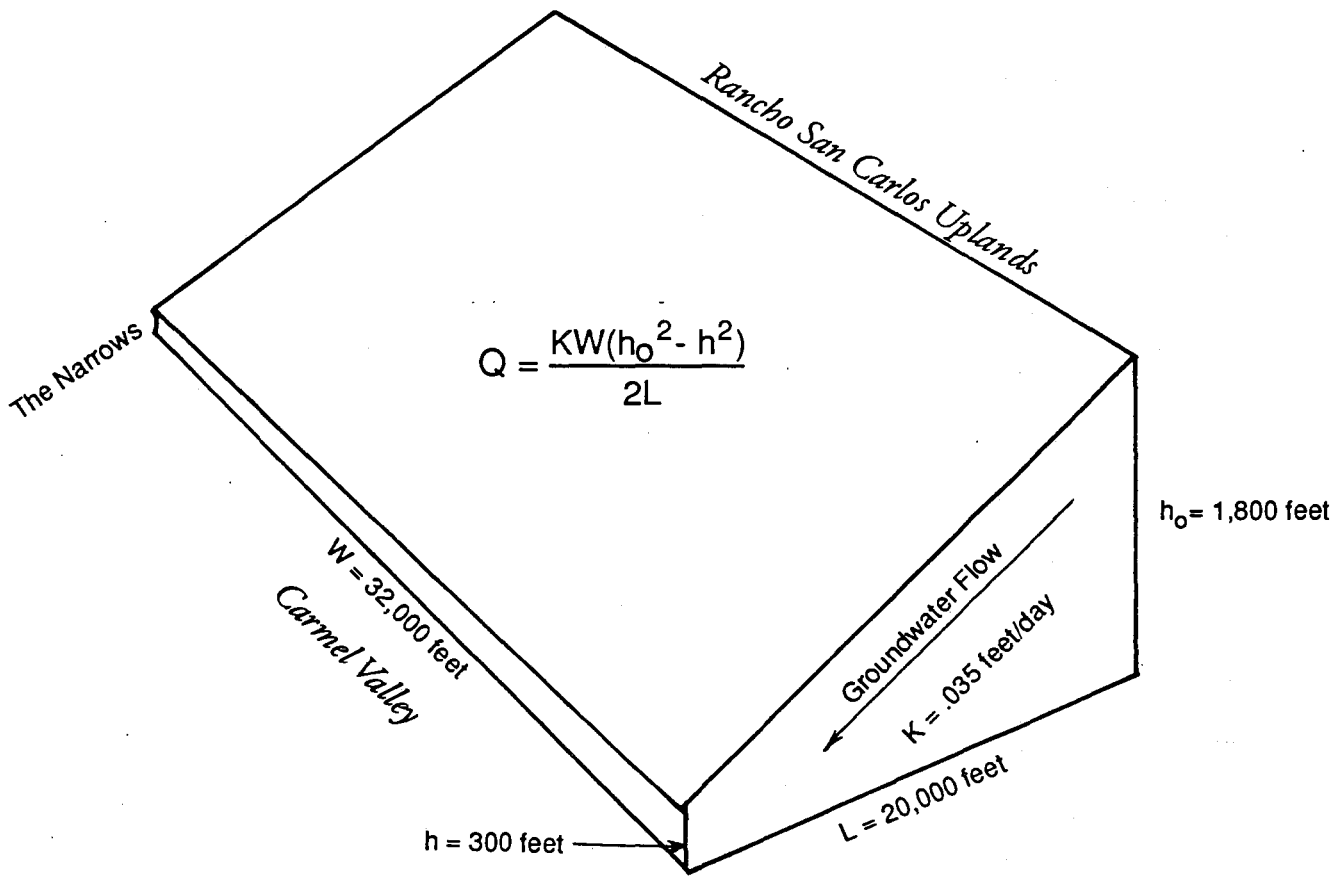

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Figure 8-4
Diagram of Trapezoidal Prism Method of Calculating Groundwater Outflow

than the estimate obtained in this study for subsurface inflow from the triangular subareas between Potrero Canyon, Robinson Canyon, and Las Garzas Creek (a total of 857 af/yr).

In addition to groundwater outflow to the Carmel Valley, there is groundwater outflow in the San Clemente and San Jose Creek watersheds. Rancho San Carlos is in the upper parts of these watersheds, where almost all groundwater outflow probably emerges as base flow in the creeks. The steep topography and the water-level contours on the Rancho San Carlos sides of those creeks indicate that groundwater flow is almost entirely toward the creeks rather than down the valley. There is no offsite alluvial groundwater basin in these watersheds for groundwater to flow toward directly, and only a very small fraction of total groundwater outflow might be through the fractured bedrock in the downvalley direction as subsurface flow beneath the creeks. Thus, groundwater outflow from these two watersheds was effectively accounted for in the estimates of base flow in the creeks.

The estimate of subsurface outflow included in the water budget shown in Figure 8-2 is somewhat inconsistent with the other terms in the budget. The other terms are only for Rancho San Carlos and upstream tributary areas and do not include areas between the Rancho San Carlos property boundary and the Carmel Valley. The groundwater outflow estimate, on the other hand, is for areas where groundwater flows directly to the Carmel Valley alluvium. These areas are located almost entirely between Rancho San Carlos and the Carmel Valley. The method used here to calculate subsurface outflow is appropriate for an analysis of project impacts, even though it creates an inconsistency in the water budget. Similarly, the streamflow estimate shown in the water budget does not include all surface runoff from the tributary creeks to the Carmel Valley. Runoff originating from rainfall and groundwater seepage between Rancho San Carlos and the Carmel Valley is not included.

Groundwater recharge from deep percolation can be estimated from the other terms in the groundwater part of the water balance. Assuming no net long-term change in groundwater storage, recharge must equal the sum of the groundwater outflow terms, or 5,900 af/yr.

The differences between the original and revised water balances are not considered large. The consequences of the differences, especially the smaller estimate of groundwater recharge and the explicit estimate of base flow, will become apparent in the "Impacts and Mitigation Measures" section. It will be shown that of the three groundwater outflow terms, base flow is most likely to be affected by groundwater pumping.

IMPACTS AND MITIGATION MEASURES

This section describes water demand for the proposed project and the adequacy and reliability of the proposed water supply wells. It describes the potential impacts of increased consumptive use of groundwater on groundwater levels, base flow in streams, phreatophytic vegetation, and subsurface outflow to offsite areas. Impacts of septic systems and use of reclaimed water for irrigation on groundwater quality are also discussed. Impacts on surface runoff during storms (including flood peaks) and surface water quality are discussed in Chapter 9, "Runoff, Flooding, and Water Quality".

In some cases, the evaluation of impacts presented in this chapter draws on hydrologic interpretation or impact analysis presented in the Comprehensive Hydrological Study and its supplements. In those cases, a review of the adequacy of those analyses for this EIR is presented, and modifications are made as necessary.

Significance Criteria

The State CEQA Guidelines (Governor's Office of Planning and Research 1986) provides several general significance criteria for environmental impacts associated with groundwater and related resources. A project will normally have a significant effect on the environment if it will:

- substantially degrade or deplete groundwater resources;
- interfere substantially with groundwater recharge;
- substantially degrade water quality;
- contaminate a public water supply; or
- substantially diminish habitat for fish, wildlife, or plants.

For this EIR, additional significance criteria were developed that refine the concepts in the general criteria to reflect the project design, local hydrologic system, and important local and regional resource issues. Thus, impacts are considered significant if any of the following thresholds apply:

- The yield of the groundwater system is not capable of supplying the net consumptive use demand of the project on a long-term average annual basis and during droughts.

- The water supply wells and water distribution network for the project is not capable of supplying water at a rate equal to maximum day demand.

- The project substantially decreases the availability of groundwater to existing users in adjoining offsite areas (by intercepting subsurface outflow and streamflow that would have recharged those areas), and the amount of the decrease exceeds a reasonable correlative share of groundwater yield.

- Water use for the project does not fall within the safe yield criterion imposed by the Monterey County Board of Supervisors in Resolution No. 93-115: "Determine within the accuracy of standard hydrogeologic practices, whether the level of development proposed by the applicant is consistent with safe yield of the proven water resources without adverse impacts on off-site water resources."

- The project lowers groundwater levels near creeks that support phreatophytic vegetation such that the total area of riparian vegetation on the Santa Lucia Preserve decreases by more than 5% below the 1994 baseline area on a long-term basis (either by direct mortality or impaired regeneration).

- Groundwater pumping for the project induces seepage that depletes pool volume and base flow in local creeks during summer by more than 10%, or to the point that resident fish populations are substantially decreased or substantially more vulnerable to severe impacts caused by natural fluctuations in flow and other environmental factors.

- Groundwater pumping for the project induces seepage that decreases the total area of wetlands on a long-term basis.

The significance thresholds related to the yield of the groundwater system and the capacity of the water distribution network address the reliability of the water supply system. Reliability is related to environmental impacts because an unreliable supply could prompt the project to pump groundwater in excess of safe yield, deplete stream base flow, or attempt to import water on an emergency basis from some other source that might be similarly drought-stricken.

The significance threshold for impacts on riparian vegetation is based on professional judgment and is considered reasonable in light of the widespread historical decreases in riparian habitat area in California and the relatively high habitat value of riparian areas. Further discussion of this significance threshold and the value of riparian habitat is presented in the section on "Impacts on Riparian Vegetation and Wetlands" and in Chapter 11, "Biological Resources".

The significance threshold for decreases in stream base flow is based on professional judgment. Resident fish populations are generally limited by the availability of habitat in summer. Given the small flows and short lengths of *protected* base flow reaches under existing conditions, a decrease of 10% is considered a reasonable upper limit of acceptable decline. Wildlife management agencies generally prefer no decrease in summer flows. *A map of the locations of protected base flow (as defined later in this chapter in mitigation measure "Monitor Base Flow in Creeks and Provide Supplemental Water if Necessary") is shown in Figure 8-4a.*

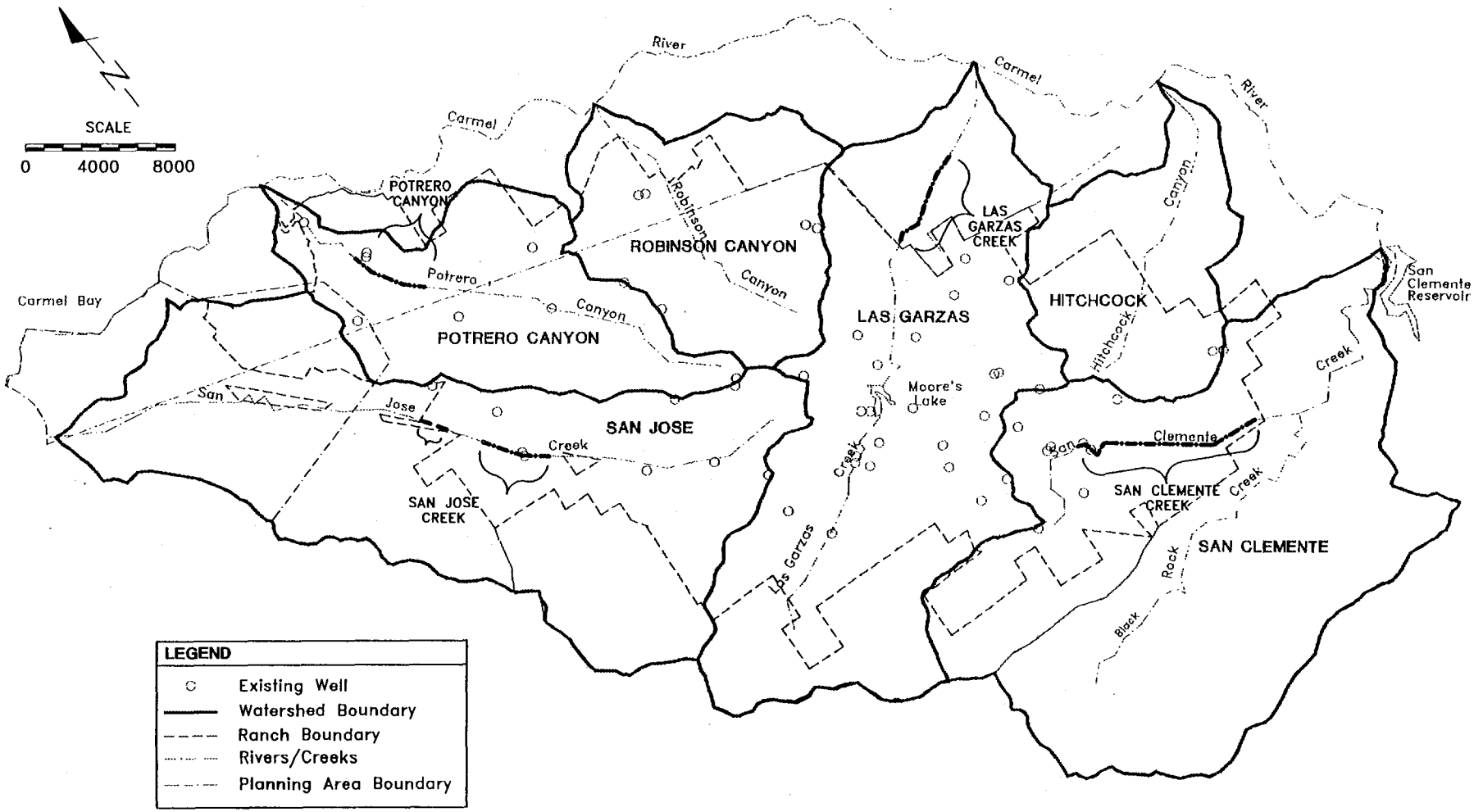

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Figure 8-4a
Location of Protected Base Flow Reaches

A distinction is made in this environmental impact analysis between impacts on groundwater resources and related natural resources and impacts on other groundwater users, such as well owners in the Carmel Valley. Evaluation of impacts of groundwater pumping on groundwater and related resources is relatively straightforward, and the groundwater-related significance criteria listed in the State CEQA Guidelines suggest that these are the principal types of impacts CEQA is intended to address. Evaluation of impacts on other groundwater users is more difficult because it raises issues related to water rights and because reasonable thresholds of significance are difficult to define. Under California law, groundwater rights are generally not quantified, and it is not the role of an EIR to quantify or prioritize those rights. Impacts on other water users is clearly an important issue to residents and local agencies in the Carmel Valley and Monterey Peninsula region, however, and a discussion of the physical impacts on groundwater conditions and water supply is certainly appropriate under CEQA. Determining the significance of those impacts ultimately is somewhat subjective and relies on professional judgment. The legal concept of correlative groundwater rights is useful in this analysis because it reflects the reality that groundwater users commonly adversely affect one another and, up to a point, accept these effects as an inevitable consequence of using the resource. Although this analysis draws on legal concepts, it should not be misconstrued as a legal determination of water rights.

Applicant's Proposed Mitigation Measures

Many features of the project design were selected to increase water supply reliability or minimize hydrologic impacts. In particular, some details of the water system design and proposed programs for testing new wells and monitoring water levels have been presented in technical memoranda prepared after the project description was developed for this EIR (Luhdorff & Scalmanini Consulting Engineers 1995a, b). These features are described in the following discussions of individual impacts. If they are considered essential for mitigating impacts, they are reiterated in this document as mitigation measures to ensure that they will be included in the project design and implemented.

Water Supply Reliability

The water supply system for the project would be considered unreliable if it were unable to meet the water demand on a long-term average annual basis, during moderately severe droughts, or during short-term peak demand periods. Potential environmental consequences of such a shortfall include mortality of irrigated landscape vegetation if extreme water conservation measures are imposed during droughts and depletion of offsite water supplies if water were imported to the site to eliminate the shortfall. The project applicant intends to avoid these potential impacts by developing a reliable water supply. The mitigation measures proposed in this EIR serve to ensure that the supply is reliable.

Evaluating the reliability of the proposed water supply system requires a thorough understanding of the anticipated water demands and the proposed wells and water distribution network. These subjects are discussed below before evaluation of the impacts.

For the purpose of discussion, reliability can be divided into short-term and long-term issues. Short-term reliability is principally an issue of delivery rate and whether the wells and distribution system are able to extract and deliver groundwater at a rate equal to the maximum day demand. Water storage tanks included in the distribution system will meet even shorter-term peak demands, such as fire flows and hourly demand peaks within the maximum demand day. Long-term reliability is principally a function of the groundwater budget and whether the project demand can be met under various climatic conditions without causing groundwater overdraft.

Water Demand

An itemized water demand estimate for the project was prepared for the Comprehensive Hydrological Study using water demand factors for each proposed type of water use. Most of the water demand factors were developed by local water resources agencies from metered water use records. In any case, all of the factors used for this project were reviewed and approved by local agencies, including the Monterey Peninsula Water Management District (MPWMD), Monterey County Water Resources Agency (MCWRA), and Monterey County Division of Environmental Health (Bilse pers. comm.). The water demand factors appear reasonable and possibly generous in some cases. Of particular interest are the assumed demand factors for the golf trail and the market rate homes, because together they represent 77% of the overall net water demand for the project. The assumed irrigation rate for the golf trail is 31 inches per year (slightly higher on tees and greens and lower on fairways), or 78% of the estimated water demand for turf (39 inches at the golf trail site). The remaining 8 inches of water demand is assumed to be supplied by effective rainfall, which is reasonable at a location where average annual rainfall is about 30 inches.

The water demand factor assumed for market rate homes was 0.75 af/yr per home, as recommended by the MPWMD (Bilse pers. comm.). This factor appears to be ample, given that the largest measured water use rates in nearby areas with large single-family homes (i.e., Pebble Beach, Del Monte Forest, and Rancho Fiesta) were slightly less than 0.50 af/yr per home.

The annual groundwater demand for the GMPAP part of the project is summarized by watershed in Table 8-1. The table lists gross water demand, return flows, and net water demand. The net annual water demand is of greatest importance to long-term impacts on the groundwater system, because return flows become groundwater recharge. The only differences between this table and the tables in the Comprehensive Hydrological Study are the inclusion of the golf trail demand with the combined development permit demand and a decrease in the estimated golf trail demand to reflect a revised estimate of irrigated area (71 acres versus 90 acres) (Wilcoxon pers. comm.). The

Table 8-1. Estimated Average Annual Groundwater Demand for the GMPAP Part of the Santa Lucia Preserve Project, by Watershed

Watershed and Demand Item	Gross Ground-water Demand (af/yr)	Return Flow (af/yr)	Net Groundwater Demand (af/yr)
Hitchcock Canyon			
Market rate homes (10.5 units)	7.88	3.94	3.94
Subtotal	7.88	3.94	3.94
Las Garzas Creek			
Existing uses	17.24	6.88	10.36
Market rate homes (103 units) [a]	77.25	22.13	55.12
Inclusionary housing [b]	7.44	1.15	6.29
Visitor rooms	47.31	3.03	44.28
Neighborhood commercial	4.51	0.18	4.33
Recreational	21.67	3.30	18.37
Services/Operations	2.20	0.26	1.94
Golf *trail* ~~course~~ and facilities[c]	106.94	0.36	106.58
Reclaimed water supply[d]	-78.75	NA	-78.75
Stormwater supply[e]	-24.0	NA	-24.0
Subtotal	181.81	37.29	144.52
Potrero Canyon			
Market rate homes (34 units)	25.50	12.75	12.75
Subtotal	25.50	12.75	12.75
Robinson Creek			
Market rate homes (8.5 units)	6.38	3.19	3.19
Subtotal	6.38	3.19	3.19
San Clemente Creek			
Market rate homes (59 units)	44.25	15.23	29.02
Golf *trail* course[c]	103.69	0	103.69
Stormwater supply[e]	-34	NA	-34
Subtotal	113.94	22.12	98.71
San Jose Creek			
Market rate homes (24 units)	18.00	9.00	9.00
Subtotal	18.00	9.00	9.00
Total	353.51	81.40	272.11

[a] 55 market rate homes in the Las Garzas watershed and 23 in the San Clemente watershed will be sewered; return flow rate is 0.075 af/yr (versus 0.375 af/yr for homes with septic systems).

[b] All of the 44 inclusionary housing units in the Las Garzas watershed will be sewered; return flow rate is 0.0169 af/yr (versus 0.0845 af/yr for units with septic systems).

[c] Half of the golf *trail* ~~course~~ irrigation demand (103.69 af/yr) is for turf in the Las Garzas watershed. The clubhouse will also be in the Las Garzas watershed (3.25 af/yr). The remaining irrigation demand will be in the San Clemente watershed. Return flow is for clubhouse landscape irrigation only. Golf *trail* ~~course~~ irrigation is assumed to *have zero return flow to groundwater.* ~~be 100% efficient.~~

[d] The reclaimed water supply is for a treatment plant capacity of 70,300 gpd (49 gpm) operating continuously at full capacity with seasonal storage of reclaimed water to match the seasonal irrigation demand.

[e] In an average year, 58 af of diffuse stormwater runoff from the golf *trail* ~~course~~ will be collected and stored in ponds for use during the irrigation season (Camp Dresser & McKee and Luhdorff & Scalmanini Consulting Engineers 1994).

NA = not available.

estimated gross annual water demand is 354 af and the net demand is 272 af. Return flows consist of deep percolation of septic system leachate and excess applied irrigated water.

The annual irrigation water demand for the golf trail will be 207 af/yr, ranging from a peak of 28.8+ af in July to as little as 5.7+ af in December. This includes 184 af/yr for irrigation of 71 acres of turf and 23 af/yr evaporative losses from storage facilities for the golf trail. Golf trail turf acreages and associated water demands were developed based on the following irrigation requirements.

	Acres	Percent Use
Greens	2.5+	3.6
Tees	3.5+	4.2
Fairways	35.0+	43.5
Aprons	8.5+	9.4
Close rough	21.5+	25.0

Three sources of supply are proposed for the golf trail: reclaimed domestic wastewater, diffuse stormwater runoff from the golf trail irrigated turf areas, and pumpage from wells. The use of reclaimed domestic wastewater and diffuse stormwater runoff will reduce the demand on groundwater as an irrigation water supply.

- **Reclaimed Domestic Wastewater**. The wastewater treatment facility on Lot 261 will generate up to a maximum of 70,000 gallons per day of irrigation quality water. This represents 79 af/yr or 39% of the estimated irrigation water demand.

- **Recycled Golf Trail Irrigation and Rainfall**. In order to mitigate potential water quality degradation, the drainage system for the golf trail has been designed to capture all irrigation and stormwater runoff from those turf areas subject to intensive turf management techniques. This water will be recycled and returned to the irrigation supply system. Up to 28% (58 af/yr) of the estimated irrigation water demand will be met from this source.

- **Wells**. Additional demand beyond that capable of being supplied by the two sources described above will be met by pumping from wells *(70 af/yr)*.

Potable water for the clubhouse will be provided by the Santa Lucia Preserve County Service Area as a part of the same domestic water supply system proposed for all improvements with the preserve.

Water from the three sources described above is to be collected, mixed, and stored in *four* ~~three~~ new ponds capable of *storing 58* ~~38~~ af adjacent to the golf trail. The irrigation system will be supplied from these storage ponds.

Storage facilities are proposed to meet peak summertime demands for the golf trail and reduce the need for peak groundwater pumping capacity. Although short-term (maximum day) peaks may be as high as 421 gpm, these peak demands will be met from storage and will not require source capacity equivalent to the peak demands. The required peak groundwater pumping capacity to serve the golf trail will be approximately 152 gpm.

A computerized irrigation system linked to an onsite weather station will automatically control daily water usage to achieve efficient water replacement within the turf root zone. Surface runoff and deep percolation (below the root zone) of irrigation water will be negligible during the irrigation season.

Reclaimed water used for irrigation of the golf trail is included in the water demand table as a negative demand. This supply corresponds to the revised wastewater treatment plant capacity of 70,300 gallons per day (= 49 gpm = 79 af/yr) (Camp Dresser & McKee and Luhdorff and Scalmanini Consulting Engineers 1994).

Stormwater runoff collected from the golf *trail* ~~course~~ and stored in ponds for use during the irrigation season is also shown in the water demand table as a negative demand. In an average year, this source of water would supply 58 af of water for irrigation.

In addition to the residences and facilities included in the water demand table, the project applicant expects to build another 67 residential units to achieve complete buildout of the project. This would result in an additional 45.0 and 22.5 af/yr of gross and net annual water demand, respectively.

The ~~instantaneous~~ combined pumping capacity of the water supply wells is also an important factor affecting water supply reliability because *Title 22 of the California Administrative Code requires that water supply systems be able* ~~the wells need to be able~~ to meet the gross water demand on the day of the year with the highest demand rate. Two methods have been used to estimate the *maximum day demand.* ~~required pumping capacity of the well network.~~ Following customary engineering practice for residential developments, the maximum day demand was assumed in the Comprehensive Hydrological Study to equal twice the average daily demand. This resulted in pumping capacity estimates of 353 gpm for the combined development permit (excluding the golf trail) and 750 gpm at buildout. A subsequent analysis (Luhdorff & Scalmanini Consulting Engineers 1995b) used *the minimum source capacity curves published in Title 22* ~~the California Administrative Code Title 22 requirements~~, which *indicated a required* ~~specify a~~ pumping capacity of 1 gpm per service connection to meet maximum day demand. Including all residences and facilities at buildout and supplemental irrigation requirements at the golf trail (152 gpm in addition to the reclaimed water supply), this method resulted in a pumping capacity requirement of 584 gpm. Applying this same

method to the homes and facilities included in the combined development permit as presently defined (i.e., everything except 58 market rate *homes* and ~~nine~~ *2 gpm for* inclusionary homes *not within the GMPAP*), results in a pumping capacity requirement of *524* ~~526~~ gpm.

Water Supply Wells and Distribution Network

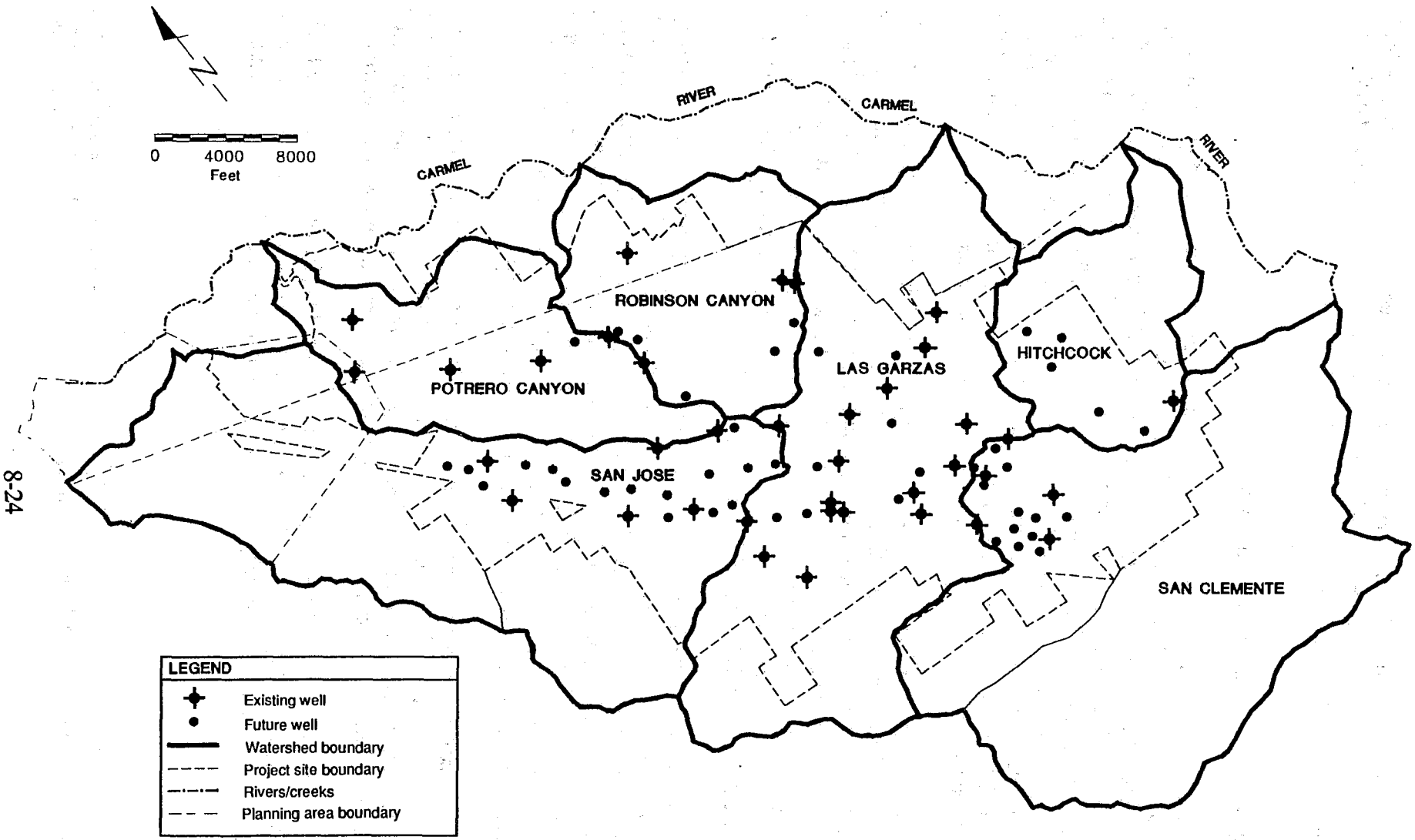
Thirty-seven existing wells are proposed for inclusion in the water supply system for Rancho San Carlos. The combined yield of these wells is sufficient to meet the water demand during the early phase of project completion. The project applicant plans to drill additional wells to meet the higher water demand levels during the later phases of project completion. Figure 8-5 shows the locations of the existing wells and tentative locations for future wells. Table 8-2 lists the estimated 24-hour yield of each well as stated in the Comprehensive Hydrological Study. The 24-hour yield, or demonstrated pumping capacity, is the amount of water a well can produce in 1 day without exceeding the available drawdown. Available drawdown was defined as equal to two-thirds of the vertical distance between the static water level and the top of the well screen.

Well yields in fractured bedrock aquifers tend to be highly variable, as illustrated by the yields of the Rancho San Carlos wells. The estimated yields range from 1 to 50 gpm, although wells expected to produce less than 1 gpm were not included in the program. The highest yield (65 gpm) was at well E-3, which is screened in alluvium rather than bedrock. The yields do not appear to correlate significantly with location or with bedrock formation type. Consequently, the average yield of future wells drilled for the water supply system would probably be approximately the same as the average for the wells that have already been drilled and tested.

A sufficient number of wells will be included in the water supply system so that collectively they will be able to meet the maximum day demand without operating more than 12 hours per day. The normal operating mode for wells will be 12 hours of pumping followed by 12 hours of recovery, with additional capacity obtained by turning on additional wells. This means that the sustained yield of the wells in actual operation will be one-half the 24-hour yield. The total 24-hour yield cited in the Comprehensive Hydrological Study was 527 gpm. The actual effective pumping rate would be 264 gpm, which equals about 53% of the maximum day demand rate (500 gpm).

The water distribution system *for well water* will be entirely interconnected, so that each well could potentially deliver water to any service connection in the system. Because of the large topographic relief encompassed by the distribution system, it will be divided into 23 interconnected pressure zones with flow and pressure maintained by pumping stations and pressure regulators.

Construction of the water distribution system will proceed in phases corresponding to the phasing of overall project construction. At any time during the development process, the amount of on-line well yield and storage tank capacity will be adequate to serve the on-line water demand.



Source: Camp Dresser & McKee, et al. 1995.

Jones & Stokes Associates, Inc.

Figure 8-5
Locations of Existing and Proposed Future Water Supply Wells

Table 8-2. Locations and Yields of Existing Water Supply Wells

Well Number	Watershed	Test Duration	Estimated Yield (gpm) Comprehensive Hydrogeologic Study	Estimated Yield (gpm) Adjusted Estimates	Reason for Adjustment or Uncertainty
E-3	Las Garzas	4 hours	65	65?	Test too short
E-4	San Jose	2 hours	3	3?	Test too short; results dominated by casing storage effect
S-1	Las Garzas	72 hours	5	3	Fall '94 pumping rate adjusted for available drawdown
S-3	Las Garzas	6 hours	2	2	Fall '94 pumping rate adjusted for available drawdown
S-4	Las Garzas	73 hours	5	5?	Large change in pumping rate during test
S-6	San Jose	4 hours	1	0?	Test too short; results dominated by casing storage effects
T-3	Robinson	72 hours	30	11	Boundary effect; adjusted for late-time T
T-4	Potrero	74 hours	8	5?	Variable pumping rate; adjusted for late-time T
T-6A	Las Garzas	29 hours	8	8	
T-7	San Clemente	24 hours	6	6	
T-8	Potrero	72 hours	15	15	
T-9	Las Garzas	72 hours	50	50	
T-10	Las Garzas	72 hours	25	25	
T-11	Potrero	30 days	35	35	
T-12	San Jose	24 hours	10	9?	Variable pumping rate; adjusted for rate during first 450 minutes
T-14	San Jose	30 days	10	10?	Highly variable pumping rate
T-17	Robinson	30 days	4	4	
T-18	Potrero	30 days	45	26	Boundary effect; adjusted for late-time T
T-20	Las Garzas	24 hours	2	2?	Highly variable pumping rate; casing storage effect
T-21	Robinson	72 hours	10	10	
T-24	Las Garzas	72 hours	5	0	Sudden and complete loss of yield after 2.0 days
T-25	Las Garzas	72 hours	17	17	
T-26	San Clemente	30 days	15	9	Boundary effect; adjusted for late-time T
T-29	Hitchcock	72 hours	30	5	Boundary effect; adjusted for late-time T
R-1	San Clemente	72 hours	21	27	Boundary effect; adjusted for late-time T
R-3	Las Garzas	72 hours	5	1?	Boundary effect; adjusted for late-time T
R-5	Las Garzas	72 hours	3	1	Boundary effect; adjusted for late-time T
R-6	San Jose	72 hours	12	12	
R-9	Potrero	72 hours	4	4	
R-10	Las Garzas	72 hours	8	7?	Erratic drawdown; adjusted for projected 24-hour drawdown
R-11	Potrero	72 hours	8	4	Boundary effect; adjusted for late-time T
R-13	San Jose	18 hours	8	8?	Test too short; large casing storage effect
R-14	Robinson	72 hours	6	6	
R-15	San Clemente	72 hours	5	5	
R-27	Las Garzas	50 hours	4	2?	Variable pumping rate; adjusted to reflect available drawdown
R-33	Las Garzas	30 hours	6	6	
R-42	Las Garzas	72 hours	31	31	
	Total		527	439	

Notes: ? = uncertain test results.

To adjust for late-time T, transmissivity (T) was calculated from data after a break in the drawdown slope. The yield, or specific capacity, was multiplied by the ratio of the revised T to the original T.

The total number of additional wells that will be needed for the project is not known at this time because it depends on the yields actually achieved by wells drilled in the future and on the required system source capacity, which will be determined by measurements of actual water use during the early phases of project development. A conservative estimate of the number of wells can be calculated from the demand and well yield estimates. As described earlier, the estimated source capacity requirement ranges from 524 gpm for facilities included in the combined development permit to 750 gpm at buildout. Assuming the adjusted well yields shown in Table 8-2 and assuming 12-hour-per-day well operation, the 37 existing wells can supply 220 gpm. The remaining demand to be met by additional wells is therefore 304-530 gpm. Assuming that all additional wells would be drilled in bedrock, would have the same average yield as the existing wells (10.4 gpm, using the adjusted yields), and would be operated a maximum of 12 hours per day, approximately 58-102 additional wells will be needed. The number of drill holes might exceed this estimate because some of the holes (approximately 10%) might not yield enough water to be worth completing as wells. These holes would be plugged according to state and county well abandonment regulations.

The actual ultimate number of wells included in the water supply system (assuming the above estimate is reasonably accurate) is inconsequential to this analysis, because the significant environmental impacts associated with water use for the project result from the amount of water consumed, not from the number of wells used to withdraw the water from the ground. As demonstrated by the lack of significant environmental impacts caused by installation of the first 37 wells, constructing wells using current standard drilling methods is not considered a source of significant environmental impact. Mitigation measures described later in this chapter will ensure that new wells are drilled away from sensitive environmental resources such as base flow reaches in creeks.

~~The applicant estimates that 50 additional wells will need to be drilled to meet the maximum day water demand after complete buildout of the project. The locations of future wells will be selected so that groundwater pumpage is distributed among the watersheds in approximately the same proportions as groundwater recharge.~~

Impact: Water Supply Shortage Because of Overestimated Well Yields

If the proposed network of water supply wells failed to supply their expected yield after demand was already on line, a water supply emergency could result. Many of the possible operational responses to the emergency could result in environmental impacts. For example, severe water rationing could result in mortality of irrigated landscape vegetation, increased groundwater pumping could result in overdraft or excessive streamflow depletion, and attempts to import water from offsite areas could affect other users and the environment in those areas.

The wells need to be capable of supplying water for 1 day at a rate equal to the maximum day demand in the middle of the high demand season. Fire flow requirements and hourly demand fluctuations within the maximum demand day would be met by storage in above-ground tanks and

would not rely on the pumping rates of the wells. This is consistent with the proposed design of the water supply distribution system, which includes tank storage equal to four times the maximum day demand (excluding golf trail demand) plus fire flow requirements.

Evaluation of maximum day and month reliability of the wells and distribution system was based on a careful review of the well yield analysis presented in the Comprehensive Hydrological Study. The results of the review are presented in this section to substantiate the evaluation of environmental impacts.

The 24-hour well yields used in the Comprehensive Hydrological Study to quantify the available water supply for the project were based on actual pumping tests of up to 30 days in duration. Yield was calculated by multiplying the 24-hour specific capacity (in gallons per minute per foot of drawdown) by the amount of available drawdown (in feet). The drawdown plots and calculations were documented in Appendix E of the Comprehensive Hydrological Study.

In spite of the thorough testing program, it remains uncertain whether the yields stated in the Comprehensive Hydrological Study could be achieved reliably on the maximum demand day. The reasons for the uncertainty include the conceptual appropriateness of using the measured 24-hour yield to represent the maximum demand day yield and irregularities or ambiguities in test results. The latter include effects caused by variable pumping rates, casing storage, and apparent flow boundaries. Each of these is explained below.

Appropriateness of 24-Hour Yields. The pumping tests used to estimate the yields began from static conditions in which water levels in the wells had been allowed to recover to a stable level over a long period of time. In contrast, the maximum demand day will occur in summer, and most or all of the supply wells will have been pumping on a cyclic basis for several months prior to the maximum day. The aquifer in the immediate vicinity of each well will have undergone some cumulative seasonal drawdown as a result of the prior pumpage, and the wells might not produce at as high a rate as when they start with a fully recharged aquifer. The effect of prior pumping on water levels is illustrated by comparing the drawdowns after 24 hours with the drawdowns after 30 days at the five locations where 30-day tests were performed. The additional drawdown during the 29 days ranged from 13% to 81% of the available drawdown. In some cases, the increment was larger than would occur in practice because the pumping rate during the test was greater than the 24-hour yield rate. Nevertheless, drawdown caused by prior pumping can substantially decrease the amount of available drawdown actually available on the peak demand day. In many cases, the rate of drawdown increased (relative to the theoretical straight line rate) as the test progressed. These apparent boundary effects, discussed below, further indicate the potentially important effects of prolonged pumping that are not always reflected in the 24-hour yields.

Variable Pumping Rates. If the pumping rate does not remain constant during a well test, the drawdowns will depart from theoretical drawdown curves and complicate the calculation of specific capacity. The pumping rate varied during many of the tests. In most cases, the variation was small enough or early enough that the test results could be reasonably interpreted using the average

pumping rate. At wells T-4, T-12, T-14, T-20, and R-27, however, variations in the pumping rate were large, frequent, or occurred near the middle of the test, and the drawdown patterns were highly irregular. The yields estimated from these wells are consequently somewhat uncertain.

Casing Storage. In low-yielding wells, the volume of water standing in the well casing prior to a pumping test can contribute a significant fraction of the well yield during the early part of the test. Formulas are available for calculating the critical time (Tc) at which this effect becomes negligible, and the calculated critical time for each well was shown on the drawdown plots presented in the Comprehensive Hydrological Study. For most of the tests, enough data were collected after Tc that the results were presumably free of any errors resulting from casing storage. For some of the shorter tests, however, the test ended either before Tc or too soon after Tc to determine the true aquifer response. These include the tests of wells E-4, S-6, T-20, and R-13. Because casing storage increases the apparent yield of a well, it is possible that the yields of these wells were overestimated.

Apparent Flow Boundaries. In a large number of the well tests, the rate of drawdown departed from the theoretical straight-line trend and shifted either gradually or abruptly to a more rapid rate. This pattern raises serious questions about the use of short-term tests to measure the reliable well yield in the middle of the peak demand season. Data from the 3-day and 30-day tests demonstrate that tests lasting 24 hours or less can underestimate the long-term drawdown rate and consequently overestimate the well yield. In the tests of wells T-3, T-9, T-10, T-18, and T-24, for example, an increase in drawdown rate occurred between 1 and 3 days after the start of the test and would not have been detected with a 24-hour test. At well T-26, an increase in drawdown rate occurred after 3.5 days of pumping and would not have been detected with even a 3-day pumping test. At well T-29, the increase in drawdown rate was gradual rather than abrupt. In only one case (well T-21) did the rate of drawdown decrease with time and indicate a higher yield than was indicated by the short-term test.

Several possible causes account for the changes in the measured rate of drawdown. These include the "casing storage" effect of the gravel pack surrounding the casing, the presence of a steeply sloping water table in the general vicinity of the well, and limited areal extent of the local fracture system tapped by the well. For the purpose of estimating the reliable yield of the wells, it does not matter whether one or all of these causes contribute to the effect. The empirical fact remains that in many cases the measured yield of the well decreases as the duration of the pumping test increases.

Cyclic pumping will not prevent the drawdowns from reaching the apparent boundary effects. As explained in the Comprehensive Hydrological Study, the long-term drawdown rate associated with cyclic pumping (for example, 12 hours on followed by 12 hours off) is the same as the drawdown rate that would result if the well were pumped continuously at half the pumping rate. In other words, cyclic pumping does not allow the drawdown to remain perpetually in the first phase following static conditions. Furthermore, the time at which a boundary is encountered depends on the rate at which the cone of depression expands, which is a function of transmissivity and storage coefficient but not a function of pumping rate. So the boundary would be encountered at the same elapsed time even if cyclic pumping effectively cuts in half the pumping rate.

An obvious consequence of the pattern of decreasing yields is that the yields of wells tested for 24 hours or less were probably overestimated in some cases. The wells in this category are wells E-3, E-4, S-3, S-6, T-7, T-12, T-20, and R-13, and their combined yield was reported as 97 gpm, or 18% of the total yield of all wells. These wells were tested for periods ranging from 2 to 24 hours.

At some of the wells with observed increases in drawdown rate, the transmissivity and well yield were calculated from data after the increase. This results in a yield estimate that is appropriately conservative for conditions of long-term continuous or cyclic pumping. These include wells T-8, T-9, T-10, T-14, T-25, R-6, and R-10. At other wells, however, the transmissivity and well yield were calculated from data prior to the increase in drawdown rate, and the results might consequently overestimate the long-term yield. These include wells S-1, T-3, T-4, T-18, T-26, R-5, and R-11. At well R-1, the rate of drawdown decreased, and the long-term yield might have been underestimated. Adjusted estimates of yield for these wells are shown in Table 8-2. The yields were adjusted by multiplying the 24-hour specific capacity by the ratio of transmissivity calculated from late-time data to the transmissivity calculated from early-time data.

In several cases (wells T-24, T-29, and R-3), the change in the rate of drawdown was irregular or drastic enough that an adjustment was already included in the yields reported in the Comprehensive Hydrological Study. However, the adjusted value might still be overly optimistic. For example, the water level in well T-24 suddenly plummeted from 75 feet to 210 feet (available drawdown is 200 feet) during the third day of the pumping test, yet the reported adjusted yield of 5 gpm is only slightly less than the test pumping rate (8 gpm). In a few other cases (wells T-12, R-10, and R-15), a projected rather than actual drawdown after 24 hours might have been more appropriate for calculating specific capacity because variations in pumping rate or other factors caused irregular water levels 24 hours into the test.

Finally, the concentration of aluminum in water produced from wells T-6A and R-11 exceeds the maximum concentration allowed under California primary drinking water standards. The Monterey County Division of Environmental Health has indicated that it does not permit treatment as a means of meeting primary drinking water standards. The project applicant plans to retest the water quality of those wells because the high aluminum might have resulted from incomplete well development. If the wells still fail to meet the drinking water standard, the project applicant proposes to use the wells for landscape irrigation by installing nonpotable water distribution lines from those wells to nearby residences and community facilities. Thus, it is appropriate to retain these wells in the water supply table.

The combined yield of the proposed water supply wells after making the above adjustments is 439 gpm, or 17% less than the yield stated in the Combined Hydrological Study. This does not include the probable decreases in estimated yields that would result from longer tests at wells that were tested for 24 hours or less.

Operating Features That Enhance Reliability. The risk of water supply shortages is greatly decreased by two aspects of the planned well operating criteria. First, the wells will be

operated only 12 hours per day, or effectively at half of the reported 24-hour yield rate. In other words, the wells would only be relied upon to provide 264 gpm, rather than the 527 gpm of combined yield reported in the Comprehensive Hydrological Study. Second, the available drawdown used in the yield calculations was only two-thirds of the maximum drawdown that could occur before adversely affecting well operation. Together, these criteria create a safety factor of about 3. That is, if wells were pumped continuously at a drawdown equal to the maximum drawdown, the yield would be about three times the yield credited to the wells under the planned operating criteria. These operating criteria create a substantial safety factor that is probably sufficient to compensate for any overestimates of well yields.

The foregoing review of the well yield analysis demonstrates that the wells may not be able to supply the reported yields throughout the peak demand season *without violating the proposed operating criteria and encroaching on the safety factor*. Without accurate estimates of reliable well yields, water demand might accidentally be allowed to exceed the available water supply capacity at some time during the project construction period. The potential for a water shortfall during the peak demand season is considered a significant impact. To avoid this impact and reduce it to a less-than-significant level, the following mitigation measure should be implemented.

Additional Mitigation Measure *12*: Maintain a Water Supply Equal to or Greater than Connected Water Demand at All Times. A water supply shortage could occur if new wells are not drilled and connected to the water supply system during the 20-year project construction period at a rate such that pumping capacity always exceeds maximum day demand. In addition, shortages could develop in subsequent years if well yields decline as a result of mineral deposits in the well. The Comprehensive Hydrological Study clearly states that additional wells will need to be drilled to meet the ultimate project water demand and indicates tentative locations for additional wells. However, the Comprehensive Hydrological Study does not indicate when the wells will be drilled, although it is logically understood that additional wells would be drilled and equipped as demand increases.

It is recognized that the overall operation of a municipal water system such as planned for Rancho San Carlos will be governed by a Water Supply Permit, ultimately issued by the State Department of Health Services (DHS) under Section 4011(a) of the State Health and Safety Code (when the total number of connected water services reaches at least 200). It is further recognized that, as part of administering the Water Supply Permit, DHS is mandated by the provisions of Section 4039 of the Health and Safety Code to annually inspect and evaluate the water system for conformance with its permit. Standards for evaluation include sufficient source capacity and storage volume to meet maximum day demand, maximum hour demand, and fireflow demand. Specifications for source capacity and system storage volume are included in the California Waterworks Standards (22 CCR 16).

The methodologies for determination of well yields, as documented in the Comprehensive Hydrological Study, conform to those specified in the Title 22 Waterworks Standards. As noted above, an analysis of projected water demand on the ranch also used the Title 22 Waterworks Standards as a basis for water demand projections (Luhdorff & Scalmanini Consulting Engineers

1995b). These standards specify the source capacity, in gallons per minute (gpm), based on the maximum monthly temperature at the site. The maximum average monthly air temperature in Monterey was 62.4°F for the 1951-1980 period. In consultation with the DHS, the project applicant selected the 60°F curve in the Title 22 Waterworks Standards for calculating the necessary source capacity. This resulted in a requirement of 1 gpm per service connection, which exceeds the maximum day pumping rate requirements estimated from water demand factors in the Comprehensive Hydrological Study (0.93 gpm per service connection for market-rate homes and 0.21 gpm per service connection for inclusionary housing). Thus, the Title 22 Waterworks Standards, which the project will be required to meet, are relatively conservative and should ensure that the source capacity exceeds demand at all times.

In light of the mandated annual inspection of the water system, complemented by conformance with Title 22 Waterworks Standards, specific operating criteria and/or conditions for adding source capacity as a mitigation measure are potentially redundant or in conflict with the mandated provisions of the Health and Safety Code and California Administrative Code. It is expected that conformance with its Water Supply Permit will accomplish this mitigation measure to maintain a water supply equal to or greater than connected water demand at all times.

However, as part of generally accepted practice in water system operation, *the applicant shall monitor* the operating time and pumping water level of all active water supply wells ~~shall be monitored~~ at least weekly during the maximum demand season (June-August) and monthly during the balance of the year. These data shall be reviewed annually to define source capacity versus system demand and to determine whether additional well capacity is needed. The following conditions should be considered indicators that the overall pumping capacity of the well system cannot meet demand within the criteria established by the ranch and that source capacity needs to be increased by adding additional wells or rehabilitating existing wells (if yield has declined because of mineralization or clogging):

- the average operating time during the maximum demand season exceeded 12 hours per day for more than 10% of the active wells,
- more than 10% of the water production during the maximum demand season was from wells operating more than 12 hours per day on average, and
- the average annual operating time throughout the year exceeded 8 hours per day for the active wells.

If a need for additional capacity is indicated by the above criteria, *the applicant shall rehabilitate* existing wells *and/or drill, test, and connect new wells* ~~will be rehabilitated and/or new wells drilled, tested, and connected~~ to the water supply system until the total system yield is sufficient to meet the system yield objective. The yield objective will ensure that the total connected source capacity (with wells operating a maximum of 12 hours per day) equals or exceeds the maximum day water demand for all connected water users at all times. The number of wells required will depend

on the actual yields achieved in the new wells and the amount of additional overall yield needed. The yields of new or rehabilitated wells will be measured in conformance with the Title 22 Waterworks Standards (using 72-hour pumping tests similar to those performed for the Comprehensive Hydrological Study). *The yield shall be calculated by multiplying the 24-hour specific capacity by the available drawdown. If the apparent transmissivity decreases between the first 24 hours of the test and the end of the test, the 24-hour specific capacity shall be adjusted by multiplying the ratio of late-time transmissivity to early-time transmissivity. Available drawdown is defined here as two-thirds of the vertical distance from the static water level to the top of the well screen.*

In any year in which a need for additional capacity is identified, the additional capacity will be provided in accordance with the annual review of the Water Supply Permit *by DHS*, which is expected to limit new connections to the water supply system if total system capacity is insufficient to meet demand.

Monitoring of well operating times and pumping water levels during the maximum-season and the requirement to meet the system yield objective will continue as long as the *base flow monitoring program described in mitigation measure "Monitor Base Flow in Creeks and Provide Supplemental Water if Necessary".* ~~water supply system remains in operation.~~

Monitoring of operating times and pumping water levels will not incur substantial additional expense and is within the scope of activities considered reasonable and prudent for water system operation and management. The proposed water system design (Luhdorff & Scalmanini Consulting Engineers 1995b) includes telemetered monitoring and control of all wells from a central control station. Operating time and water level are among the variables that will be automatically monitored.

To improve coordination among county agencies involved in overseeing implementation of the project, the applicant shall submit a brief annual report to the Monterey County Division of Environmental Health documenting basic water system operations information monitored under this mitigation measure or developed for the annual review of the water supply permit, including:

- *the operating times and water levels of wells supplying the water system,*
- *daily systemwide water deliveries and monthly delivery summaries by pressure zone,*
- *the results of any well yield tests performed during the year, and*
- *an analysis of whether and how much additional source capacity is needed to meet projected demand for the coming year.*

Impact: Potential Groundwater Overdraft if Water Demand Exceeds Groundwater Supply

If the average annual consumptive use of groundwater by the project exceeds the sustainable yield of the groundwater basin, groundwater overdraft and steadily declining water levels will result.

The long-term and drought reliability of the water supply for the project depend primarily on the groundwater balance, the usable groundwater storage capacity, and the ability of the well network to reach groundwater throughout the ranch. Each of these factors was carefully reviewed and is discussed below. The conclusion reached through this analysis is that the impact is less than significant and no mitigation is required.

Groundwater Balance. The water balance calculations described in the "Setting" section indicated that average annual groundwater recharge is on the order of 5,900 af/yr. Although this estimate is approximate, it is much larger than the average annual consumptive use of groundwater by the project (272 af/yr for the GMPAP part and 295 af/yr at buildout). Thus, it can be safely concluded that recharge is adequate to supply the increase in consumptive use of groundwater.

Conservation of mass dictates that if groundwater storage does not change in the long run, the increase in consumptive use of groundwater for the project must be matched by a corresponding change elsewhere in the water balance. In this case, the change would probably consist of one or more of the following changes in individual flows in the water balance:

- an increase in groundwater recharge resulting from implementation of the Cattle Grazing Plan,
- a decrease in subsurface outflow,
- a decrease in groundwater use by phreatophytes, and
- a decrease in streamflow.

Each of these changes could be associated with environmental impacts, and the changes are discussed individually later in this chapter. However, it is clear that the combination of these changes could provide enough water to meet the consumptive use demand of the project without causing long-term groundwater overdraft.

Usable Groundwater Storage Capacity. Groundwater storage capacity is essential to sustain the project during droughts. Although the average annual groundwater recharge is adequate to supply the project in the long term, recharge during droughts might be less than the project demand. During these periods, the project will have to rely on groundwater storage. Early studies by Blaney et al. (1963) of rainfall recharge in the Coast Ranges near Lompoc demonstrated that rainfall recharge is limited by a threshold level of soil moisture. Deep percolation to the water table is negligible until the soil moisture deficit accumulated in the root zone during the dry season has been fully replenished. A conservative assumption is that there is no groundwater recharge during

droughts and that the consumptive water demand must be supplied entirely from groundwater storage. The smallest estimate of usable groundwater storage in the depth interval penetrated by most of the water supply wells is 64,675 af, as described in the section on "Aquifer Characteristics". This volume is sufficient to supply the project demand at buildout for 219 years. Even if the distribution of wells (Figure 8-5) allows access to only about half of the total Rancho San Carlos area during periods of prolonged pumping, the amount of accessible groundwater would still greatly exceed the project's water demand. Thus, there clearly is ample storage to sustain the project during droughts.

Ability of the Well Network to Reach Groundwater. The average annual groundwater recharge and the volume of groundwater storage were calculated for a study area that includes all of Rancho San Carlos and parts of the creek watersheds upstream of the rancho. The total amounts of recharge and storage would not be available to the project unless the project wells are able to draw water from all parts of the study area. However, the total amounts of recharge and storage greatly exceed the amounts needed to ensure a reliable and sustainable water supply for the project. Average annual recharge is 20 times greater than the project's net water demand at buildout, and usable storage is 22 times greater than the amount needed to supply the project throughout a 10-year drought. Thus, the project would theoretically be reliable with access to only 5% of the total aquifer area, which the locations of existing and proposed future wells would clearly provide.

The principal reason for spreading the wells out over a large area is to avoid well interference effects (overlapping cones of depression), which would decrease the well yields. The Comprehensive Hydrological Study described the radius of influence of a pumping well for pumping cycles lasting 0.5-3.0 days. For an average well with a hydraulic conductivity of 0.26 gpd/ft^2, a saturated thickness of 650 feet, and a storativity of 0.01, this radius would be 50-123 feet. The radius of influence would continue to expand as the pumping cycles repeated themselves, however. Cyclic pumping creates drawdown equivalent to the drawdown created by continuous pumping at a lower rate. As long as pumping is effectively continuous, the radius of influence increases at a rate that is independent of the pumping rate. Thus, over a 6-month dry season, the radius of influence of the same well would increase to 960 *feet, assuming it does not reach a source of recharge such as a stream at a closer distance*. Overall, the distribution of the wells appears broad enough to provide adequate and reliable access to groundwater recharge and storage.

Mitigation Measure: No mitigation measures are required.

Impacts on Groundwater Recharge

Several aspects of the project would affect groundwater recharge, including impervious surfaces, septic systems, irrigation, and range management.

Impervious surfaces include roads, rooftops, driveways, and parking lots. Infiltration of rainfall through these surfaces is negligible, and runoff from these areas is typically concentrated in

rills and rivulets where infiltration is small relative to the total flow rate. Thus, groundwater recharge from infiltrated rainfall is essentially eliminated in impervious areas. Because the development density for the project is extremely low, however, impervious surfaces would occupy only a small fraction of the total project area. The amount of impervious surface estimated in the drainage initial study (Bestor Engineers 1994) is 173 acres, or only 0.75% of the total project area. Because rainfall infiltration contributes almost all of the groundwater recharge at the site and is strongly dependent on total land area, groundwater recharge would decrease by approximately the same percentage as the percentage of impervious area. This impact is considered too small to substantially decrease groundwater availability, because the estimated available yield greatly exceeds the project water demand. Additional information regarding the effects of impervious surfaces on surface runoff is presented in Chapter 9, "Runoff, Flooding, and Water Quality".

Deep percolation of septic system leachate and applied irrigation water are sources of groundwater recharge. These sources were accounted for as return flows in the consumptive water demand estimates and are not treated here as separate effects.

Impact: Increased Groundwater Recharge through Implementation of the Cattle Grazing Plan

The Cattle Grazing Plan (Sage Associates 1994a) was included in the project design partly because of its hydrologic effects, which would be very beneficial. Numerous studies since the 1940s have documented the effects of grazing on rainfall infiltration and runoff and demonstrated that decreased grazing intensity is associated with increased rainfall infiltration, decreased runoff, and decreased erosion.

The additional water that would infiltrate into the soil would greatly increase the opportunity for groundwater recharge that would offset the effects of groundwater pumping for the project. Some of the additional water that infiltrates into the soil would be transpired by vegetation, but only a small fraction of it would need to percolate to the water table to offset the project water demand. Average annual rainfall on the 8,000 acres of grazed land is approximately 25 inches, so the average annual volume of rainfall on that area is 16,700 af. This is 57 times more water than the project's average annual net water use. Thus, infiltration would have to increase by less than 2% of gross rainfall to increase groundwater recharge by an amount equal to the project water demand. Deep percolation of infiltrated rainfall from the soil zone to the water table would have to increase by less than 5%. The grazing studies reviewed for this EIR are described below, and the results of the studies indicate that an increase of this magnitude or greater is very likely. Therefore, the Cattle Grazing Plan would have a substantial beneficial impact on the groundwater balance that would probably more than offset the long-term effects of project water use on groundwater levels, subsurface outflow, stream base flow, and phreatophytic vegetation.

A key variable in all of the grazing studies was grazing intensity, as measured by the number of animal units per acre. An animal unit equals 1,000 pounds of grazing animal, which could consist,

for example, of two steers, a cow-calf pair, one bull, or a number of sheep. Some of the earlier studies (Rhoades et al. 1964, Ravzi and Hanson 1966, Wood and Blackburn 1981) measured the effects of continuous grazing at various intensities. The results of these studies are summarized in Figures 8-6 and 8-7, which show that infiltration is inversely correlated with animal density and runoff is directly correlated with animal density. Most of the studies measured infiltration and runoff during short periods of relatively intense rainfall generated using rainfall simulators. One study (shown in Figure 8-9) found that the relationships were also evident in annual runoff, however. More recent studies (McCalla et al. 1984, Warren et al. 1986, Pluhar et al. 1987, and Takar et al. 1990) have focused on the effects of grazing systems involving rotational grazing at various intensities and frequencies. The results were less consistent but generally indicated that heavy grazing with high animal densities resulted in significantly decreased infiltration regardless of whether it occurred on an intermittent or continuous basis.

Specific factors found to contribute significantly to the changes in infiltration and runoff included soil compaction by trampling, percent vegetative cover, and total above-ground biomass, all of which were directly or inversely correlated with grazing intensity. Range condition was also found to correlate with runoff rates during experiments with intense (4 inches in 30 minutes) simulated rainfall (Knight 1993). Only 2% of the rainfall became runoff on ranges in good condition, whereas 14% and 73% became runoff on ranges in fair and poor condition, respectively.

The effect of potentially greatest significance to this project is the seasonal shift in rainfall runoff, which would manifest itself as a flattening of the flow duration curve. Increasing the infiltration rate decreases the direct runoff rate during rainstorms. Much of the infiltrated water becomes groundwater recharge that later emerges as base flow in nearby creeks. Thus, the effect of grazing management has the double benefit of decreasing floodflows while increasing summer base flow. This is illustrated by observed effects in several small watersheds in the interior Coast Ranges west of Colusa in northern California, where decreased animal densities and rotational grazing were implemented beginning in the early 1990s. The timing and duration of grazing were managed to favor perennial rather than annual grasses, similar to the proposed management objective of the Rancho San Carlos Cattle Grazing Plan. Beginning in 1993, small creeks in the affected watersheds began flowing year round, which had not ever occurred during the previous several decades of intense grazing. Runoff during storms simultaneously decreased. On January 6, 1995, after the first several days of a major storm event, the creeks were barely starting to flow and stock pond impoundments on the creeks were still almost empty. Similar creeks on neighboring ranches were flowing in torrents and the impoundments were spilling (Gilgerd pers. comm.).

Similar changes can be expected at Rancho San Carlos as a result of implementing the Cattle Grazing Plan. Historical grazing intensity was substantially higher than the future intensity proposed under the Cattle Grazing Plan. Prior to 1991, approximately 850 cow-calf pairs were grazed year round and as many as 250 yearlings were brought in from spring to summer (Froke pers. comm.). The corresponding total annual grazing amount was about 892 animal unit-years (au-yr) (assuming 1 animal unit per cow-calf pair and 0.5 animal unit per yearling). The cattle were free to roam throughout the rancho and were sometimes found in remote locations. However, most of the rancho

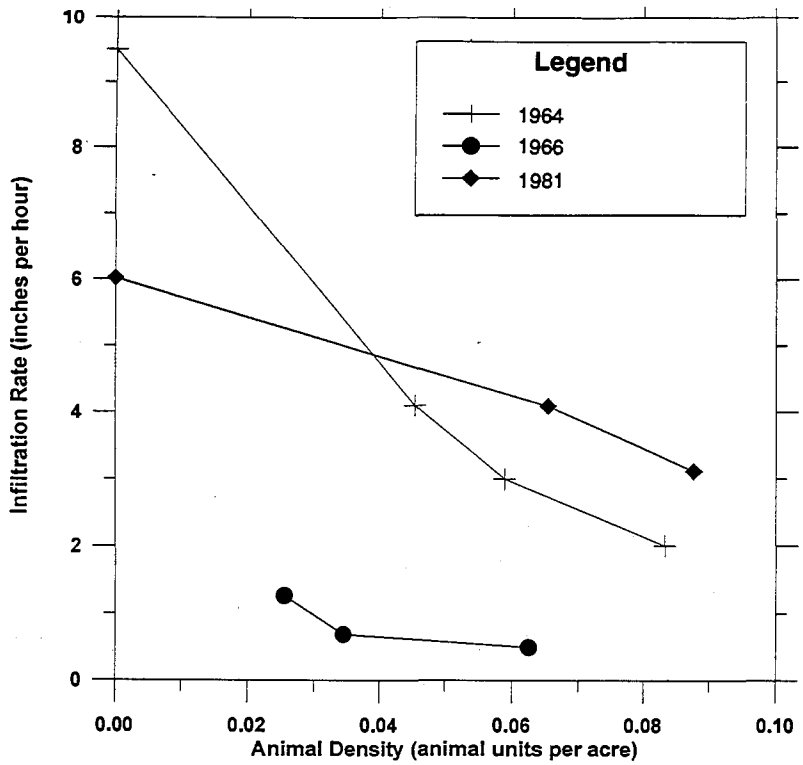


Figure 8-6
Effect of Grazing Intensity on Rainfall Infiltration Rate

Sources: Rhoades et al. 1964, Rauzi and Hanson 1966, Wood and Blackburn 1981.

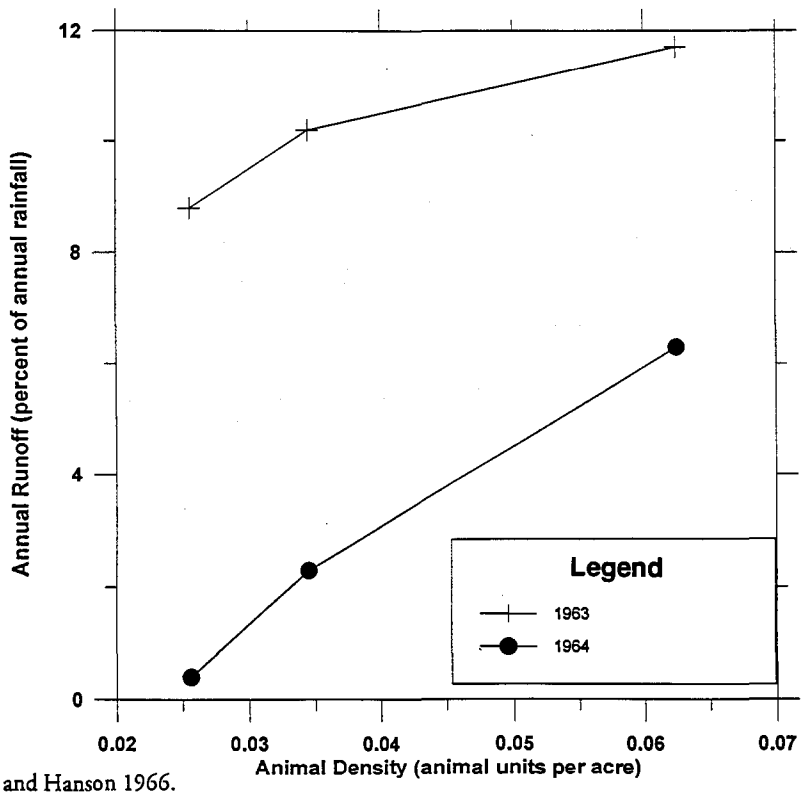


Figure 8-7
Effect of Grazing Intensity on Annual Rainfall Runoff

Source: Rauzi and Hanson 1966.

has steep slopes or is covered with chaparral, redwood forests, and other types of vegetation not particularly attractive to cattle. The most desirable vegetation types for grazing are oak savannahs, ruderal grassland, and coastal terrace prairie, which together occupy 5,100 acres. Cattle also used riparian corridors adjacent to the grassy areas and local open areas within the oak woodlands. It is reasonable to assume that most of the grazing was concentrated on approximately 8,000 acres, or 40% of the rancho area. Evidence of overgrazing, erosion, and vegetation trampling prior to 1991 also indicates that grazing was concentrated in selected areas. The Cattle Grazing Plan indicated that about 6,000 acres are suitable for grazing, and this estimate excluded riparian areas and steep slopes that might have been grazed historically. Assuming historical grazing effectively occurred on 8,000 acres, the grazing intensity was approximately 0.112 au-yr per acre (au-yr/ac).

The Cattle Grazing Plan calls for grazing 500 steers on 2,800 acres for 100 days per year, which corresponds to a grazing intensity of *0.023* ~~0.024~~ au-yr/ac, or one-fifth of the historical rate. Frequent rotation of the herd through a large number of relatively small pastures would also help to ensure grazing uniformity and prevent localized overgrazing. The remaining 5,100 acres formerly grazed would not be grazed at all due to sensitive habitat constraints. The data in ~~8-6~~ indicate that a decrease in grazing intensity from 0.112 to 0.023 au-yr/ac could increase infiltration rates by a factor of 2 to 3, and a decrease to 0.0 au-yr/ac would increase infiltration rates by an even larger factor. The increase in annual infiltration would be smaller because low-intensity rainfall would tend to infiltrate in any case, but the effect would nevertheless be substantial.

Mitigation Measure: No mitigation measures are required.

Impacts on Groundwater Levels

Pumping at project wells will cause groundwater levels to be lower than they would be in the absence of pumping. As described below, the declines are expected to be too small or transient to cause direct adverse impacts on the groundwater system, but they could be large enough to indirectly cause significant adverse impacts on base flow in creeks, subsurface outflow, and riparian vegetation. The water-level impacts described in this section are used in later sections to evaluate impacts on each of those resources. For purposes of discussion, water-level impacts can be divided into localized, short-term cones of depression around individual wells and seasonal and long-term water-level changes over a much broader area.

Impact: Localized Local and Short-Term Water-Level Drawdowns near Pumping Wells

The cone of depression that forms around a pumping well can be described in terms of the maximum drawdown near the well and the radius of influence, which is the farthest distance from the well at which drawdown would theoretically occur. For an average bedrock well (650 feet of saturated thickness, pumping at a rate of 13 gpm in an area with a hydraulic conductivity of 0.26

gpd/ft^2 and storativity of 1%), the drawdown after a 12-hour pumping cycle would decrease from 28 feet at a distance of 10 feet from the well to zero at a radial distances greater than about 100 feet. Drawdown would accumulate during successive pumping cycles, however. The cone of depression created by a well pumping 50% of the time (e.g., 12 hours on followed by 12 hours off) is similar to the cone created by a well pumping continuously at half the rate. If the wells are designed to operate 12 hours per day on the maximum demand day, the average operating time during the peak demand season (May through October) would be approximately 8 hours per day. After 6 months of pumping 8 hours per day, the drawdown created by an average well would decrease from 27 feet near the well to zero at radial distances greater than about 960 feet.

The depth of the cone of depression is directly proportional to pumping rate, whereas the radius of influence is proportional to the duration of pumping and is independent of pumping rate. Under cyclic pumping conditions, the drawdown created by pumping during the "on" cycle continues to propagate outward during the "off" cycle. If hydraulic conductivity is not uniform in all directions (i.e., the aquifer is anisotropic), the cone of depression will spread farther in some directions than others. However, limited test data did not reveal any indications of anisotropy.

The localized, short-term drawdowns around pumping wells would not cause any adverse impact on the groundwater system itself, such as subsidence or water quality degradation. However, indirect impacts of the drawdowns on stream base flow and riparian vegetation are considered potentially significant, as discussed later in this chapter.

Mitigation Measure: No mitigation measures are required for direct impacts. See "Impacts on Base Flow in Creeks" and "Impacts on Riparian Vegetation and Wetlands" for mitigation measures for indirect impacts.

Impact: Long-Term Decreases in Groundwater Levels

Pumping at project wells would result in lower groundwater levels than would be present without the project. The amount of decline is difficult to quantify with available information. Although the decline is not expected to be large, it could cause adverse impacts on base flow in streams, subsurface outflow, and phreatophyte transpiration, which are discussed later in this chapter.

Over prolonged periods of pumping, such as during the dry season or a multiyear drought, the cones of depression from neighboring wells will tend to coalesce, forming a broader area of more uniform drawdown. The cone of depression calculations and the distribution of wells on the rancho (Figure 8-5) suggest that wells might noticeably affect regional water levels in about half of the total rancho area. The average water-level decline in this area after 1 year (in the absence of rainfall recharge but including return flows) can be estimated by dividing the annual consumptive use of groundwater (272 af for the GMPAP development and 295 af at buildout) by the affected area (9,950 acres) and the aquifer storativity (0.01). This results in an annual water-level decline of 2.7-3.0 feet. This change is moderately small compared to natural seasonal water-level fluctuations that typically

average about 8 feet. It is also similar to the estimate (2 feet) developed in the Comprehensive Hydrological Study using gross pumpage (400 af/yr) and the total rancho area (19,900 acres).

Groundwater levels would not continue to progressively decline in the long term. Seasonal water-level declines during the dry season would become larger, but in most years water levels would recover to near existing levels the following winter. During droughts, there may be net water-level declines over periods of several years, but these levels would recover during wet periods. Groundwater levels would not progressively decline because each additional increment of decline would tend to intercept an additional amount of groundwater that would have left the groundwater system by some other path (subsurface outflow, stream base flow, or phreatophyte transpiration). Thus, water levels would cease declining when the intercepted outflow balances the net consumptive use of the project. Under this new balance, water levels will be lower on average than under existing conditions. The amount of decline is difficult to estimate, but it would be largest under ridges and least near creeks.

If the Cattle Grazing Plan results in increased groundwater recharge, as expected, average water levels would decline less than they would without the plan and might actually rise.

The long-term lowering of groundwater levels throughout much of Rancho San Carlos would not cause any adverse impact on the groundwater system, such as subsidence or water quality degradation. However, indirect impacts on stream base flow and riparian vegetation are considered potentially significant, as discussed later in this chapter.

Mitigation Measure: No mitigation measures are required for impacts on the groundwater system. Refer to "Impacts on Base Flow in Creeks" and "Impacts on Riparian Vegetation and Wetlands" for mitigation measures for indirect impacts on those resources.

Impacts on Base Flow in Creeks

Base flow in creeks is sustained by gradual draining of groundwater from beneath the surrounding watershed drainage area. Discharge to creeks is the path of least resistance for most groundwater outflow. The groundwater contour map (Figure 8-3) confirms that flow from most of the rancho area is toward the nearest creek rather than toward an offsite area.

Figure 8-8 shows the profile of groundwater levels along hydrogeologic section A-A' across Potrero Canyon (see Figure 8-1 for section location) and illustrates how the creeks serve to drain the groundwater mounds that form beneath the intervening ridges. This draining action prevents nearby groundwater levels from rising substantially above the level of the creek. Figure 8-9 shows the profile of groundwater levels along the length of Potrero Canyon (section B-B') and also illustrates how the groundwater level coincides with the level of the creekbed along the reach *where* ~~of persistent~~ base flow *was observed in August 1991*. Toward the upper end of the creek, the groundwater level rises

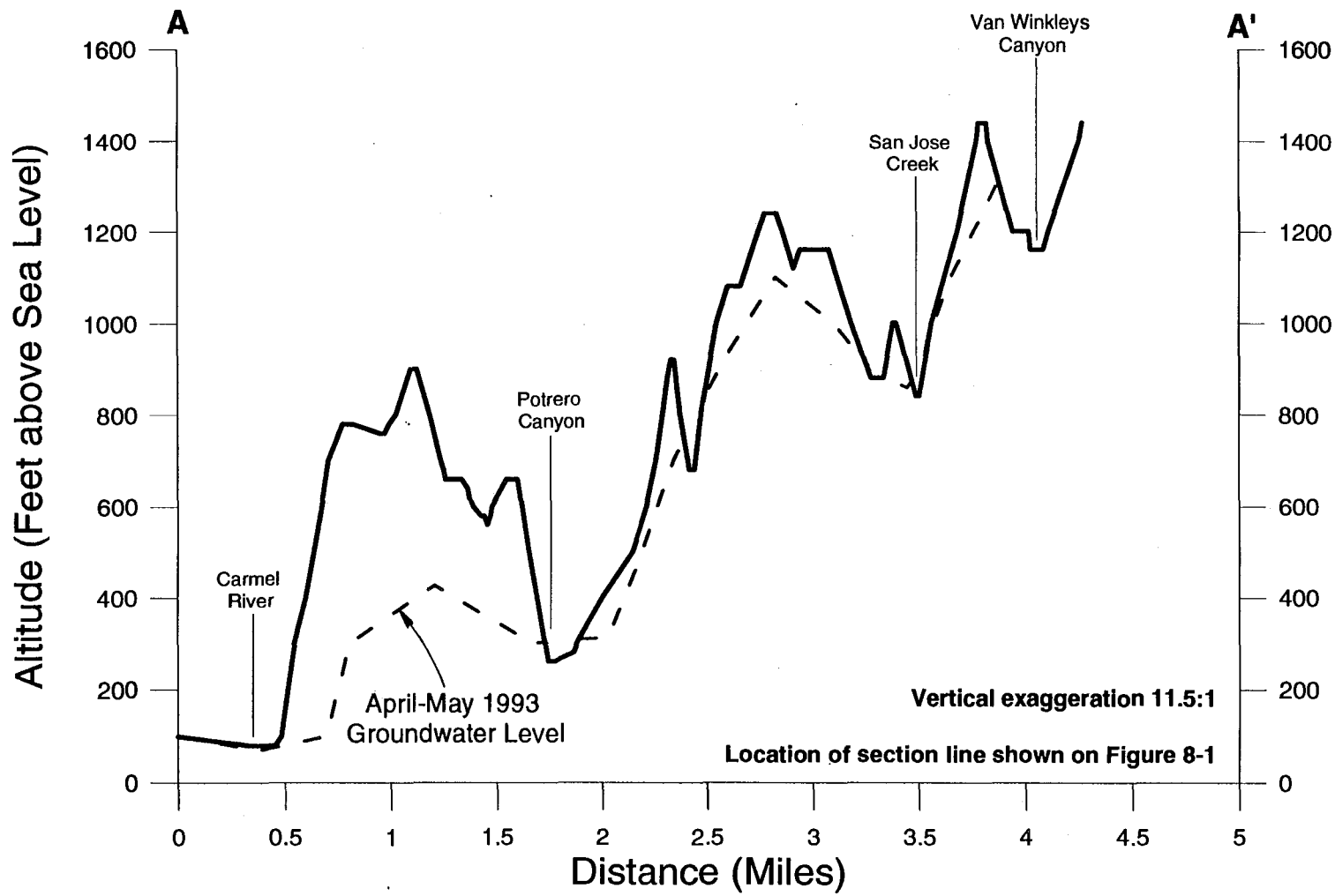


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Figure 8-8
Profile of Land Surface Altitudes and Groundwater Levels along Hydrogeologic Section A-A' across Potrero Canyon

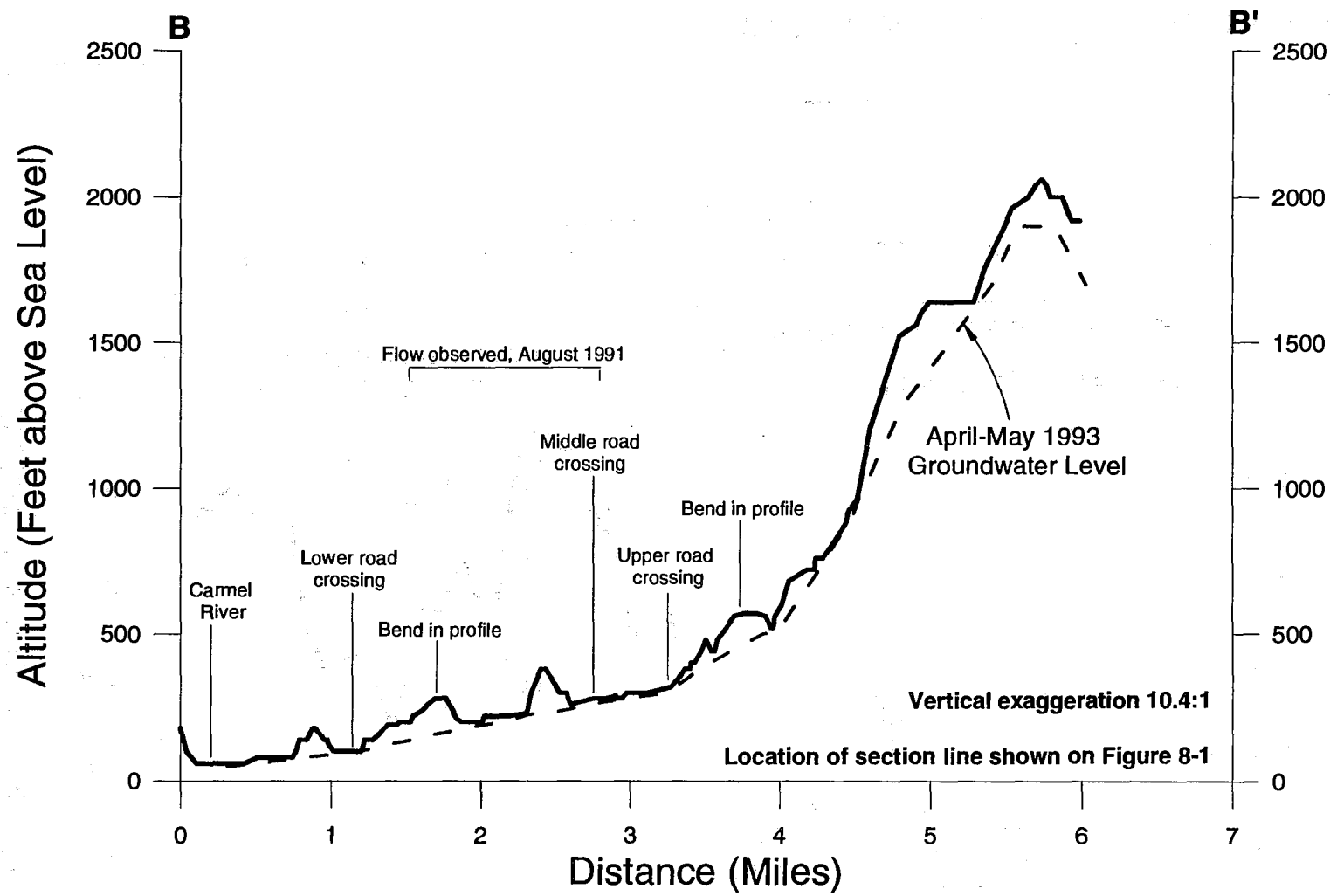

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Figure 8-9
Profile of Land Surface Altitudes and Groundwater Levels along Hydrogeologic Section B-B' along the Length of Potrero Canyon

more gradually than the level of the creekbed, creating an unsaturated zone beneath the creekbed and an absence of base flow in the creek. The groundwater level also drops below the creekbed where the creek enters the Carmel Valley. The regional water table in the Carmel Valley is lower than the level of the Potrero Canyon creekbed. Base flow in the creek percolates entirely into the alluvium and becomes groundwater recharge. Figure 8-9 indicates the reach of Potrero Canyon where live flow was observed in August 1991. The groundwater profile shown on the figure is for April-May 1993, when water levels were probably higher than in 1991 and the *reach with live* base flow ~~reach~~ was probably longer.

Base flow is greatest during wet years, when recharge is relatively large and groundwater levels away from the creek are relatively high. Thus, during wet periods, the slope of the water table toward the creek increases and the rate of seepage into the creek consequently also increases. Because of the size of the watersheds and the relatively low permeability of the fractured bedrock aquifer, the seepage process is gradual and base flow fluctuates less than direct rainfall runoff.

The total volume of groundwater stored in areas of high water levels beneath the ridges is large enough to sustain small amounts of base flow in the creeks for periods of months or even years. For example, pools and reaches of continuous or partially continuous flow were surveyed in San Jose and Las Garzas Creeks and Potrero Canyon in August 1991. Flows of 9-14 gpm were found at all observed sites along a 2-mile reach of San Jose Creek above Van Winkley's Creek (Balance Hydrologics 1991c). Largely continuous flows of up to 15 cfs were found along a 1.6-mile reach of Potrero Canyon beginning near the upper road crossing (Balance Hydrologics 1991b). Pools and short segments of flow of up to 2.3 gpm were found along Las Garzas Creek beginning at about the 600-foot elevation and extending about 1.7 miles downstream, where the water eventually percolated into the Carmel Valley alluvium (Balance Hydrologics 1991a).

Although the large volume of groundwater storage provides a moderately steady supply of water for base flow, base flow during the dry season does vary from year to year depending on the amount of rainfall received during the preceding winter. Streamflow records during 1989-1993 for the gages on Las Garzas, San Clemente, and San Jose Creeks and Potrero Canyon indicate that base flow during summer and fall 1993 was higher *than* during 1989-1992 because of substantially greater rainfall in 1993. Total discharge for the four gages combined during May-October ranged from about 24 af in 1989 to more than 700 af in 1993, and the variations generally matched rainfall variations. These flows should be considered approximate because the streamflow record includes months with missing or estimated data. The year-to-year variations in base flow are confirmed by a comparison of the August 1991 flow conditions in Las Garzas Creek with flow conditions observed the previous October. October 1990 was the end of the dry season in the fourth consecutive year of below-normal rainfall and runoff. The length of the wetted reach was about 0.5 mile shorter than in August 1991, the flow was smaller by up to 2 gpm, and the overall wetted area was substantially smaller (Balance Hydrologics 1990).

Pumping at project wells could affect base flow in creeks by intercepting groundwater that would have discharged into the creeks or by inducing seepage out of the creeks. For discussion

purposes, these impacts will be separated into localized short-term impacts near pumping wells and regional long-term impacts caused by changes in the groundwater balance.

The impact discussion in this section is directed toward impacts on aquatic organisms dependent on base flow in the creeks. Decreased base flow can also affect the water supply in downstream areas such as the Carmel Valley. This impact is discussed in the section "Impacts on Subsurface Outflow". The water-level declines that affect base flow could also affect riparian vegetation. This impact is described in the section "Impacts on Riparian Vegetation and Wetlands".

Impact: Induced Seepage Losses from Creeks and Substantial Depletion of Dry-Season Base Flow

The potential for wells near creeks to induce seepage losses was tested during three of the 30-day pumping tests described earlier in the "Aquifer Characteristics" section. All of the wells were within 250 feet of a creek reach with *continuous live* ~~sustained summer base~~ flow, and the tests were performed in summer. Streamflow was gaged near the pumping well and at a control point upstream of the pumping well before, during, and after the tests. At two locations (wells T-14 and T-26), the Comprehensive Hydrological Study concluded that there was no observable depletion of streamflow caused by the well. In contrast, streamflow at the third location (well T-11) appeared to be diminished by an amount approximately equal to the well discharge. Water quality measurements of the creek and well did not detect an obvious contribution of creek water to the well discharge. Also, the rate of drawdown at the wells did not noticeably decrease, which would be expected if the cone of depression had intercepted a surface water body such as a stream.

These tests appear to indicate that pumping at wells near creeks does not drastically deplete streamflow, at least in most locations. However, whether the effect of pumping could have been accurately detected at wells T-26 and T-14 is questionable for the following reasons:

- Summer base flow was fairly high during the test because of above-average rainfall during the preceding winter (1993). The pumping rate at the wells (5-15 gpm) was less than 7% of the streamflow rate at the start of the test (229 gpm). Thus, the effect of the pumping could have been too small to measure using stage-discharge relations in natural channels.

- ~~Even with a perfectly known stage-discharge curve, the water-level recorder used to monitor changes in flow might not have been precise enough to detect changes caused by pumping. For example, the 15-gpm depletion in flow reportedly detected at well T-11 corresponded to a change in water level at the staff gage of less than 0.02 feet.~~

- Streamflow decreased substantially due to natural base flow recession during the course of the test, possibly masking the effects of the pumping. Streamflow at the control stations decreased by 157 gpm (55%) at the control gage for well T-14 and by 198 gpm

(94%) at the control gage for well T-26. These changes are large compared to both the original flow rate and the well pumping rates.

Further evidence of a hydraulic connection between certain wells and nearby creeks is apparent in the water-level hydrographs presented in Appendix F of the Comprehensive Hydrological Study. Wells that have a close hydraulic connection to a nearby creek exhibit different seasonal drawdown and recovery patterns than wells that are relatively isolated from creeks. Seasonal water-level fluctuations at isolated wells reflect seasonal variations in rainfall recharge, and the water-level fluctuations follow a smooth, sinusoidal pattern created by alternating wet and dry seasons. The hydrograph for well S-4, which is not located near a creek, illustrates this pattern. In contrast, water levels in wells near creeks often recover abruptly when streamflow commences in winter, and the recovery ceases equally abruptly at a water level close to that of the creek level. Wells S-1, T-20, T-26, E-5, and S-2 are near creeks and their hydrographs demonstrate this pattern (note that the latter two wells would not be part of the water supply system, however). Still other wells are located near creeks and their water levels remain at the level of the creek all or most of the time, which probably indicates that groundwater at the well is discharging into the creek. The hydrographs for wells S-3, T-11, and T-14 illustrate this pattern. If the hydraulic connection between a well and a creek is such that flow in the creek can affect the water level in the well, then pumping at the well can affect flow in the creek.

The combined pumping rate of project wells in summer also substantially exceeds the combined base flow rate of springs and creeks on Rancho San Carlos. The combined flow rate of springs and base flow in creeks at Rancho San Carlos during summer was estimated in the Comprehensive Hydrological Study to be 70-100 gpm in normal years and 40-60 gpm in dry years. In comparison, the effective combined pumping rate of the project water supply wells at buildout (operating as planned in 12-hour pumping cycles) is approximately 247 gpm, or two to six times larger than the total base flow rate. Some of the dry season pumping effects will be absorbed by local groundwater storage declines near the well, but wells close to base flow reaches will probably deplete base flow. The effects of pumping on base flow cannot be deferred entirely from summer to winter, as explained later in this chapter under "Impact: Decreased Long-Term or Drought-Period Base Flow in Creeks".

The biological resources dependent on base flow in the creeks are relatively scarce and include special-status species (steelhead and red-legged frogs). Aquatic habitat availability is at a minimum during the dry season and thus could limit the populations of these dependent organisms. A more complete discussion of biological resources can be found in Chapter 10, "Fisheries", and Chapter 11, "Biological Resources".

The Cattle Grazing Plan is expected to result in increased groundwater recharge and increased base flow that will fully mitigate most of the potential impact of groundwater pumping. However, given the uncertainty regarding both the magnitude of the effect of grazing and the results of the 30-day stream-aquifer tests, the evidence in the hydrographs of hydraulic connection between wells and streams, the large magnitude of project pumpage relative to base flow, and the high value of the

biological resources at risk, the potential effect of groundwater pumping on base flow and aquatic organisms is considered significant. To reduce this impact to a less-than-significant level, the following mitigation measures should be implemented.

Additional Mitigation Measure *13*: Monitor Groundwater Levels. The project applicant shall monitor groundwater levels in all of the project water supply wells at least *monthly* ~~quarterly~~. Wellhead (measuring point) elevations shall be surveyed at all wells so that water levels can be reported as elevation above sea level. The applicant *shall produce an annual report containing the results of the precipitation, streamflow, and groundwater production monitoring and* shall plot water-level hydrographs and evaluate the data for trends at least every 3 years. All data, hydrography, and interpretive reports shall be available to local agencies and the public. This monitoring program shall continue *at least as long as the base flow monitoring program described in the mitigation measure "Monitor Base Flow in Creeks and Supply Supplemental Water if Necessary" in Chapter 8, "Groundwater Hydrology, Stream Base Flow, and Water Supply and Demand"*. ~~in perpetuity.~~

The most recent description of the water system design (Luhdorff & Scalmanini Consulting Engineers 1995b) indicates that all wells would be connected by telemetry to a central control office and that static and pumping water levels would be monitored and included in the telemetered data. This mitigation measure is included simply to ensure that the monitoring is implemented and the results made available to interested parties.

Applicant's Proposed/Additional Mitigation Measure *14*: Delay Pumping at Wells near *Protected* Base Flow Reaches. Existing wells located within 1,000 feet of a protected base flow reach (as defined later in this chapter under "Additional Mitigation Measure: Monitor Base Flow in Creeks and Provide Supplemental Water if Necessary") shall be used only when the combined capacity of other wells connected to the water supply system is insufficient to meet project demand. The radius of influence after 6 months of pumping at an average well in a location with average aquifer characteristics is approximately 1,000 feet. This measure will largely avoid the relatively large but localized impacts caused by drawdown in the immediate vicinity of wells close to the creeks. It will not prevent long-term effects associated with regional water-level declines (described below), but it will maximize the extent to which those declines are absorbed by storage depletions away from the creeks during the dry season and the extent to which impacts on streamflow are deferred until the wet season.

This mitigation measure is similar to mitigation measure HYD-1 in the Mitigation and Monitoring Plan (Denise Duffy & Associates 1994), which requires that the direct effects of pumping shall be limited to small distances (i.e., from less than 50 feet to about 250 feet) for planned pumping cycles. This mitigation measure described above also addresses the cumulative drawdown after numerous pumping cycles during the dry season.

Applicant's Proposed/Additional Mitigation Measure *15*: Drill New Wells Away from Base Flow Reaches. New wells shall be located at least 1,000 feet away from protected base flow

reaches (as defined later in this chapter under "Additional Mitigation Measure: Monitor Base Flow in Creeks and Provide Supplemental Water if Necessary"). This mitigation measure will further protect these reaches from flow depletions caused by relatively large seasonal drawdowns around project supply wells.

This mitigation measure is similar to mitigation measure HYD-2 in the Mitigation and Monitoring Plan (Denise Duffy & Associates 1994), which requires that future water supply wells be located sufficiently distant from streams or where the water table is sufficiently far below the streambed to avoid direct water-level impacts that could induce infiltration. As described below, it is probably not possible to avoid induced infiltration entirely. This mitigation measure described above also is designed to minimize it in a realistic and feasible manner.

This mitigation measure would not substantially decrease the area available for drilling new wells. Assuming the protected base flow reaches along Potrero Canyon, and San Clemente and San Jose Creeks (the base flow reach on Las Garzas Creek is outside Rancho San Carlos) are each approximately 2 miles long, the area of exclusion for new wells is only 1,455 ac, or 7% of the Rancho San Carlos area.

New wells may be installed less than 1,000 feet from a protected base flow reach. However, pumping at these wells during the dry season shall be limited to avoid adverse impacts on nearby riparian vegetation or flow in the protected base flow reach. Specifically, pumping shall be limited so that drawdown calculated using measured transmissivity at the well and the average pumping rate since April 1 does not exceed 2 feet in any nearby riparian vegetation area or 1 foot at any point along the protected base flow reach at any time.

Impact: Decreased Long-Term or Drought-Period Base Flow in Creeks

In addition to the localized effects of individual wells on streamflow, the overall effect of pumping at all wells could be a general lowering of groundwater levels that would tend to decrease the rate of groundwater seepage into creeks on a long-term basis. The Comprehensive Hydrological Study asserts that groundwater pumpage during the dry season will come principally from storage rather than from a depletion of streamflow, and that the storage deficits will be replenished during wet periods, when most recharge is occurring. In other words, the effects on streamflow of pumping would occur primarily during the winter streamflow season when water is abundant and biological effects would consequently be negligible. However, the mechanism by which pumping effects could be deferred from the dry season to the wet season is unclear.

For summer storage depletions to induce additional recharge in winter, winter water levels would have to be lowered near the base flow reaches where groundwater is hydraulically coupled to surface water. Groundwater pumping would not increase the amount of rainfall recharge or the amount of streamflow percolation upstream of the base flow reaches because there is no hydraulic coupling at those locations. The only ways to induce additional recharge from the creek during the

winter streamflow season are to pump groundwater in winter or to begin the season with lower groundwater levels. The immediate effects of pumping in winter are considered less than significant because they would constitute a much smaller fraction of total flow and because they would probably not decrease streamflow to levels that would limit populations of natural organisms more than they are limited by low flows in summer.

Summer pumping would not increase the capacity for groundwater storage near the creek in winter. It would simply vacate some of the existing storage capacity. The creek fills groundwater storage to a point at which the percolation rate out of the creek is balanced by increased groundwater discharge into the creek along reaches farther downstream. In other words, additional recharge is rejected. This balance is determined by the percolation rate and aquifer characteristics, neither of which is affected by summer pumping. Thus, the only way for summer pumping to induce a greater volume of stream recharge in winter is to draw down water levels near the creek during the dry season. However, any such drawdowns would also deplete base flow during the dry season and could adversely affect aquatic biota.

The effects of pumping on streamflow are likely to be distributed fairly uniformly throughout the year, especially if pumpage is concentrated in areas away from the creeks (as the preceding mitigation measure recommends). Groundwater pumpage will be greater in summer than in winter because the irrigation component of water demand occurs only in summer. This seasonal fluctuation will not be extreme, however, because the indoor component of water use (about 45% of total water use after allowing for irrigation with reclaimed water) is essentially constant year round. The seasonal variations in drawdown near creeks will be more uniform than the variations in pumpage because the cones of depression created by individual wells will tend to overlap by the time they reach the creek and because the drawdown propagates slowly. Consequently, the effects of individual wells are attenuated and out of phase with one another when they reach the creek.

The average annual groundwater pumping rate for the GMPAP part of the project would be 219 gpm (354 af/yr). At buildout, average annual pumping would be 234 gpm (377 af/yr). Relatively small fractions of this total would be derived from decreases in subsurface outflow and phreatophyte transpiration (discussed below). Assuming no increase in groundwater recharge, the remainder would be derived from depletions in streamflow, approximately half of which would occur during the dry season. Even allowing for considerable uncertainty in the estimates of these flows, the long-term average amount of streamflow depletion in summer would probably be large relative to the total amount of streamflow (70-100 gpm in normal years and 40-60 gpm in dry years). These depletions would substantially decrease available aquatic habitat during the season when it is most limited. Consequently, the chronic effect of groundwater pumping on base flow in summer is considered a significant impact.

The Cattle Grazing Plan is expected to result in increased groundwater recharge and increased base flow that will fully mitigate most of the potential effects of groundwater pumping on aquatic habitat. Mitigation measures discussed in Chapter 9, "Runoff, Flooding, and Water Quality", relating to runoff and protection of water quality will minimize water quality degradation that could be

especially harmful at low flows. However, given the uncertainty regarding the magnitude of the grazing effect and the high value of the biological resources at risk, monitoring and implementation of additional mitigation measures on a contingency basis to provide a safety net for the aquatic habitat is appropriate. This impact is considered significant. Implementation of the mitigation measure described below would reduce this impact to a less-than-significant level by providing a minimum level of protection for aquatic biological resources.

Additional Mitigation Measure *16*: Monitor Base Flow in Creeks and Provide Supplemental Water if Necessary. The project applicant shall measure and record daily flows in Potrero Canyon and Las Garzas and San Clemente Creeks at locations near the boundary of Rancho San Carlos. This essentially amounts to a continuation of the stream gaging program that has been in place on those creeks during the last several years. If MCWRA or MPWMD chooses to operate gages in similar locations on the creeks, records from those gages may be used instead of operating duplicate gages. San Jose Creek is not included in the gaging program because of the relatively large influence of land management activities in tributaries outside Rancho San Carlos; relatively large amounts of streambed sediment that make accurate measurement of low flows difficult; and the overriding effects on fisheries of natural barriers, landslides, and an unladdered dam downstream of Rancho San Carlos.

The project applicant shall conduct an annual survey of pools and base flow conditions in the gaged creeks and San Jose Creek for the same period of time as the stream gaging. The survey shall be conducted in September each year. The surveys should be similar to those done in 1990 and 1991. It is recommended that temperature and electrical conductivity also be measured at various locations *along the reach that has flow at the time of the survey.* ~~along each base flow reach.~~ The temperature and electrical conductivity should be measured at the same locations and approximately the same time of day each year. The surveyed reaches should include any reaches with pools or low flow down to the Rancho San Carlos property line on Potrero Canyon and San Clemente and San Jose Creeks and down to the end of pools or live flow in Las Garzas Creek (which point is usually on the Carmel Valley floor).

Periodically (at least every 5 years), the applicant shall prepare a report evaluating trends in base flow conditions and relationships between base flow in each creek and rainfall during the preceding winter, base flow in the other creeks, project pumpage, groundwater levels, and other project-related factors such as grazing that appear likely to affect base flow. Trends in base flow at MPWMD gage on lower Las Garzas Creek should also be similarly evaluated. It is also recommended that temperature and electrical conductivity data be evaluated for trends and for potential effects on resident fish species. The report shall be submitted to MCWRA, MPWMD, and DFG.

The analysis of the data shall be directed toward detecting and quantifying effects of the project on base flow in the creeks. Effects may be detected by changes in regression relationships among variables. For example, streamflow data for the Las Garzas Creek gage near the Carmel Valley during 1969-1978 could be used to characterize relationships between wet-season

precipitation and total discharge during the following dry season. If the project substantially affects groundwater recharge or discharge processes, this relationship would probably be affected and could be detected by a statistical comparison of regression slopes. Another method for detecting the effects of the project would be to compare dry-season discharge in creeks on Rancho San Carlos with dry-season discharge in an undeveloped nearby watershed such as Pine Creek. Pine Creek is in the upper Carmel River watershed, and its drainage area is expected to remain undeveloped for the foreseeable future. MPWMD has operated a gaging station on Pine Creek since about 1992 (Oliver pers. comm.). Double-mass plots of dry-season discharge in Pine Creek versus dry-season discharge in each of the Rancho San Carlos creeks would reveal any significant changes in base flow conditions related to development on Rancho San Carlos. Both of these methods accommodate annual variations in base flow related to annual variations in precipitation. Obviously, natural factors such as fire and disease-related changes in vegetation type could also affect base flow conditions in any of the creeks. These factors would have to be evaluated on a case-by-case basis to distinguish effects caused by the project from effects caused by natural factors.

Using the documented base flow observations from 1990, 1991, and more recent surveys, the project applicant shall estimate the reach of each of the four creeks that contained pools or base flow in October 1990. For Potrero Canyon and San Clemente and San Jose Creeks, stream segments downstream of the Rancho San Carlos property line may be ignored and need not be included in the defined base flow reaches. For Las Garzas Creek, the base flow reach is the wetted reach documented in the report from the 1990 survey (Balance Hydrologics 1990). These reaches are referred to in this EIR as protected base flow reaches. *Approximate locations of the protected base flow reaches are shown in Figure 8-4a.*

Base flow conditions in October 1990 were selected to define the protected base flow reaches because they were at the end of the dry season after 4 years of drought and consequently represent the lowest flows that the aquatic habitat would probably have to endure in a 20- to 50-year period. These flows are used here to represent the minimum-flow management objective. That is, the objective of this mitigation measure is to prevent base flows from decreasing below the October 1990 level except possibly under more extreme and rare droughts than the 1987-1990 period.

During dry years when winter rainfall and spring and summer streamflow data indicate that base flow could decline below the October 1990 levels by the end of the dry season, the applicant shall monitor base flow conditions at least monthly beginning in July and continuing until surface runoff resumes the following winter.

If base flow in any of the four creeks drops below the October 1990 level as a result of the project, the applicant shall supplement flow by discharging water into the creek near the upstream end of the protected base flow reach. The rate of discharge should be great enough to sustain pools and base flow approximately equal to conditions in October 1990. The maximum required combined discharge for all four creeks is 30 gpm at the points where the discharged water reaches the protected base flow reaches. If this maximum amount is insufficient to maintain the objective

of the creeks, it may be allocated among the creeks in whatever proportion maximizes the overall benefits for aquatic habitat.

The applicant shall use information from the base flow monitoring and analysis reports to determine whether the decline in base flow is from natural or project-related causes. If the project appears to have caused a substantial (20% or more) proportion of the decline, flow augmentation is required. For smaller proportions, augmentation is optional.

The maximum flow augmentation rate was chosen for two reasons. First, it approximately equals the sum of the summer base flows observed in the creeks in the late summer of 1990 and thus would be sufficient to substantially increase the flow under extreme low flow conditions. Second, it represents a reasonably small fraction (about 6%) of the total pumping capacity of the community water system and is therefore considered feasible for water supply and conveyance purposes.

If the total groundwater pumping rate is increased by 30 gpm to meet the streamflow augmentation requirement, groundwater levels would decline even farther and tend to further deplete flow in the base flow reaches. Because of the low aquifer permeability and fairly large distance of the wells from the creeks, the effect of increased seepage would be gradual and spread out over a long period (probably years). The direct discharge to the creeks would greatly exceed the increase in seepage loss for the duration of the dry season, and thus the net effect of pumping groundwater into the creeks would still be substantially beneficial.

The source of the supplemental water may be well water from the community supply system, releases from Moore's Lake or other impoundments, or reclaimed water treated through soil percolation or other means to a quality that would not adversely affect aquatic biota.

Hitchcock Canyon and Robinson Creek are not included in the monitoring and mitigation program because those watersheds appear to be too small and steep to generate prolonged base flow ~~capable of supporting a fishery~~. *Because* ~~because~~ of their locations, those watersheds would probably be less affected by the project than the four larger watersheds.

The stream gaging and flow augmentation program shall continue for a period of at least 20 years. Beyond that time, the applicant may submit a request to MCWRA that the program be discontinued if the following conditions are met:

- The project water demand has been fully developed and at a stable level for at least 5 years.
- Analysis of the streamflow data indicates that summer base flow has remained the same or has increased relative to existing conditions as a result of watershed management practices associated with the project, such as the Cattle Grazing Plan.

Otherwise, the stream gaging and flow augmentation program shall continue in perpetuity.

Impacts on Subsurface Outflow

Impact: Minor Reduction in Subsurface Outflow

In the Comprehensive Hydrological Study, the effect of the project on subsurface outflow was estimated by assuming the water level at the upgradient (rancho) end of the flow path would be lower by an average of 2 feet. This water-level decline was shown to be minuscule compared to the overall water-level drop along the flow path (1,500 feet upstream of the Narrows and 1,700 feet downstream of the Narrows). The calculated decrease in annual outflow was 5 af, or 0.2%.

The calculations were revised for this analysis to omit areas where groundwater probably discharges to local creeks rather than as subsurface outflow directly to the Carmel Valley. Revised areas of subsurface outflow were used, as described previously under "Water Balance" of the "Setting" section.

The Santa Lucia Preserve project would decrease the average annual rate of subsurface outflow from Rancho San Carlos by generally decreasing water levels at the upgradient end of the flow paths. As discussed above in the section "Impacts on Groundwater Levels", the project could cause a general lowering of water levels of as much as 3 feet/yr, but the declines would not accumulate indefinitely. Water levels would equilibrate at a new average annual level at which decreases in head-dependent outflows (stream base flow, subsurface outflow, and phreatophyte transpiration) equal the increase in annual consumptive use of groundwater by the project. Water levels, of course, would continue to fluctuate about this level from year to year in response to annual variations in recharge and pumping. Although the equilibrium level is difficult to estimate with certainty, it can be shown that the change in subsurface outflow would be small in any case. For illustration purposes, a "worst case" set of assumptions might be that the long-term average water-level decline in the upland areas where most of the project wells are located is 20 feet relative to existing levels, that an additional decline of 12 feet accumulates during a 4-year drought, and that water levels in the Carmel Valley groundwater basin decline by only 10 feet during the drought. The overall effect of these declines at both ends of the flow paths would be a decrease in annual subsurface outflow of 17 af, or 1.3%. This is considered a worst-case estimate because the transient water-level declines at the upgradient end of the flow paths would be substantially attenuated by the time their effects reached the boundary of the Carmel Valley alluvium and because cumulative drawdown in the alluvium would probably exceed 10 feet during a 4-year drought.

The outflow calculations were tested for sensitivity to errors in the estimated hydraulic conductivity The calculated outflow is directly proportional to the hydraulic conductivity value. For example, the Comprehensive Hydrological Study reported that 85% of the measured hydraulic conductivity values for bedrock were between 0.02 and 2.0 gpd/ft^2. Inserting this range of values into the subsurface outflow equations yields a range of 100-10,000 af/yr. The actual average hydraulic conductivity is unlikely to be outside this range of values. The estimated change in outflow resulting from the project is also directly proportional to the estimated hydraulic conductivity because it is

calculated as the difference of two outflow estimates. Thus, it is very unlikely that the actual change in outflow would be less than 1.3 af/yr or more than 130 af/yr.

The original outflow calculations used a flow equation appropriate for unconfined flow conditions. This assumption implied an effective flow depth of 1,800 feet at the upgradient ends of the prismatic flow tubes. Because permeability decreases with depth, it might be more realistic to conceptualize the subsurface outflow process as consisting of a sloping slab of porous medium of constant thickness. In this case, a linear flow equation can be used (such as the equation for flow in confined aquifers). The sensitivity of the original outflow calculations to the assumption of unconfined flow was tested by repeating the equations with an equation for confined aquifers and assuming a constant flow thickness of 800 feet. The resulting estimate of total subsurface outflow was within 1% of the original estimate. Thus, this assumption does not significantly affect the estimate in this case.

The project would result in a very minor reduction in subsurface outflow. This impact is considered less than significant because it would not substantially decrease the availability of groundwater to existing users.

Mitigation Measure: No mitigation measures are required.

Impacts on Riparian Vegetation and Wetlands

Riparian habitat is scarce in California and in many areas has diminished to only a small fraction of its extent under predevelopment conditions (prior to about 1850). Riparian vegetation occupies 8% of the total area of Rancho San Carlos and includes some of the southernmost stands of coast redwoods. Riparian vegetation is considered excellent wildlife habitat and often supports a relatively large diversity of wildlife. It also creates shade that maintains cool stream temperatures for aquatic organisms. Because of its relatively high habitat value and limited areal extent, a decrease of more than 5% in the total area of riparian vegetation on Rancho San Carlos is considered a significant impact. Further discussion of this significance threshold and the value of riparian habitat is presented in Chapter 11, "Biological Resources".

Riparian vegetation would be adversely affected by the same seasonal and long-term water-level declines that adversely affect base flow in streams, as described earlier. Water-level declines can decrease the total area of riparian vegetation by dewatering and killing mature plants or by decreasing the probability of reproductive success. These mechanisms are discussed as separate impacts below.

Impact: Direct Mortality of Established Riparian Vegetation Caused by Dewatering of Plant Roots

In general, established riparian vegetation would be less sensitive to gradual water-level declines than seedlings of the same species because the roots of mature plants are able to grow downward and remain in contact with the water table, as long as the rate of decline is gradual. Riparian vegetation would also be generally less vulnerable to water-level declines than aquatic organisms living in the base flow reaches, because the roots of phreatophytic plants extend below the level of the creekbed. That is, if the groundwater level along an existing base flow reach underwent a gradual decline to a new equilibrium level a few feet below the level of the creekbed, that reach of the creek would be dry much more frequently (with devastating consequences for aquatic organisms), but the roots of established phreatophytic plants would be capable of growing downward to the new water table level. For example, the roots of cottonwood seedlings grow at an average rate of 6 millimeters per day (mm/d) and have been observed to grow as much as 13 mm/d if the water table declines rapidly during the first summer of growth (Stromberg et al. 1991). In other areas where the water table has declined gradually with time, such as near a meandering or downcutting stream channel, adult cottonwoods and willows have roots as much as 8 meters (m) deep, which is much greater than the maximum depth for successful seedling establishment (Stromberg et al. 1991). Thus, gradual water-level declines of several feet over a few years would have a less-than-significant impact on established, mature riparian vegetation.

In contrast, the localized but large and rapid water-level drawdown near individual pumping wells could cause localized vegetation mortality. A well-known example of this impact occurred in the Carmel River valley during the 1976-1977 drought, when pumping and lack of recharge from the river caused water levels in the reach below the Narrows to decline as much as 40 feet below normal dry-season water levels. This resulted in widespread mortality of riparian vegetation (Kondolf and Curry 1984). Localized dry-season drawdowns around wells near creeks in Rancho San Carlos would typically be on the order of tens of feet. Although root depth, soil moisture characteristics, and groundwater flow patterns are probably different in the fractured bedrock terrain on Rancho San Carlos than in the Carmel Valley alluvium, seasonal drawdowns near project supply wells could be large enough to dewater the roots of any nearby riparian vegetation and cause drought stress or mortality. Also, the declines near water supply wells will be much larger than declines that would occur from natural causes to which vegetation might be adapted. This impact is considered significant. To reduce this impact to a less-than-significant level, the following mitigation measures should be implemented.

Applicant's Proposed/Additional Mitigation Measure *14*: Delay Pumping at Wells near Base Flow Reaches. This mitigation measure is described above under "Impact: Induced Seepage Losses from Creeks and Substantial Depletion of Dry-Season Base Flow".

Applicant's Proposed/Additional Mitigation Measure *15*: Drill New Wells Away from Base Flow Reaches. This mitigation measure is described above under "Impact: Induced Seepage Losses from Creeks and Substantial Depletion of Dry-Season Base Flow".

Impact: Long-Term Decrease in the Total Area of Riparian Vegetation Caused by Decreased Reproductive Success

Groundwater pumping at the water supply wells could result in groundwater levels that are frequently lower by an average of several feet over a large part of the Rancho San Carlos area. These declines would appear gradually as water demand increases during the 20-year period of project construction. Water-level declines in riparian areas would probably be less than the average regional water-level decline because water levels in riparian areas are generally fairly stable. Seepage to the creek prevents water levels from rising above the level of the creek, and convergent groundwater flow from surrounding upgradient areas tends to prevent large water-level declines.

On Rancho San Carlos, moderate gradual declines in water levels could potentially impair the long-term reproductive success of phreatophytes near the upstream ends and outer (upslope) fringes of riparian areas, because the depth to water would be too great for seedling establishment. Seedlings depend on soil moisture derived from rainfall until their roots reach the water table. If the water table declines, successful establishment could become altogether impossible or possible only in very wet years or sequences of years.

The effect of water-level declines on seeding establishment would be most noticeable near the upstream ends of existing base flow reaches and along the outer, upslope fringes of the riparian corridors. Base flow would tend to retreat downstream to shorter reaches as a result of lowered groundwater levels. Phreatophytic vegetation upstream of the base flow reaches would experience lower water levels and less frequent and prolonged base flow. Even mature individuals of obligate phreatophytes commonly found along stream channels (such as willows) could suffer mortality. *Similarly, hillside springs supplied by the regional groundwater system could also experience decreases in flow that could adversely affect downslope vegetation.*

Although available information regarding aquifer characteristics, pumping rates and locations, water table slopes, and base flow reaches may not be accurate or detailed enough to quantitatively estimate the long-term decrease in total riparian area, it is reasonably likely that the decrease would be more than 5%.

This impact might be entirely mitigated by the Cattle Grazing Plan, which is expected to increase groundwater recharge, base flow, and groundwater levels in riparian areas. *The Cattle Grazing Plan will also benefit riparian vegetation by greatly decreasing livestock access to riparian areas. This will decrease browsing and trampling of vegetation and will improve infiltration of rainfall, which will promote successful seedling establishment.* However, the magnitude of the beneficial effect of the Cattle Grazing Plan is difficult to estimate with certainty. The mitigation measure that would provide supplemental water for protected base flow reaches during dry years would also help to sustain riparian vegetation along those reaches. Riparian vegetation upstream of those reaches could still suffer long-term declines, however. The amounts of riparian vegetation and base flow may be interdependent because ample groundwater and base flow are needed to support riparian vegetation, yet transpiration by riparian phreatophytes consumes groundwater.

Given the uncertainty regarding the effects of the Cattle Grazing Plan and the limited extent of the protected base flow reaches, a reasonable possibility exists that the area of riparian vegetation would decline by more than 5% in the long term. This impact is considered significant. To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Additional Mitigation Measure *17*: Monitor Riparian Vegetation and Maintain Total Area of Riparian Vegetation. Because of the long life span (decades to centuries) of many riparian plant species, the effects of a slight decrease in reproductive success caused by water-level declines could be difficult to detect. Long-term vegetation monitoring is needed to distinguish this trend from short-term fluctuations in vegetation area and vigor caused by drought, fire, disease, or insect infestations.

The project applicant shall monitor riparian vegetation along selected transects *on average* ~~at least once~~ every 3 years *with no periods of more than 4 years between surveys. This allows a typical year with extreme conditions (wet, dry, or affected by fire, pests, or diseases) to be skipped.* Line-intercept or belt transects shall be established along the outer perimeter of the riparian corridor just upstream of the upper end of the protected base flow reaches of Potrero Canyon and Las Garzas, San Clemente, and San Jose Creeks. *A similar transect shall be established through the area of vegetation dependent on flow from one or more springs on Long Ridge on the north side of the San Clemente Creek valley.* Percent cover of riparian versus nonriparian species shall be measured along each transect. Canopy cover shall be measured separately from understory cover. Other variables that shall be recorded are species, stand age structure, evidence of recruitment, *vigor, habitat value,* and evidence of stress or disease. The vegetation types included within the definition of "riparian" shall be the same ones used in the biological resources report (BioSystems Analysis 1994b).

The exact locations, lengths, and widths of the transects shall be specified in a detailed monitoring plan to be developed by the project applicant and submitted to MCWRA and DFG for consultation and review. The detailed monitoring plan and initial vegetation survey along the transects shall be completed within 1 year after final project approval.

The project applicant (or its successor in natural resources management at the site, the Santa Lucia Preserve) shall plant and actively restore riparian vegetation if all of the following conditions occur:

- the percent cover of riparian species in either the canopy or understory is less than three-fourths of the percentage measured in the initial vegetation survey for two successive triennial surveys or less than one-half the initial percentage in any one survey,

- analysis of base flow monitoring data required by the mitigation measure "Monitor Base Flow in Creeks and Provide Supplemental Water if Necessary" indicates that base flows are declining as a result of the project, and

- the cause of the decrease in riparian vegetative cover is not clearly attributable to a factor unrelated to water-level declines, such as fire, flooding, drought, disease, insect infestation, or competition from invasive exotic species.

The allowable decrease in percent riparian cover along the transects (25% decrease) is larger than the significance threshold for decrease in total riparian area because the transects are located in the areas most likely to be adversely affected. It is assumed that the transects represent the 20% of overall riparian area that is most vulnerable to impact and that the remaining 80% would not be affected. A 25% decrease in 20% of the overall area equals a 5% decrease in the overall area.

The vegetation restoration shall restore the total area of riparian vegetation on Rancho San Carlos to at least 95% of the total area (1,600 acres) measured in the 1994 survey by BioSystems Analysis (1994). The mix of species planted shall be similar to the mix of species documented in the 1994 survey. The number of plantings to be installed will depend on the area of riparian habitat affected. Woody species should be spaced irregularly throughout the area typically to be restored on 9-foot centers. Planted vegetation shall be actively irrigated and maintained until it becomes self-sustaining.

Vegetation restoration includes actively monitoring plantings for 5 years after the plants are installed. The plantings should be monitored for survival, vigor, and height. Success will be achieved if there is a minimum of 40% survival during the first year, no more than 5% mortality during the second and third years, and stable viable populations for the remainder of the monitoring period. Annual monitoring reports should be submitted to the Monterey County Planning and Building Inspection Department *and the California Department of Fish and Game*. If survival is determined to fall short of the target at any annual monitoring visit, the project applicant should replant and implement any remedial measures. The monitoring period should begin again if significant remedial action is required at any time.

It is recognized that specific mitigation measures are based on the current state of knowledge of riparian restoration, and upon experience elsewhere in the state, and in other hydrological systems and can be modified when needed to provide an approximate equivalent level of protection.

If base flow and riparian habitat conditions have clearly remained stable or improved following construction of the project, the project applicant or the Santa Lucia Preserve may submit a request to MCWRA and DFG to discontinue the monitoring program. The request should provide documentation of trends in base flow and riparian vegetation conditions and may not be submitted until all of the presently planned development has been completed or 24 years following project approval, whichever is later.

Impact: Degradation of Wetlands Caused by Groundwater Pumping

Wetlands occupy only about 1% of the total area of Rancho San Carlos. Most of these are wet meadow wetlands, including small areas around seeps and springs. Others are emergent marsh

wetlands around permanent water bodies, principally Moore's Lake. Shallow piezometers were installed in several wet meadow areas by the project applicant's hydrologic consultants to measure near-surface groundwater levels and water quality (Hecht pers. comm.). Water levels were consistently at or slightly below the land surface, whereas water levels in nearby wells were 10-15 feet below the land surface. Similarly, the electrical conductivity of the shallow water was very low, indicating that it was derived from rainfall rather than rising groundwater. These results indicate that the wet meadow wetlands are formed by rainfall ponding on clay soils rather than by groundwater rising to the land surface. These wetlands would not be affected by groundwater pumping and associated declines in the level of the underlying water table. Wetlands associated with springs and seeps on hillsides *probably* would not be affected by groundwater pumping because *most of* these springs and seeps are perched above the main groundwater system tapped by wells. *Wetland-type vegetation sustained by springs that might receive regional groundwater discharge would be monitored and protected by the additional mitigation measure, "Monitor Riparian Vegetation and Maintain Total Area of Vegetation".* Wetlands associated with permanent water bodies, such as lakes and base flow reaches in creeks, are considered part of the riparian environment for this discussion of groundwater impacts and would be protected by the mitigation measures recommended to protect riparian vegetation. Impacts of groundwater pumping on wetlands are considered less than significant.

Mitigation Measure: No mitigation measures are required.

Impacts on Offsite Water Users

Impact: Decrease in Water Supply in Offsite Areas Resulting from Decreased Subsurface and Surface Outflow

Subsurface and surface outflow from Rancho San Carlos contribute to groundwater recharge in offsite areas. The effect of the project on water users in these areas is the combined effect of the change in subsurface outflow and the change in surface outflow that would have infiltrated from the creeks and become recharge. All of the creeks on the rancho except San Jose Creek are tributary to the Carmel River. Groundwater in the Carmel Valley is for practical purposes fully developed for water supply. Groundwater withdrawals by community water purveyors are closely regulated under MPWMD's Water Allocation Plan, and MPWMD even irrigates riparian vegetation along the Carmel River to avoid impacts on vegetation during periods of substantial groundwater pumping.

The impact of the project on the water supply for existing users in the Carmel Valley can be evaluated by first estimating the long-term average effects of the project on flows entering the valley and then considering how these effects would change during droughts. The safe or firm yield of the water supply in the valley is the amount of groundwater that can be pumped reliably every year during a critical drought period. For the existing level of water demand and development in the Carmel

Valley groundwater basin, the critical drought period is 1987-1991, although the 1976-1977 drought also imposed operational constraints (Oliver pers. comm.).

On a long-term average annual basis, any increase in consumptive use of groundwater on the ranch is most likely to be compensated for by a decrease in surface outflow in the creeks. This can be deduced from information presented in the preceding sections dealing with effects on each of the outflows. Subsurface outflow was estimated to decrease by no more than 17 af/yr. Phreatophyte transpiration would probably not decrease substantially because one of the objectives of the additional mitigation measure ("Monitor Riparian Vegetation and Maintain Total Area of Riparian Vegetation") is to maintain the total area of riparian vegetation at the existing level. Thus, decreases in these outflows probably account for only 6% of the 295 af/yr of net groundwater use for the project. The remainder (278 af/yr) must be derived from increased stream recharge during the wet season and intercepted base flow during the dry season. Based on the estimated distribution of groundwater yield among the watersheds on the ranch, approximately 24% of the total streamflow depletion would occur in the San Jose Creek watershed, which is not tributary to the Carmel River. This leaves approximately 211 af/yr of depletion to be obtained from the tributary creeks.

During periods when the Carmel River flows to the ocean, depletions in surface outflow from the ranch would not decrease recharge and water availability for users in the Carmel Valley because additional recharge is rejected during those periods. During critical drought periods, however, the river does not flow all the way to the ocean, and all surface and subsurface inflow to the Carmel Valley becomes groundwater recharge. Some of the project pumping during droughts will be derived from temporary decreases in groundwater storage depletions that will be refilled during subsequent wet periods when the water supply situation in the Carmel River valley is not as critical. Even during droughts, however, annual discharge in the creeks tributary to the Carmel River exceeds project water demand. Estimated historical streamflow data for the creeks on Rancho San Carlos were presented in the Comprehensive Hydrological Study and indicated that the smallest combined annual discharge during 1958-1991 was 263 af in 1977, and the average combined annual discharge during 1987-1991 was 1,910 af. Surface outflow would not decrease below 48 af/yr, however, which is the amount of groundwater that would be pumped into protected base flow reaches upstream of the Carmel Valley to maintain in-stream habitat (30 gpm continuously).

In summary, a high estimate of the decrease in surface and subsurface outflow to the Carmel Valley during a critical drought period is approximately 180 af/yr. This equals the worst-case estimate of decrease in subsurface outflow plus the fraction of annual project consumptive use expected to be derived from decreases in surface flow in creeks tributary to the valley, minus supplemental base flow provided under the mitigation measure, "Monitor Base Flow in Creeks and Provide Supplemental Water if Necessary". This estimate is certainly high because it assumes no groundwater storage depletions during the drought. However, even this high estimate is a little more than 1% of the annual amount of groundwater pumped from the Carmel Valley (approximately *12,500* ~~21,000~~ af/yr).

This small decrease in inflow to the Carmel Valley during critical drought periods might not decrease the water yield available to users in the Carmel Valley. This was found to be the case in simulations of the New Los Padres Reservoir project using the CVSIM model. The simulations were completed as part of the environmental impact analysis for the project EIR/EIS (EIP Associates 1994). When all tributary inflows (including the flows from all creeks on Rancho San Carlos that are tributary to the Carmel River) were decreased by 15%, there was no decrease in simulated project yield and the number of months of water rationing that would be required during a critical drought period increased by only 1%. These results refer to the yield of the reservoir project or the reservoir project plus the existing water supply system, which might be different from the yield of the existing system alone. Nevertheless, the results indicate that water supply in the Carmel Valley during critical drought periods is not extremely sensitive to decreases in tributary inflow.

The impact of the Santa Lucia Preserve project on the Carmel Valley water supply is considered less than significant for the following reasons, which together present a picture of reasonable use and minimal impact:

- The decrease in annual surface and subsurface inflow to the Carmel Valley during critical droughts would be *a little more* ~~less~~ than 1% of annual groundwater use in the Carmel Valley.

- Modeling studies of the New Los Padres Reservoir project indicate that the yield of water supplies in the Carmel Valley during critical droughts is not appreciably affected by fairly large (15%) decreases in tributary inflows.

- The Cattle Grazing Plan is expected to largely or entirely offset the increased consumptive use of groundwater by the project.

- The project will incorporate water-conserving design features consistent with Monterey County Ordinance No. 3539 regarding water conservation standards.

- The project is outside the boundaries of MPWMD and not subject to MPWMD's Water Allocation Plan.

- The use of groundwater on overlying lands is consistent with water rights law.

- The intensity of water use is extremely low compared to the intensity of use by other overlying landowners. The net consumptive use of 330 af/yr on an area of 19,900 acres is equivalent to a rate of 0.017 foot per year (ft/yr). Consumptive use of groundwater on agricultural fields (e.g., irrigated pasture) in the Carmel Valley is approximately 2.1 ft/yr (California Department of Water Resources 1975).

- *Irrigation of the golf trail would be reduced during critically dry periods. A water management and conservation plan that includes public education, alternating landscape irrigation schedules, and other techniques will be developed for use during critically dry periods.*

- The annual consumptive use of groundwater by the project can be sustained by the groundwater system without resulting in overdraft.

- Because the water use by the project is less intense than water use by others in the region and the water use is within the local safe yield, it constitutes a reasonable correlative share of groundwater resources.

- The project sets aside 18,000 acres of land in a natural preserve and thereby avoids potential future development that would further deplete inflow to the Carmel Valley.

Mitigation Measure: No mitigation measures are required.

Chapter 9. Runoff, Flooding, and Water Quality

INTRODUCTION

The key hydrologic and water quality issues related to the Santa Lucia Preserve project were identified by reviewing the NOP and comment letters on the NOP from the water resource agencies and using Jones & Stokes Associates' knowledge of the hydrologic conditions of the region. The key issue for this project is whether the project's consumptive water use will adversely affect other users or the environments.

Because the proposed source of water for the project is groundwater, this issue is discussed primarily in Chapter 8, "Groundwater Hydrology, Stream Base Flow, and Water Supply and Demand". Groundwater pumping, however, may reduce the flow from springs and seeps and consequently alter the flows in the streams on and off the project site and their receiving waters. Other issues include increased runoff from impervious areas, nutrient loading from septic systems and wastewater reclamation activities, urban pollutant loading, and construction-related pollution.

The project applicant retained several consultants to prepare water resource, wastewater disposal, erosion control, and drainage studies to support the project. These studies, which were submitted with the combined development permit application (Rancho San Carlos Partnership 1994b), provided the basis for much of the impact analysis in this chapter.

SETTING

Hydrology

The rainfall-runoff process in an undeveloped area can be described in terms of surface detention, infiltration characteristics, and the drainage patterns formed by the natural flow paths. The type of surface soil, the nature of the vegetative cover, and the topography are governing factors.

Because the natural infiltration capacity of the soils and underlying geologic structures do not change appreciably over time, other watershed factors such as groundwater storage, impervious area, and land stewardship practices may affect streamflow. In a given year, a certain amount of streamflow occurs, determined largely by meteorologic factors such as the timing and intensity of rainfall.

Streamflow can be partitioned into direct runoff, interflow, and base flow. Direct runoff consists of overland flow of precipitation that never enters the soil. Direct runoff occurs rapidly in response to rainfall and ceases within hours after precipitation stops. Interflow is streamflow generated from precipitation that infiltrates into the soil and moves rapidly downgradient toward a stream. Interflow may persist for several days after the cessation of precipitation depending on the soil texture and the permeability of underlying materials. Base flow consists of groundwater discharge that occurs where the groundwater levels are greater than the stream's water surface elevation. Base flow is relatively constant in the project area because of the large volume of groundwater stored and the low hydraulic conductivity of the fractured bedrock aquifers found on the site.

The following sections provide brief descriptions of the climate and precipitation of the project area, the watersheds within the project area, other surface water features found on the project site, flooding, and the regulatory environment.

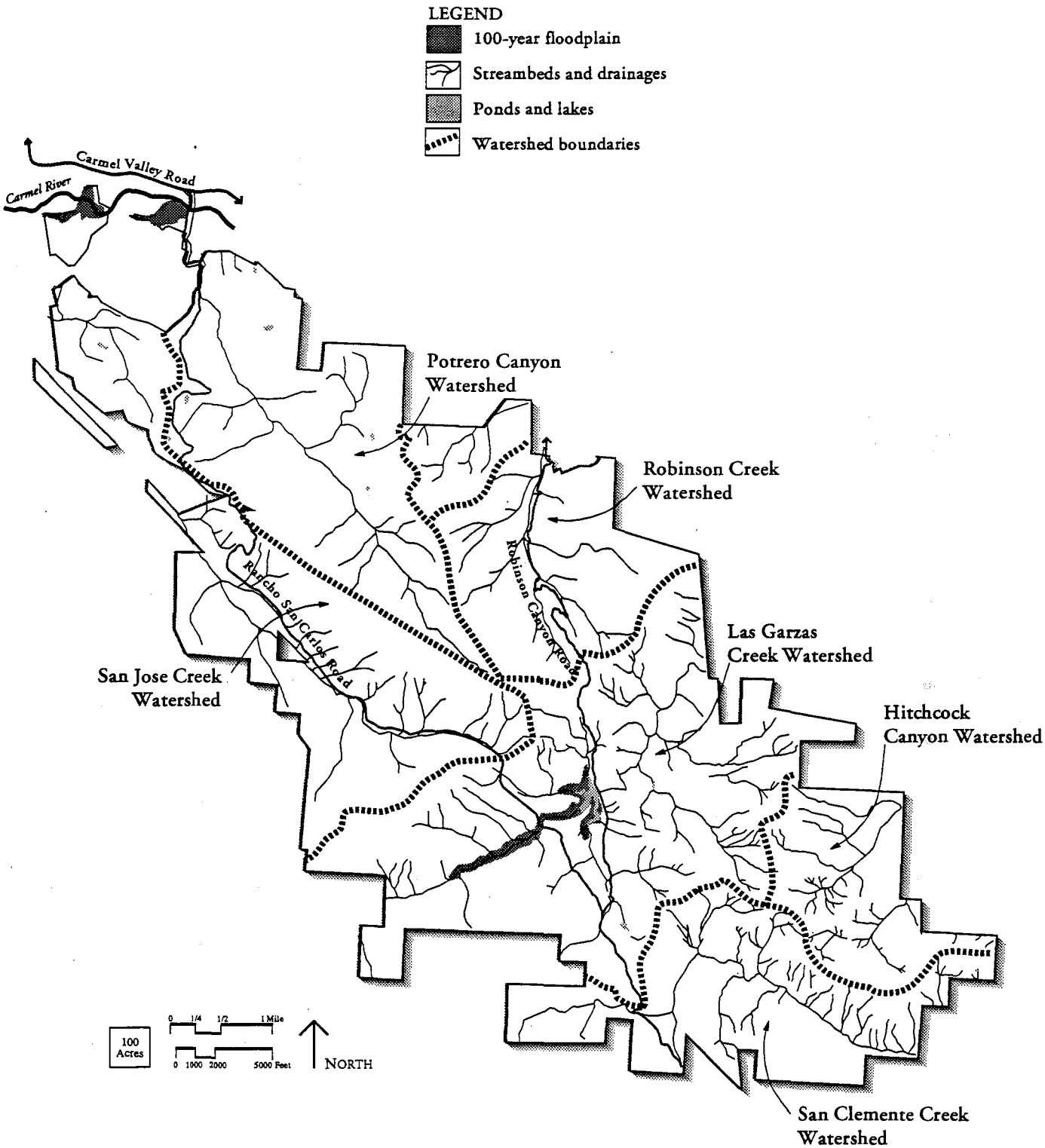
Climate

The North Pacific High Pressure System dominates the region's large-scale meteorology and produces northerly winds along the entire West Coast during most of the year (Beardsley et al. 1987). The system migrates northward and intensifies during the early spring, providing the strong coastal winds characteristic of March through October (Nelson 1977). Locally, the direction and intensity of winds are strongly influenced by the topography.

In the Monterey region, the seasons are weakly developed. The area has a moderate maritime climate with a general pattern of wet winters and dry summers. December, January, and February are usually the wettest months. During the period from March through October, the prevailing winds are from the northwest. Winter winds are variable, often from the west and southwest. The average annual precipitation for the entire project area is 27 inches per year. However, the influence of the coastal mountains creates a sharp difference in precipitation between the western coastal slopes and the intermontane valleys. Consequently, the range of annual average precipitation varies from 18 to 40 inches across the project site. The annual precipitation at any particular site varies widely from year to year. Long-term precipitation records show that extended drought and wet periods occur cyclically.

San Jose Creek and the Carmel River and Tributaries

The project site drains to five creeks that are tributary to the Carmel River: Hitchcock Canyon, Las Garzas Creek, Potrero Canyon, Robinson Canyon, and San Clemente Creek. A few small areas along the northeastern edge of the site drain directly to the Carmel River. The northwestern portion of the site drains to San Jose Creek, which discharges directly to the ocean (Figure 9-1).



Source: Adapted from Rancho San Carlos Partnership 1994a.

Figure 9-1
Watershed Resources

The average annual runoff from San Jose Creek is approximately 4,500 acre-feet (Table 9-1). The terrain is generally steep. The elevation ranges from sea level to over 3,000 feet. The steeper hills are heavily forested, although timber has been harvested in many areas. No major diversions or dams are on the creek, although several small dams inhibit fish passage.

The Carmel River and its tributaries drain approximately 245 square miles (Table 9-1). The terrain is generally steep with several large, flat valleys. The elevation ranges from sea level to over 3,000 feet. The valleys have urban, agricultural, and open space land uses. The steeper hills are heavily forested, although timber has been harvested in many areas.

Two significant dams are on the Carmel River: Los Padres Dam and San Clemente Dam. These dams were constructed by and are operated by the California American Water Company. Both dams provide water supply for the Carmel and Monterey peninsular area. Los Padres Dam is located upstream of San Clemente Dam and is operated to maintain as much water as possible behind San Clemente Dam (Federal Emergency Management Agency 1986). Water supply releases are made from San Clemente Dam via pipeline to a water treatment plant.

The Carmel River has been studied extensively by the Monterey Peninsula Water Management District (MPWMD) because the Carmel Valley groundwater basin is the primary source of water in the area. The district has developed the Carmel Valley Simulation Model (CVSIM) to determine the safe yield of the aquifer. Regression curves were developed for this model that relate tributary flows to unimpaired flows of the Carmel River at Rio del Robles. The estimated average annual discharge during the 1858-1993 water years for the Carmel River and for the tributaries that originate on the Santa Lucia Preserve are shown on Table 9-1.

Springs and Seeps

Numerous springs and seeps are located on the Santa Lucia Preserve. The Comprehensive Hydrological Study, which is available at the Monterey County Planning and Building Inspection Department, documented 16 springs and seeps on the preserve (Camp Dresser & McKee, Balance Hydrologics et al. 1994a). Some of these are located on hillsides and others are located in or near creek channels. These provide base flow to the creeks. One spring has been developed to provide domestic water to a mobile home on Rancho San Carlos Road.

Ponds and Lakes

Moore's Lake is located within the Las Garzas Creek drainage near San Francisquito Flat. With a surface area of 13 acres, it is the most significant open water feature on the project site. Numerous stock ponds are located throughout the project site, but these generally have a surface area less than 1 acre.

Table 9-1. Average Annual Runoff in the Santa Lucia Preserve Project Area

Watershed	Total Watershed Area (acres)	Project Watershed Area (acres)	Total Annual Runoff (acre-feet)	Project Annual Runoff (acre-feet)	Percent of Total Watershed Area (acres)	Percent of Total Annual Runoff (acre-feet)
Carmel River	157,440	365	75,000	300	0	0
Carmel River tributaries						
Hitchcock Canyon	972	816	500	300	84	60
Las Garzas Creek	8,501	5,434	4,700	4,200	64	89
Potrero Canyon	3,779	3,533	900	900	93	100
Robinson Canyon	3,449	2,631	800	600	76	75
San Clemente Creek	3,512	2,624	9,900	3,000	75	30
San Jose Creek	9,101	3,743	4,500	2,900	41	64

Source: Bestor Engineers 1994a.

SWRCB staff believe that water stored in Moore's Lake is being done without a legal basis of right (Wilcoxon pers. comm.). Application 29282 for Permit to Appropriate Water should be obtained to bring the facility into compliance with Water Code Sections 1200 et seq. Permits to Appropriate Water are not needed for the other stock ponds if they were built before 1969 and store 10 af or less. Instead, SWRCB certification of a Claim of Stockpond Water Right must be obtained. Rancho San Carlos has 24 such certifications. Permits to Appropriate Water must be obtained if the stock ponds do not meet the size requirement or were built after 1969 and divert water subject to the SWRCB's jurisdiction.

Flooding

Extended periods of heavy rainfall from storms originating over the Pacific Ocean produce floods that are typically characterized by a rapid rise in streamflow and almost as rapid a recession. During the winter months, a series of storms or a single, stalled storm front has produced large catastrophic floods, which have damaged property by erosion, flotation, and inundation, and by depositing debris against bridges and on downstream properties. Significant floods have occurred often on the Carmel River in the past and are well documented. Flooding also has occurred in the other creeks, but they are less studied because they are in remote areas that are not encroached upon by urban development.

Carmel River

The most severe flooding for the entire period of record in Monterey County occurred in 1995. There were two separate floods, one in January and one at the beginning of March. Each resulted in Monterey County being declared a disaster area. Approximately 650-750 acres were inundated, causing approximately $8-10 million in damages (Robbins pers. comm.) The peak floodflow at Rio del Robles was 15,800 cfs, which is less than the 50-year floodflow estimated by FEMA (1986). Monterey County Office of Emergency Services has estimated the recurrence interval of this flooding to be approximately 25 years (Robbins pers. comm.).

Although Los Padres Dam and San Clemente Dam are on the Carmel River, these dams have no flood control storage (Federal Emergency Management Agency 1986). Some flood control benefits may be attributable to the dams early in the flood season when storage space is available. The dams have little effect on reducing the peak discharges downstream once they have become full. Los Padres Dam located in the upper reaches of the basin is operated to maintain as much water as possible behind San Clemente Dam. After the flood season has passed, flashboards are installed in San Clemente Dam to raise the spillway by 12 feet. These flashboards are usually removed by October 1, prior to the flood season.

Levees have been constructed by private interests on the Carmel River upstream from State Highway 1 approximately 4,000 feet on the north bank, and from 3,000 to 10,000 feet upstream from the mouth on the south bank. These levees are not adequate to contain a 100-year flood (Federal Emergency Management Agency 1986).

The 100-year floodflows have been determined for the Carmel River at several stations: 19,200 cfs at San Clemente Dam, 25,000 cfs at Rio del Robles, and 29,100 cfs at the U.S. Geological Survey gage near Carmel (Federal Emergency Management Agency 1986). Although the regression curves, developed by the MPWMD, cannot be used to estimate floodflows for the major tributaries, the 10-year floodflows have been estimated by the Rational Method. The 10-, 50-, 100-, and 500-year floodflows and water surface elevations for the Carmel River at the confluences with the major tributaries are listed in Table 9-2. The 100-year flood insurance rate map for the project area indicates that flooding would occur on a small portion of the Santa Lucia Preserve adjacent to the Carmel River (Figure 9-1), and on a small portion of San Francisquito Flat adjacent to Las Garzas Creek.

Regulatory Overview

Congress, alarmed by increasing costs of disaster relief, passed the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. The intent of these acts is to reduce the need for large flood control structures funded by the public and disaster relief by restricting development on the floodplain. (California Department of Water Resources 1980.)

FEMA administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities complying with FEMA regulations that limit development in floodplain. FEMA issues flood insurance rate maps for communities participating in the NFIP. These maps delineate flood hazard zones in the community.

The Monterey County Water Resources Agency (MCWRA) and the Monterey County Erosion Control Ordinance require that floodflows be attenuated from new developments. Developers are required to implement measures to retain the runoff volume differential between the predevelopment 10-year storm and the postdevelopment 100-year storm.

Water Quality

Surface water quality is primarily dependent on the mineral composition of rocks within the upper source areas of a stream. As the stream proceeds to lower levels, the water quality continues to be influenced by mineral characteristics of materials through which it flows and by secondary contributions of other water types from tributaries and possibly rising groundwater. Water quality is also affected by a variety of discharges from point and nonpoint sources. Wastewater treatment

Table 9-2. Floodflows and Water Surface Elevations at Confluences with Major Tributaries

Location	10-Year Flood Event		50-Year Flood Event		100-Year Flood Event		500-Year Flood Event	
	Peak Flow (cfs)	Elevation at Confluence (feet)	Peak Flow (cfs)	Elevation at Confluence (feet)	Peak Flow (cfs)	Elevation at Confluence (feet)	Peak Flow (cfs)	Elevation at Confluence (feet)
Carmel River at San Clemente Dam	7,900	--	15,500	--	19,200	--	28,500	--
Carmel River at USGS gage	11,000	--	23,000	--	29,100	--	45,000	--
Carmel River at Rio del Robles	9,400	--	19,700	--	25,000	--	37,500	--
San Clemente Creek	472	--	--	--	--	--	--	--
Hitchcock Canyon	126	283	--	270	--	289	--	292
Las Garzas Creek	700	218	--	221	--	223	--	225
Robinson Canyon	436	116	--	120	--	122	--	124.5
Potrero Canyon	382	55	--	58	--	59	--	61
San Jose Creek	629	--	--	--	--	--	--	--

Sources: Federal Emergency Management Agency 1986; Bestor Engineers 1994a.

plant effluent is probably the most common point source. Common nonpoint sources include urban and agricultural runoff.

Urban stormwater is recognized as a major source of pollution that can adversely affect receiving waters. During dry periods, pollutants accumulate on the land surface. These pollutants include inorganic chemicals and minerals (metals, salts), oil and grease from parking areas and roads, synthetic organic chemicals (detergents), oxygen-demanding and disease-causing wastes (animal waste), fertilizers, and pesticides, which are common household substances. At the beginning of the rainy season, the accumulated pollutants are washed off surfaces and are typically conveyed directly to streams via storm drain infrastructure.

Agricultural runoff also includes dissolved salts, suspended solids, nutrients, metals, pesticides, oil and grease, and bacteria.

Pollutant types and sources encountered in groundwater are similar to those described above for surface water. Nitrate contamination is common in agricultural areas or areas that use onsite sewage disposal systems (e.g., septic tanks, cesspools).

Carmel River

Carmel River water has no dominant cation (positively charged ion); the principal anions are bicarbonate and sulfate. The water ranges from hard to very hard and is high in iron. Mineral concentrations meet the standards for drinking water and are suitable for irrigation (Central Coast Regional Water Quality Control Board 1991).

No industrial or municipal point discharges to the Carmel River or its tributaries are known. Tertiary treated wastewater from the Carmel Valley Sanitation District is used as a source of irrigation water at the Carmel Valley Ranch Resort golf course, which is downstream of the preserve.

Water Quality Regulation Overview

The U.S. Environmental Protection Agency (EPA) has granted the State of California primacy in administering and enforcing the provisions of the Clean Water Act (CWA) and the National Pollution Discharge Elimination System (NPDES). NPDES is the primary federal program that regulates point-source and nonpoint-source discharges to waters of the United States.

The State of California adopts water quality standards to protect beneficial uses of state waters as required by Section 303 of the CWA and the Porter-Cologne Water Quality Control Act of 1969.

Porter-Cologne Water Quality Control Act of 1969. The act established the California State Water Resources Control Board (SWRCB) and divided the state into nine regional basins, each with a Regional Water Quality Control Board (RWQCB). The SWRCB is the primary state agency responsible for protecting the quality of the state's surface water and groundwater supplies.

The act authorizes the SWRCB to draft state policies regarding water quality. In addition, the act authorizes the SWRCB to issue waste discharge requirements (WDRs) for discharges to state waters. The act requires that the SWRCB or the RWQCB adopt water quality control plans for the protection of water quality. A water quality control plan must:

- identify beneficial uses of water to be protected,
- establish water quality objectives for the reasonable protection of the beneficial uses, and
- establish a program of implementation for achieving the water quality objectives.

The basin plans also provide the technical basis for determining WDRs, taking enforcement actions, and evaluating clean water grant proposals. Basin plans are updated and reviewed every 3 years; the most recent update was in 1994. The Central Coast RWQCB has jurisdiction over the study area.

Water Quality Control Plan for Inland Surface Waters. In response to amendments to the CWA that require states to develop numerical objectives for "priority pollutants" and develop and administer a nonpoint-source management program describing the measures the state will take to address nonpoint sources of pollution, such as runoff from roads and highways, the SWRCB adopted the Water Quality Control Plan for Inland Surface Waters (ISWP) in 1991.

The ISWP regulating both point- and nonpoint-source pollution has set numerical objectives that cover 10 metals and 45 organic chemicals. Twenty-one objectives have been set for the protection of aquatic life. "Aquatic life" includes fish, insects, algae, and other organisms.

The ISWP also established 40 objectives for the protection of human health, which are based on assumptions concerning consumption of drinking water and fish that inhabit the water and accumulate regulated substances.

The courts have recently set aside the ISWP because it was adopted without proper CEQA review. It is expected, however, that a similar plan and objectives will be adopted in the future.

Safe Drinking Water Act. Water quality standards for drinking water are established and regulated by the federal Safe Drinking Water Act of 1986 and Chapter 15 *of*; Title 22 *of*; of the California Code of Regulations (Title 22). The maximum contaminant levels (MCLs), which apply to metals and other toxic compounds, are subject to revision, and additional compounds may be added.

The project will require development of a community water system and implementation of a water quality monitoring program to ensure that the water delivered to the customers meets the drinking water standards.

California Regional Water Quality Control Board - Central Coast Region - Water Quality Control Plan. Water quality in streams and aquifers of the region is guided and regulated by the Central Coast Region RWQCB. State policy for water quality control is directed at achieving the highest water quality consistent with the maximum benefit to the people of the state. To develop water quality standards that are consistent with the uses of a water body, the RWQCB attempts to classify historical, present, and future beneficial uses as part of the Water Quality Control Plan (Basin Plan).

Beneficial uses of the surface water in the project area include municipal and domestic supply, agricultural supply, industrial process supply, groundwater recharge, contact and non-contact recreation, wildlife habitat, and coldwater and warmwater fish habitat.

The Basin Plan has adopted the following objectives to protect water resources:

- No pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses.
- Discharges shall not result in pesticide concentrations in bottom sediment or aquatic life that adversely affects beneficial uses.
- Persistent chlorinated hydrocarbon pesticides shall not be detectable in water within the accuracy of the analytical methods approved by the RWQCB.
- Waters designated for use of domestic water supply shall not contain concentrations of pesticides in excess of the MCLs set forth in Title 22.
- Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growth causes nuisance or adversely affects beneficial uses.
- Trace metal concentrations shall not exceed MCLs in aquatic habitats.
- Groundwaters shall not contain concentrations of chemicals in excess of the MCLs set forth in Title 22.
- No controllable water quality factor shall degrade the quality of any groundwater resource or adversely affect long-term soil productivity.

The Basin Plan also restricts increases in water temperature, especially in streams supporting coldwater aquatic organisms.

NPDES Individual Wastewater Discharge Permits. *Operation of a treatment plant and wastewater reclamation system will be subject to regulation by the Regional Water Quality Control Board (RWQCB). Discharges to waters of the United States, which include wetlands and riparian habitat areas, require individual NPDES wastewater discharge permits. The RWQCB will establish waste discharge requirements and effluent limitations to protect the designated beneficial uses of the receiving waters. A report of waste discharge must be filed 6 months prior to discharge to allow for agency review.*

NPDES Stormwater Discharge Permits. In November 1990, the EPA published regulations establishing NPDES permit requirements for municipal stormwater discharges. Municipal discharges of stormwater are not usually regulated unless the population exceeds 100,000 persons. However, Section 6217 of the federal Coastal Zone Management Act Reauthorization Amendments of 1990 requires entities that discharge to the ocean to participate in the NPDES program. The California Coastal Commission and the SWRCB are developing discharge requirements and regulations. The Central Coast RWQCB has the authority to issue NPDES permits and ensure compliance in the Monterey Bay area.

In 1993, the Association of Monterey Bay Area Governments (AMBAG) initiated a study to assess the impacts of stormwater discharges on Monterey Bay. AMBAG applied for a group NPDES permit for municipal stormwater discharges. This NPDES permit would apply to all discharges of stormwater runoff not covered by individual permits. The agencies would develop a pollution control program to meet the conditions of the NPDES permit, which include:

- water quality monitoring,
- identification and correction of illicit connection to the storm drain system,
- increased municipal efforts to clean streets and prevent pollutants from entering the storm drain system,
- public information programs, and
- establishment of more stringent land use standards.

The SWRCB and the Central Coast RWQCB responded that official regulations had not yet been developed by the EPA and therefore they were not able to process the permit. Official regulations were expected to be published in October 1993, but now they are not expected until 1995. In the region, only the City of Salinas is required to have a municipal stormwater NPDES permit. (White pers. comm.)

In 1992, the SWRCB adopted a general construction stormwater permit, which requires landowners to file a notice of intent (NOI) to discharge stormwater runoff to waters of the United States, from land disturbances greater than 5 acres. The permit generally requires dischargers to eliminate nonstormwater discharges to stormwater systems, develop and implement a stormwater pollution prevention plan, and perform inspections of stormwater pollution prevention measures. The NOI should be submitted with the $500 annual fee to the SWRCB at least 6 months before the anticipated start of construction to ensure that the project is not delayed by agency review (Hageman pers. comm.).

National Oceanic and Atmospheric Administration. Title III of the Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA) authorizes the Secretary of Commerce to designate discrete areas of marine environment as national marine sanctuaries if the Secretary finds, in consultation with Congress and others, that the designation will fulfill the purposes and policies of the MPRSA and the following conditions apply:

- The area proposed for designation is of special national significance due to its resources or human-use values.
- Existing state and federal authorities are inadequate to ensure coordinated and comprehensive conservation and management of the area, including resource protection, scientific research, and public education.
- Designation of the area as a national marine sanctuary will facilitate the coordinated and comprehensive conservation and management of the area.
- The area is of a size and nature that will permit comprehensive conservation and management of the area (National Oceanic and Atmospheric Administration 1992).

In 1977, the State of California nominated the Monterey Bay area for consideration for designation as a national marine sanctuary. In 1990, the National Oceanic and Atmospheric Administration (NOAA), a division of the U.S. Department of Commerce, published a draft environmental impact statement/management plan (EIS/MP) for public review. NOAA published the final EIS/MP in June 1992. The Secretary of Commerce formally designated Monterey Bay as a national marine sanctuary (Sanctuary) in September 1992.

The Sanctuary includes an area of coastal and ocean waters of approximately 4,024 square nautical miles from southern Marin County to San Simeon in northern San Luis Obispo County.

NOAA entered into a memorandum of agreement (MOA) with the State of California, EPA, and AMBAG regarding the Sanctuary regulations concerning water quality within state waters within the Sanctuary. The MOA encompasses NPDES permits and WDRs.

In accordance with the MOA, NOAA will simultaneously review NPDES and WDR applications to assess possible adverse effects of runoff on the Sanctuary. NOAA will concur with the RWQCB or request more strict standards. The RWQCB may incorporate NOAA comments or prepare written responses to those not incorporated. The permit could be upheld, amended, or overturned in accordance with Section VIII of the MOA; however, the burden of proof is on NOAA.

In addition, NOAA will review all existing NPDES permits of entities that discharge to the Sanctuary and its tributaries, such as San *Jose* ~~Juan~~ Creek and the Carmel River. NOAA, in accordance with the MOA, can request that the RWQCB review existing permits and amend them to protect Sanctuary resources, if necessary.

These provisions affect most projects in the Monterey Bay region. NOAA will review all NPDES permits, such as construction activities permits or industrial permits, that are required for project development and operation. NOAA also periodically reviews existing NPDES permits and WDRs and can impose more stringent treatment standards to ensure protection of Sanctuary resources.

Monterey County Health Department, Division of Environmental Health. The RWQCB also regulates the use and application of treated wastewater, but commonly defers to the county environmental health agency in setting local objectives and permit conditions.

Other Plans and Policies. In addition to the NPDES general construction stormwater discharge permits, construction activities in waters of the United States or floodplains may be subject to additional federal or state regulation. Section 404 of the CWA requires the evaluation of water quality considerations associated with dredging activities or placement of fill materials in waters of the United States. Section 401 Certification from the RWQCB may be required to obtain the necessary 404 Permit.

A streambed alteration agreement will be required for any work within a creek or stream and its floodplain, such as construction of detention basins and road crossings. Streambed alteration agreements, commonly called 1603 permits, may impose conditions to protect water quality during construction.

IMPACTS AND MITIGATION MEASURES

Approach and Methodology

Each potential impact was evaluated by qualitatively and in some cases quantitatively estimating the effects of the project on flows and water quality and comparing those effects to the water quality regulations.

The description of existing hydrological and water quality conditions and assessment of potential impacts is based primarily on reports prepared for the project applicant, including the Comprehensive Hydrological Study and supplements, the Santa Lucia Preserve Golf Trail Preliminary Drainage and Erosion Control Report (Bestor Engineers 1994b), Draft Integrated Golf Course Management Plan (Alkire et al. 1994), Rancho San Carlos Cattle Grazing Plan (Sage Associates 1994a), The Santa Lucia Preserve Golf Trail Water Supply Plan (Camp Dresser & McKee and Luhdorff & Scalmanini Consulting Engineers 1994), Comprehensive Wastewater Disposal Plan (Camp Dresser & McKee, Bestor Engineers et al. 1994a), and Water Quality Protection Plan, Santa Lucia Preserve Golf Trail (Balance Hydrologics, Camp Dresser & McKee and Luhdorff & Scalmanini Consulting Engineers 1994).

Significance Criteria

Alterations to the hydraulic characteristics of the watercourses were considered significant adverse impacts if the alternative would result in any of the following:

- substantial reduction of floodflow conveyance capacities;
- increased extent or severity of flooding; or
- increases or reductions in flows that substantially diminish habitat for fish, wildlife, or plants.

Adverse impacts on water quality were considered significant if the project would result in any of the following:

- substantial degradation or contamination of a public water supply;
- any alteration of surface water quality, including but not limited to temperature, dissolved oxygen, or turbidity, that substantially diminishes the value of habitat for fish or wildlife; or
- an exceedance or violation of water quality standards or objectives or impairment of beneficial uses as outlined in the Central Coast RWQCB's Basin Plan, the SWRCB's ISWP, the Sanctuary Plan, or the Coastal Zone Management Plan.

Alterations to the hydraulic characteristics of the watercourses were considered beneficial if the alterations decreased the extent or severity of flooding from existing or projected future conditions. Reducing or preventing the degradation of water quality is considered a beneficial impact.

Impacts

Impact: Increased Temperatures in Base Flow Reaches as a Result of Groundwater Pumping

Base flow in creeks is sustained by draining of groundwater from the surrounding watershed. Discharge to creeks is often the path of least resistance to groundwater outflow. As described in Chapter 8, "Groundwater Hydrology, Stream Base Flow, and Water Supply and Demand", the groundwater contour map indicates that groundwater flow is generally toward the nearest creek (Figure 8-1). The volume of groundwater stored is large enough to sustain segments of several creeks even after extended dry periods. Pools and reaches of continuous flow were identified in Potrero Canyon and San Jose and Las Garzas Creeks in August 1991.

The perennial flow reaches provide limited aquatic habitat that support steelhead trout, rainbow trout, red-legged frogs, and other aquatic and amphibian species as well as providing water and feeding opportunities to terrestrial and avian species. Dewatering or reducing the amount of available habitat may affect the long-term populations of these species. A more complete discussion of biological resources is found in Chapter 10, "Fisheries", and Chapter 11, "Biological Resources".

In addition to direct elimination of habitat, reduced flows may also lead to a change in fish species composition because of changes in the temperature regime. Water provides thermal mass that modulates the temperature extremes of the day and the night. Increased temperatures may cause direct mortality to steelhead trout or resident rainbow trout, reduce the success of spawning and rearing, or cause fish to have a greater susceptibility to disease.

Water temperature has been monitored by Balance Hydrologics, Inc. for the last 5 years (Hecht pers. comm.). The data show that in the base flow reaches, water temperature varies seasonally largely in response to changes in average daily temperatures. Increased flow rates have some effect on reducing temperature. The base flow reaches, which have dense riparian canopies, have acceptable temperatures (generally less than 15°C) even when flows could not be measured directly with an instrument.

Because acceptable temperatures exist in the protected base flow reaches, even when flows were very small, and mitigation measures in the previous chapter ensure that flow will be maintained in these reaches, this impact is considered less than significant.

Mitigation Measure: No mitigation measures are necessary.

Impact: Increased Stormwater Runoff

The natural rainfall-runoff process is altered by urbanization. Part of the land is covered by impervious materials. In some cases, watercourses are cleared, deepened, and straightened to

increase their conveyance capacities. *Newly* ~~New~~ constructed drainage facilities also are ~~added~~ sometimes *added* to the drainage system. A typical urban land cover consisting of impervious rooftops, streets, and parking areas~~,~~ allows far less surface retention and infiltration of rainfall than *underdeveloped areas.* ~~natural land.~~ In urban areas, stormwater runoff occurs over smooth, impervious surfaces and in artificial or improved natural channels with increased velocity. As a result, urbanization increases the stormwater runoff volumes and rates and possibly causes or aggravates flooding of downstream areas. It can also accentuate downstream channel erosion.

The purpose of the drainage report prepared by Bestor Engineers (1994b) for the project applicant was to outline basic drainage patterns, develop preliminary recommendations for sizing of culverts and detention basins, and recommend erosion control measures. Drainage facilities are normally designed to balance the cost of the facilities with the potential damages that may occur. Monterey County regulations require small drainage structures such as check dams and culverts (those having less than 10 square feet of cross-sectional area) to be designed to pass a 10-year floodflow. It is common practice to design larger structures and road crossings that provide access to isolated residences to pass 25-year or 100-year floodflows.

As described in the drainage report (Bestor Engineers 1994b), implementation of the project would result in 173 acres of new impervious area. Although this constitutes less than 1% of the entire project area, runoff rates would increase by up to 9.5% in some watersheds. Table 9-3 lists the total area of the watersheds, the new impervious area in each watershed, the increase in peak floodflows, and the percent increase in floodflows. Although the increase in floodflows of a few percent may seem quite small, in areas, such as the Carmel Valley, that are subject to flooding, a few additional inches of flood stage may cause extensive property damage.

As identified in the "Setting" section, the MCWRA and the Monterey County Erosion Control Ordinance require floodflows to be attenuated from new developments. Developers are required to implement measures to retain the runoff volume differential between the predevelopment 10-year storm and the postdevelopment 100-year storm.

Because implementation of the proposed project would increase floodflows and subject people and property to flooding both on and off the site, this impact is considered significant. To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Applicant's Proposed Mitigation Measure *18*: Implement Best Management Practices to Attenuate Floodflows. The project applicant shall implement best management practices (BMPs) to attenuate floodflows in accordance with the Monterey County Erosion Control Ordinance. Floodflows can normally be attenuated by using detention and/or percolation basins as described in the preliminary drainage report (Bestor Engineers 1994b).

Detention basins can be constructed on- or off-channel. Because of the topography in some areas, the creation of detention basins could cause far more damage to the environment from erosion

Table 9-3. 10-Year Stormwater Runoff Rates of Watersheds in the Santa Lucia Preserve Project Area

Location	Total Watershed Area (acre)	New Impervious Acre (acre)	Total Watershed Area (%)	Existing 10-Year Runoff Rate (cfs)	Future 10-Year Runoff Rate (cfs)	Increase in 10-Year Runoff Rate (cfs)	Percent Increase in 10-Year Runoff Rate (cfs)
Carmel River [a], [b]	157,440	160	0	11,000	11,120	120	1.09
Carmel River tributaries							
Hitchcock Canyon	972	4	0	126	130	4	2.89
Las Garzas Creek	8,501	62	1	700	735	35	5.03
Potrero Canyon	3,779	51	1	382	419	37	9.58
Robinson Canyon	3,449	7	0	436	443	7	1.70
San Clemente Creek	3,512	29	1	472	498	26	5.44
San Jose Creek	9,101	13	0	629	644	15	2.32

[a] New impervious area includes area that drains directly to the Carmel River and that area in tributary watersheds.

[b] Increased runoff rate includes runoff from areas that drain directly to the Carmel River and increased runoff rates from areas tributary to the Carmel River.

than the benefits warrant. Detention basins could be created where roads cross small streams by increasing the elevation of the roadbed to create storage capacity on the upstream side of the road and by sizing the culverts to attenuate peak flows. An advantage of this arrangement is that the road provides access to remove accumulated sediments or debris trapped in the basin.

Percolation could be accomplished by increasing the permeability of the ground surface by changing land stewardship practices (as identified in the Cattle Grazing Plan, for example), using porous pavement or other permeable materials for roads and parking areas, or using infiltration trenches or dry wells. Percolation is an effective way to ensure stormwater for future use. The groundwater basin provides an enormous reservoir that can store water for many years. Using the groundwater basin as a reservoir provides several benefits: a large surface reservoir does not need to be constructed, additional environmental impacts would not occur, and no new infrastructure is needed to store the water.

The project applicant shall develop a final drainage plan that incorporates BMPs to attenuate floodflows. This plan shall be submitted to the Monterey County *Planning and Building Inspection* ~~Public Works~~ Department and the MCWRA for review before implementation of the project. All structural measures, such as culvert crossings and detention basins, shall be implemented in a watershed prior to construction of homes in that watershed. New drainage facilities recommended under the BMPs shall be sited to avoid sensitive biological and cultural resources as described in this EIR.

Impact: Potential for Increased Flooding on the Carmel River

Although the measures described above would attenuate peak floodflows in the individual watersheds, the total volume of flood water from developed areas would still be increased. The timing of the floodflows in each watershed also would be altered. Although intuitively it would appear that this would reduce the potential for flooding in the Carmel Valley, the resultant composite hydrograph of all the tributary inflows may actually have a greater peak flow. This possibility is of particular concern because the runoff from the watersheds enters the Carmel River along its lower reaches. Structures that delay the peak runoff from these watersheds could cause the peaks to coincide with peak runoff from tributaries higher in the Carmel River watershed. Proposed land stewardship practices such as the grazing plan are expected to greatly reduce runoff from the preserve by increasing infiltration rates on previously grazed lands. Although runoff is expected to decrease in the future, the specific timeframe is unknown. Consequently, the potential for increased flooding on the Carmel River will exist in the short term.

Because implementation of the proposed project could increase floodflows on the Carmel River and subject people and property to flooding, this impact is considered significant. To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Additional Mitigation Measure *19*: Design and Implement Stormwater Runoff BMPs so That Flooding in the Carmel Valley Is Not Aggravated. The project applicant shall develop 100-year floodflow hydrographs for discharges from the project site to the Carmel River and submit them to the MCWRA. Ideally, these could be submitted as modules that include projected land uses and proposed BMPs and could be incorporated into a HEC-1 or other flood hydrograph model.

The resultant floodflows should be compared to the existing Carmel River hydrograph to ensure that flooding in the Carmel Valley is not aggravated by the project. As a result of this analysis, modification of new BMPs may be necessary.

Impact: Degradation of Surface Water and Groundwater Quality Due to Nonpoint Sources Discharges at the Following: Golf Trail, Equestrian Facilities, Wastewater Facility, Individual Septic Systems, and Nuisance Runoff

Urban and agricultural pollutants are recognized as major nonpoint sources of pollution that can adversely affect receiving waters. Urban stormwater is a specific component of this waste stream that has received regulatory attention through the NPDES permit program and is discussed separately.

Pollutants can reach groundwater and surface water by various pathways. Human wastes and household chemicals are discharged to the soil through individual septic systems. Treated wastewater and agricultural chemicals are sometimes applied to the land surface to establish and maintain ornamental landscapes. Runoff and seepage from these applications may reach the creeks or percolate to groundwater. These pollutants include inorganic chemicals and minerals (metals, salts), oxygen-demanding and disease-causing wastes (animal and human wastes), synthetic organic compounds (detergents), fertilizers, and pesticides, all of which are common household substances. Many of these constituents are in particulate form or adsorbed onto solids and therefore do not migrate great distances through the soil profile.

Because most urban pollutants do not migrate large distances, runoff from the managed turf areas will be captured and treated. Assuming that all pesticides are applied in accordance with label instructions, nitrogen pollution is probably the most significant environmental threat associated with nonpoint sources. Consequently, the balance of this section discusses nitrogen pollution.

The GMPAP requires applicants for Comprehensive Planned Use areas to submit a comprehensive wastewater disposal plan to the Monterey County Division of Environmental Health. The wastewater disposal plan must include adequate soil testing to conclude that the soils are capable of receiving the projected wastewater flow from individual septic systems, estimates of sewage flow from each proposed use, a plan providing details on the method of disposal for each use, and a nitrogen-loading study for each aquifer or hydrologic unit.

As can be inferred from the GMPAP requirements, nitrogen pollution can be a significant problem. Nitrate concentrations in drinking water are regulated to protect human health, especially to prevent infant methemoglobinemia (blue baby syndrome). Cancer and reproductive toxicity have also been loosely linked to high concentrations of nitrate in the water, although at this time direct linkage is inconclusive (California State Water Resources Control Board 1988). Nitrate is reduced to nitrite in the human stomach. Nitrite reacts with hemoglobin to form methemoglobin, which ~~has reduced~~ *reduces the* capacity *of red cells* to transport oxygen. Nitrates may also interact with secondary amines in the stomach to produce N-nitrosoamines, some of which are potent carcinogens (California State Water Resources Control Board 1988). Animal tests have indicated that most N-nitrosoamine compounds are carcinogenic, but there is no direct evidence that they are human carcinogens (California State Water Resources Control Board 1988).

A comprehensive wastewater disposal plan and nitrogen loading study was developed for the project applicant (Camp Dresser & McKee, Bestor Engineers et al. 1994a, b). This study predicts that on a projectwide basis nitrogen loading will decrease primarily as a result of decreased grazing activities.

This study appeared to meet the regulations set forth in the GMPAP. However, the analysis was based on an assumption that all nitrogen loading rates are applied uniformly over the entire project area. It is known that the proposed housing would be concentrated in specific areas, that past cattle grazing was concentrated and future cattle grazing will be concentrated on about one-third of the total project area, and that reclaimed wastewater would be used only on the golf trail. Therefore, it is conceivable that high nitrogen loading may occur in localized areas with implementation of the project. Consequently, the Monterey County Division of Environmental Health requested additional analyses on a watershed basis. The Supplemental Nitrogen Loading Study submitted by the project applicant indicated that nitrogen loading would increase in the Las Garzas Creek and the San Clemente Creek watersheds (Table 9-4) (Camp Dresser & McKee, Bestor Engineers et al. 1994b). These analyses might have overestimated nitrogen concentrations because losses to denitrification, volatilization, and plant uptake were not included in the budgets. The increase in nitrogen loading would not exceed the maximum allowable loading rate of 40 grams per *half*-acre per day set forth in the Basin Plan for community subsurface disposal systems.

In addition, the applicant conducted a focused nitrogen loading evaluation of the golf trail which considered nitrogen loading from reclaimed water and fertilizer (Balance Hydrologics et al. 1994). The nitrogen concentration in the reclaimed wastewater that would be stored and used as irrigation water at the golf trail has an estimated concentration of 20 milligrams per liter (mg/l). The Title 22 drinking water standard for nitrate as nitrogen is 10 mg/l. The nitrogen load occurring from fertilizer plus reclaimed wastewater application is estimated to be approximately 21 grams per acre per day which is less than that set forth in the Basin Plan for disposal systems. In addition, drainage within the area of the golf trail will be managed according to two regimes to minimize water quality impacts:

Table 9-4. Nitrogen Balance for San Clemente Watershed and Las Garzas Creek Watershed

Recharge and Nitrogen Loading	Existing Conditions	Future Conditions: Combined Development Permit	Future Conditions: Project at Buildout
Recharge and nitrogen loading (acre-feet/year)			
Rainfall recharge	1,330	1,330	1,330
Domestic return flow	1	16	17
Irrigation return flow	0	4	29
Total	1,331	1,350	1,376
Nitrogen loading (1 x 10^9 mg/yr)			
Rainfall recharge at 1.5 mg/l	2.47	2.47	2.47
Domestic return flow at 40 mg/l	0.05	0.79	0.84
Irrigation return flow at 1.5 mg/l	0.00	0.01	0.05
Nitrogen from reclaimed wastewater at 20 mg/l [a]	0.00	0.00	0.32
Livestock (cattle) waste	3.38	0.21	0.21
Nitrogen from fertilizer	0.00	0.00	1.64
Total	5.90	3.48	5.53
Nitrogen balance (mg/l)			
Nitrogen balance	3.58	2.08	3.24
Nitrogen balance, excluding cattle [b]	1.53	1.96	3.12

Las Garzas Creek Watershed

Recharge and Nitrogen Loading	Existing Conditions	Future Conditions: Combined Development Permit	Future Conditions: Project at Buildout
Recharge and nitrogen loading (acre-feet/year)			
Rainfall recharge	2,240	2,240	2,240
Domestic return flow	5	29	29
Irrigation return flow	2	18	44
Total	2,247	2,287	2,313
Nitrogen loading (1 x 10^9 mg/yr)			
Rainfall recharge at 1.5 mg/l	4.16	4.16	4.16
Domestic return flow at 40 mg/l	0.25	1.44	1.44
Irrigation return flow at 1.5 mg/l	0.00	0.01	0.08
Nitrogen from reclaimed wastewater at 20 mg/l [a]	0.00	1.39	1.06
Equestrian center waste	0.24	1.73	1.73
Livestock (cattle) waste	6.76	2.54	2.54
Nitrogen from fertilizer [b]	0.00	1.11	2.75
Total	11.41	12.38	13.76
Nitrogen balance (mg/l)			
Nitrogen balance	4.10	4.37	4.80
Nitrogen balance, excluding cattle [c]	1.67	3.47	3.92

[a] Fifty-six acre-feet/year reclaimed wastewater use in Las Garzas Creek watershed under combined development permit. Forty-three acre-feet/year reclaimed wastewater use in Las Garzas Creek and 13 acre-feet/year in San Clemente Creek watershed at buildout.

[b] Loads from fertilized areas include golf course and commercial irrigated acreage in the San Francisquito Flat.

[c] Nitrogen balance, excluding cattle, takes into account nitrogen uptake by plants, which will offset nitrogen loading by cattle.

- **Managed turfgrass areas**. Approximately 71+ acres of turfgrass will receive irrigation and periodic applications of pesticides and fertilizers within an approximately 81-acre drainage area. This drainage area will be graded to collect rainfall falling directly onto the managed turf areas and to direct runoff to stormwater storage areas for reuse in irrigating the golf trail.

- **Natural areas**. Rainfall on natural areas upslope from the managed turfgrass areas will be intercepted and diverted around or through the golf trail using swales and/or drainage structures. This stormwater will then be dispersed as sheet flow or returned to the natural drainages at normal runoff rates to avoid the potential for erosion.

The applicant has developed an irrigation water supply concept that will incorporate treated domestic wastewater, diffuse stormwater runoff from the golf trail irrigated areas, and groundwater from the ranch water supply system, and will use storage facilities to store and delivery the supply. With the irrigation water supply concept diffuse stormwater runoff from the golf trail irrigated areas, and groundwater from the ranch water supply system, use of the first two components of water supply will reduce the volume delivered for irrigation from groundwater. Additionally, the combined drainage management system provides mitigation for watershed resources within the preserve and downstream since it collects stormwater runoff from the irrigated turf areas.

Because the fractured bedrock groundwater system contains relatively little surface area for adsorption and retardation of dissolved ions, there is potential for nitrogen from septic tank discharges and applied wastewater to migrate rapidly to wells or surface water. Nitrate concentrations could exceed drinking water standards or exceed the Basin Plan objectives. This potential impact is considered significant. To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Additional Mitigation Measure *20*: Implement Nitrate Monitoring Program. Because the project would require implementation of a community water supply system, water quality monitoring will be required. The Monterey County Health Department, Division of Environmental Health, regulates the frequency of monitoring and reporting requirements. Department of Health regulations also require minimum setbacks for septic systems from streams and wells. These measures, however, are directed to assessing the quality of public water supplies. They do not ensure that surface waters are not degraded. The applicant has submitted plans for a self-monitoring program to ensure that water supplies are protected (Balance Hydrologics et al. 1994). The monitoring program includes surface water monitoring in the San Clemente and Las Garzas Creek watersheds and shallow groundwater monitoring in the golf trail area.

Nitrate concentrations in protected base flow reaches (see above) should be measured from the time the project is implemented until 5 years after completion of the project, to ensure that nitrate does not directly or indirectly degrade surface water resources. The primary concern of elevated nitrate concentrations is the biostimulatory effect. Elevated nitrate concentrations may cause algae blooms that significantly depress dissolved oxygen concentrations. This may be particularly harmful

to the base flow reaches that provide refuge to coldwater fishes. Monitoring can be discontinued after that time if increased nitrate concentrations are not detected.

If elevated nitrate concentrations occur in protected base flow reaches, the project applicant shall develop and submit a report to RWQCB and the Monterey County Division of Environmental Health that identifies the sources of elevated nitrate concentrations and describes management activities that are being implemented to correct the problem such as modifying the application to the golf trail of reclaimed wastewater and fertilizer.

Impact: Degradation of Surface Water Quality Due to Construction Activities

The severity of construction-related water quality impacts is dependent on soil erosion potential; construction practices; the frequency, magnitude, and duration of precipitation events; and proximity to stream channels.

Construction activities would expose disturbed and loosened soils to erosion from rainfall, water, and wind. Soil erosion, which is described in greater detail in Chapter 3, "Land Use", is the process by which soil particles are removed from the land surface by wind, water, or gravity. Most natural erosion occurs at slow rates; however, the rate increases when the land is cleared or altered and left disturbed. Construction activities remove the protective cover of vegetation and natural soil resistance to rainfall impact erosion. Sheet erosion occurs when slope length and runoff velocity increase on disturbed areas. As runoff accumulates, it concentrates into rivulets that cut grooves (rills) into the soil surface. If the flow is sufficient, these rills may develop into gullies. Excessive stream and channel erosion may occur if runoff volumes and rates increase as a result of construction activities.

Sedimentation is the settling out of soil particles transported by water. Sedimentation occurs when the velocity of water in which soil particles are suspended is slowed sufficiently to allow particles to settle out. Larger particles, such as gravel and sand, settle out more rapidly than fine particles such as silt and clay. Sediment itself is a pollutant and also transports many substances such as nutrients, hydrocarbons, and metals.

Excessive sediment can cause increased turbidity and reduced light penetration, resulting in the reduction in prey capture for predators, reducing light available for photosynthesis, clogging of gills and filters of fish and aquatic invertebrates, reduced spawning and juvenile fish survival, smothering of bottom-dwelling organisms, changes in substrate composition, and reduction in aesthetic values. Concentrations of nutrients and other pollutants (such as metals and certain pesticides) associated with sediment particles could also increase. Although these effects are usually short term and greatly diminish after revegetation, sediment and sediment-borne pollutants may be remobilized under suitable hydraulic conditions.

Although sediment from erosion is the pollutant most frequently associated with construction activity, other pollutants of concern include toxic chemicals and miscellaneous wastes. A typical construction site uses many chemicals or compounds that can be hazardous to aquatic life, should they enter stream channels. Gasoline, oils, grease, solvents, lubricants and other petroleum-based products are commonly used in construction activities. Many petroleum products contain a variety of toxic compounds and impurities and tend to form oily films on the water surface, altering oxygen diffusion rates. Concrete, soap, trash, and sanitary wastes are other common sources of potentially harmful materials.

The proximity of construction activities to watercourses increases the potential for a toxic substance spill entering the water. Wash water from concrete mixers, equipment, and tools and other waste dumped or spilled on the construction site can easily lead to seepage of pollutants into watercourses. Toxic materials and sediment can be directly transported into water bodies by heavy construction equipment. Accidental spillage of construction chemicals into a watercourse may also occur.

The impact of toxic construction-related materials on water quality is largely determined by the duration and time of construction. Construction occurring in the dry season has less potential for soil and channel erosion and for toxic chemicals being flushed into a stream by runoff. However, low summer flows have less capability to dilute pollutants entering the water column.

Adverse water quality impacts on the creeks on Rancho San Carlos and their receiving waters from construction activities are considered significant. This impact is considered significant because water quality degradation may affect fisheries and other aquatic organisms and exceed Basin Plan water quality standards. To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Additional Mitigation Measure *21*: Develop and Implement Stormwater Pollution Prevention Plan. The project applicant shall develop and implement a stormwater pollution prevention plan (SWPPP) and submit a NOI and a $500 fee to the RWQCB to discharge stormwater in compliance with the NPDES general construction activity stormwater discharge permit. The SWPPP must be posted at the construction site and be available for inspection by the RWQCB. Compliance with the general permit process is based on the honor system. However, owners of active construction projects without an NOI on file with the SWRCB or without an SWPPP in place and discharging stormwater are in violation of the CWA. Failure to comply may result in fines up to $25,000 per day of violation and imprisonment. The State of California may bring forth civil and criminal penalties under the Porter-Cologne Water Quality Control Act.

The project applicant has already acquired much of the information necessary to develop the SWPPP: site maps, locations of paved areas, hydrologic studies, and locations of major culverts. However, some information is lacking and will need to be obtained prior to construction: specific locations of buildings, locations of cuts and fills, onsite flow paths where erosion during construction may occur, location of flood control facilities, and postconstruction BMPs. The SWPPP shall be

developed and implemented as an integral part of the final project design. The following items should be incorporated into the SWPPP.

- The SWPPP shall incorporate an erosion control and restoration plan, described in greater detail in Chapter 3, "Land Use", that incorporates the following BMPs:

  - Construction activities shall be limited to the minimum area necessary for implementation of the project.

  - Vegetative buffer strips shall be left in place adjacent to watercourses when possible.

  - Silt fences or straw bales shall be used to filter runoff and control sediment.

  - Vegetation shall be established or other erosion control materials shall be applied to bare soils before onset of the rainy season.

- The SWPPP shall include a water quality monitoring plan if construction activities must occur during the rainy season and runoff would be discharged to drainages that support listed species or species under study for listing. The plan should:

  - determine background water quality;

  - establish numerical water quality standards in consultation with the RWQCB, USFWS, and DFG; and

  - halt construction activity if numerical standards are exceeded or are in danger of being exceeded, and implement appropriate corrective measures.

- The SWPPP shall include postconstruction BMPs. These measures typically include control of the volume and velocity of stormwater runoff by means such as detention/retention basins, porous pavement, dry wells, and debris basins. Other measures may include channel stabilization, energy dissipators, and other structures.

- The SWPPP shall include a hazardous materials management plan to reduce the likelihood of chemical and other hazardous spills during construction. A specific protocol for the proper handling and disposal of materials used or produced on-site, such as petroleum products, concrete, and sanitary waste, should be established and strictly enforced.

- The SWPPP shall be included in construction bidding packages. Packages shall include provisions that require contractors to comply with the permit and implement the SWPPP.

- The SWPPP shall include agreements for the long-term maintenance of any stormwater drainage or pollution control measures after completion of construction. This could be

accomplished by either a public or private entity. A public agency could agree to assume maintenance of the infrastructure, funded from the municipality's general fund or user fees. Alternatively, a community service district or a benefit assessment area could be established to fund maintenance activities. Private maintenance could be implemented and funded through a property owner's association or through the Santa Lucia Preserve by deed restriction.

Impact: Degradation of Surface Water Quality Due to Removal of Riparian Vegetation

Removal of riparian vegetation along streams would allow greater exposure of streams to solar radiation. Removal of vegetation would also alter the cooling effect of evapotranspiration. Both of these factors would result in increased heating of pools and base flow that provide dry season refugia for aquatic organisms. Increased water temperatures would also violate Basin Plan objectives if beneficial uses such as coldwater habitat or other habitat values are lost.

In other areas of the state, loss of riparian woodland vegetation adjoining stream channels has led to significant warming during summer months with resultant significant loss of cold water habitat and other aquatic-habitat values. Although existing data typical of small coastal streams suggest that impacts of comparable magnitude are not likely to occur, the value of the aquatic resource calls for a heightened level of care.

Adverse water quality impacts on the creeks in the preserve and their receiving waters caused by removal of riparian vegetation are considered significant because water quality degradation may affect fisheries and other aquatic organisms and exceed Basin Plan water quality standards. To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Additional Mitigation Measure *22*: Limit Removal of Riparian Vegetation, Revegetate Affected Areas, and Protect Vegetation in Areas Adjacent to Protected Base Flow Reaches. Implementing the following actions and BMPs would reduce impacts to less-than-significant levels by limiting removal of riparian vegetation and enhancing existing vegetation adjacent to persistent water.

- The project applicant shall avoid removal of riparian vegetation adjacent to protected base flow reaches.
- The project applicant shall provide in-kind replacement of disturbed riparian vegetation.
- The project applicant shall restore streambanks and establish riparian vegetation along protected base flow reaches that have been disturbed by past grazing activities and by wild boar (which were introduced).

Impact: Degradation of Water Quality in Creeks and Their Receiving Waters Due to Increased Urban Pollutant Loadings

Urban stormwater is recognized as a major source of pollution that can adversely affect receiving waters. During dry periods, pollutants accumulate on the land surface. These pollutants include inorganic chemicals and minerals (metals, salts), oil and grease from parking areas and roads, synthetic organic chemicals (detergents), oxygen-demanding and disease-causing wastes (animal waste), fertilizers, and pesticides, which are common household substances. Many of these constituents are in particulate form or adsorbed onto solids (Akan 1993).

The accumulated pollutants are washed off surfaces and are conveyed directly to streams through storm drain infrastructure and detention basins. Most urban pollutants are contained within the "first flush" flow, which is usually the first half-inch of runoff (Akan 1993). Small floodflows have a disproportionately higher concentration of pollutants than large floods. These higher concentration pulses can occur several times a year (Whipple and Randell 1983).

This impact is considered significant because accumulation of pollutants and sediments may adversely affect aquatic organisms and other wildlife using streams and detention basins. To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Additional Mitigation Measure *23*: Implement BMPs to Control Urban Pollutants. Implementing the following practices would reduce impacts to less-than-significant levels by controlling urban pollutant loadings.

- The project applicant shall implement BMPs to reduce urban pollutant loadings. These measures include using vegetative buffer strips, oil and grease traps, sediment traps, and street sweeping.

- The project applicant shall implement a maintenance schedule to inspect structural BMPs and remove accumulated sediments and debris from detention basins.

Impact: Potential for Accumulation of Salts in Soils Receiving Reclaimed Wastewater

All irrigation water contains salts; however, wastewater contains more salts, 250-500 mg/l more, than is found in typical municipal supplies (California State Water Resources Control Board 1984). The proportion of sodium in relation to other dissolved cations is also increased. This is especially prevalent when the water supply is "hard" and homeowners use water softeners that are regenerated with salt (NaCl). Salts affect plant growth by increasing osmotic potential, specific ion toxicity, and decreasing soil permeability.

The osmotic potential is increased by the addition of salts to the root zone, requiring plants to expend more energy to obtain the necessary water to sustain plant growth. Specific ion toxicity

occurs when the concentration of a specific ion causes depressed plant growth. Boron, a necessary plant nutrient, becomes toxic to many plants at levels only slightly greater than required for good plant growth. High sodium content can disturb the molecular bonds of clay minerals causing the soils particles to disperse and clog interstitial pores, which in turn reduces the permeability of the soil.

Applying 207 acre-feet (af) of irrigation water (81 af of reclaimed wastewater at 850 mg/l and 126 af of domestic supply at 350 mg/l) to the golf trail each year would add about 153 tons of salt or nearly 2 tons per acre of irrigated land. When plants transpire and moisture evaporates from the soil surface, most of the salts remain in the soil. Rainfall and additional irrigation water normally leaches accumulated salts from the root zone. The Golf Trail Use Permit Application indicates that the golf trail would be managed to conserve water and limit deep percolation to protect groundwater resources during the summer irrigation season. Therefore, rainfall at the golf trail was reviewed for both average and dry years to assess whether rainfall is sufficient to leach salts. Appendix A of the Comprehensive Hydrologic Study estimates annual rainfall for the Rancho San Carlos Weather Station, located an San Francisquito Flat, which has a mean annual rainfall of 27 inches, slightly less than the 30 inches estimated for the golf trail. The *lowest* ~~largest~~ annual rainfall estimated for this station is 13.6 inches per year for water year 1976, which exceeds the mean annual rainfall in arid areas (defined as less than 10 inches per year) where leaching is typically required. Rainfall should provide adequate leaching and dilution of salts in normal water years. Therefore, this impact is considered less than significant.

Mitigation Measure: No mitigation measures are necessary.

Impact: Increased Infiltration, Increased Base Flows, and Decreased Floodflows as a Result of Implementing the Cattle Grazing Plan

Implementing the Cattle Grazing Plan would reduce the levels of grazing on the preserve by approximately *90% (892 animal units historic grazing/75 animal units proposed grazing.* ~~80% (800 cattle x 365 days/500 cattle x 110 days).~~ Reducing grazing pressure and reestablishing native grasses would increase the amount of precipitation that is intercepted and infiltrated. Densely vegetated areas also retard sheet flow, which contributes to flooding. As described in Chapter 8, "Groundwater Hydrology, Stream Base Flow, and Water Supply and Demand", these factors would increase the amount of groundwater recharge and decrease the amount of direct runoff during precipitation events. Improving the infiltration capacity of the land surface would attenuate floodflows and reduce channel erosion. All of these effects are beneficial impacts; however, they will not be realized instantaneously and therefore will not obviate the need for the other flood control mitigation measures described previously.

Mitigation Measure: No mitigation measures are necessary.

Chapter 10. Fisheries

SETTING

Overview

The proposed project lies within the Carmel River Basin and has the potential to affect aquatic resources in five streams tributary to the Carmel River: San Clemente Creek, Potrero Canyon, Las Garzas Creek, Hitchcock Canyon, and Robinson Canyon. Additionally, San Jose Creek lies west of the Carmel River Basin and also is within the proposed project area. Figure 9-1 in Chapter 9, "Runoff, Flooding, and Water Quality" identifies the watersheds within the project area. Most of the development (including residential, commercial, and recreational uses) is proposed within the Las Garzas Creek watershed (one of the largest watersheds with a total of 8,501 acres), although lesser amounts of development are proposed within each of the other watersheds as well. The Carmel River and San Jose Creek flow directly into Monterey Bay and provide important habitat for resident and anadromous fish species. Watersheds within the proposed project area have highly variable flows. Flows during the high-precipitation period (rainy season) are typically several hundred times as great as summer flows. Information on surface water hydrology is presented in Chapter 9.

These watersheds have undergone degradation during recent decades because of *some* ~~urban development;~~ timber harvest, overgrazing, and *limited* water appropriations. These events have resulted in an increased demand for domestic water supplies, increased erosion and sedimentation within watersheds, and marked changes in runoff patterns (BioSystems Analysis 1992). All of these results contribute to the reduction of seasonal flows.

Presently streams within the Carmel River Basin ~~and San Jose Creek~~ contain both native and introduced fish species. *San Jose Creek contains only native fish species.* Resident rainbow trout, steelhead trout (sea-going rainbow trout), Pacific lamprey, Sacramento blackfish, threespine stickleback, largemouth bass, and green sunfish occur in the watersheds of the proposed project area (Table 10-1). *Although detailed fisheries surveys were not completed for Robinson Canyon, measures to protect fisheries resources have been incorporated into the proposed project.* Because steelhead trout populations have been declining throughout their range, the National Marine Fisheries Service is presently reviewing whether they qualify for listing under the Endangered Species Act. Additional information on steelhead trout is presented below under "Economically Important Aquatic Species". Streams in the project area also provide habitat for reptiles and amphibians, including the California tiger salamander and the California red-legged frog. Information on distribution and occurrence in the project area is provided in Chapter 11, "Biological Resources".

Table 10-1. Fish Species Located within the Proposed Project Area

Common Name	Scientific Name	Watershed
Rainbow trout/steelhead	*Oncorhynchus mykiss*	San Clemente Creek, San Jose Creek, Potrero Canyon, Las Garzas Creek, *Hitchcock Creek*
Pacific lamprey	*Lampetera tridentata*	Las Garzas Creek
Sacramento blackfish	*Orthodon microlepidotus*	Las Garzas Creek
Threespine stickleback	*Gasterosteus aculeatus*	Las Garzas Creek
Largemouth bass	*Micropterus salmoides*	Las Garzas Creek, Moore's Lake
Green sunfish	*Lepomis cyanellus*	Las Garzas Creek
Bluegill	*Lepomis macrochirus*	Moore's Lake

Source: BioSystems Analysis *et al.* 1992.

The existing aquatic habitat and fish populations in the project area are described below. Information on aquatic resources is limited for streams tributary to the Carmel River. The information was obtained primarily from *surveys* ~~a 1992 survey~~ conducted at the proposed project area by the Habitat Restoration Group *in 1990 and 1991*, various studies (Reconnaissance of the Steelhead Resource of the Carmel River Drainage, Monterey County *[Snider 1983]*, and History and Status of Steelhead in California Coastal Drainages South of San Francisco Bay *[Titus, et al. 1994]*), and personal communications with public agency representatives.

Existing Aquatic Habitats

Seasonal Hydrology

Because individuals of each fish species are present during any given month of the year either as adults, juveniles, or incubating eggs, adequate streamflows are necessary year round for fish survival. *However, it is not necessary for flows to be present at all times in all years to sustain steelhead and trout populations.* Fish populations, especially steelhead trout, are often limited by the summer low-flow period when reduced habitat availability and increased water temperatures associated with the lower streamflows cause fish to become more vulnerable to the effects of competition, predation, and disease. Adequate streamflows during fall and winter are necessary to provide suitable combinations of water depths and velocities for successful migration and spawning of adult fish, egg incubation, and smolt emigration.

Balance Hydrologics performed surveys, during the late summer of 1990, to determine flow persistence of the drainages within the proposed project area. *These drainages are referred to in Chapter 8 as protected base flow reaches.* At the time of the survey, flow was uncommon or minimal in all drainages. Wetted sections of channels usually consisted of isolated pools or short wetted reaches. Results from electrofishing determined that many of the isolated pools provided dry-season refugia for fish, particularly for trout. Without these pools, it is unlikely that trout would survive extended periods of drought in the streams within the project area. Isolated pools and wetted stream sections are dependent on stream reach morphology, alluvial thickness, and proximity to a spring or other persistent inflow. Wetted sections were present in Las Garzas Creek (BioSystems Analysis 1992).

Riparian Vegetation

Riparian vegetation greatly affects the suitability of fish habitat in rivers and streams. Riparian vegetation provides fish with cover from predators, food, and also provides shade, which regulates water temperature fluctuations. Riparian vegetation is most abundant at the proposed project area within the following watersheds: San Clemente, Las Garzas, and San Jose Creeks.

Turbidity and Sedimentation

Sedimentation ~~Excess sedimentation~~ *problems occur* ~~*occurs*~~ within all of the drainages of the proposed project area *and are attributed to land use practices*, specifically Potrero Canyon, San Jose Creek, and San Clemente Creek (Rancho San Carlos Partnership 1992a). Turbidity is greatest during the winter when runoff is high. In general, turbidity levels in streams are likely to be higher today from the effects of increased erosion caused by watershed development, relative to pre-disturbance conditions. As sedimentation increases, fisheries habitat declines. Deforestation, agriculture, grazing, road construction, and urbanization have all contributed to increased erosion.

Substrate

Successful spawning and egg incubation of steelhead trout is dependent on suitable substrate, which is gravel sized between 0.6 inch and 4.0 inches. As the percentage of fines (by volume), a type of substrate, found in spawning gravel increases, the suitability for salmonid spawning is reduced (Raleigh et al. 1984). *Additionally steelhead will spawn in very sandy habitat, but survival of the embryos and ability of alevins to emerge are overwhelmed by a high percentage of fines comm.* Because most of these streams support steelhead trout, it is assumed that suitable substrate exists. *Optimal rearing habitat requires that sufficient cover and holding are accessible to both fry and yearling steelhead during the low-flow months. The proportion of the wetted bed covered by cobbles and the degree to which cobbles remain free of embedding sand are key factors in providing cover and holding areas, as are the lower branching and roots of riparian trees and shrubs near the stream.*

Carmel River Basin and San Jose Creek Fisheries

Steelhead Trout

Distribution and Abundance. Steelhead trout is the most economically important and widespread fish species within the Carmel River Basin and San Jose Creek. It probably occupies all the major tributaries and most of the smaller ones, *including Hitchcock Canyon*. Many of the minor tributaries may provide spawning and rearing habitat under optimal hydrologic conditions.

In 1965, DFG estimated the annual steelhead spawning run in the Carmel River at about 1,650 fish, based on observations of local field personnel (Titus et al. 1994). In 1984, the total steelhead trout run in the Carmel River was 860 adults. This total does not include fish that spawned in the river below San Clemente Dam (approximately 100-300 fish) (Dettman 1986). Today, the steelhead spawning run for the Carmel River is highly variable and may contain from 0 to 300 fish (Dettman 1986.). Populations for juvenile steelhead in San Clemente Creek were estimated to be up to 6,890 in 1974 (Snider 1983). Rainbow trout, which did not have the opportunity to migrate to the ocean because of sandbars at the Carmel River and also San Jose Creek, were observed in San Clemente

Creek, San Jose Creek, Potrero Canyon, and Las Garzas Creek during a field investigation in 1992 (BioSystems Analysis 1992).

Other barriers in tributaries also preclude steelhead migration. Approximately 0.25 mile downstream of Moore's Lake dam (Las Garzas Creek) is a natural falls that represents a complete barrier to upstream fish migration. *Additionally, portions of the lower 0-6 miles of Las Garzas Creek are often dry during the spring months, when downstream migration by steelhead typically occurs.* As previously discussed, when flows are reduced in the Carmel River Basin and the San Jose Creek watershed, continuous flow to the Pacific Ocean does not occur, thus precluding steelhead migration to and from the Pacific Ocean.

In July-August 1962, San Jose Creek was surveyed by DFG from the mouth to the creek source, a distance of about 8.1 miles. The annual run of adult steelhead was estimated to be about 50-100 fish. About 3.0 miles from the mouth of the creek, a bedrock *complete* barrier, *caused by an* approximately *20 to 25 foot-high earth-filled dam* ~~26 feet in height~~ precludes fish passage *(Titus et al 1994)* (Nelson pers. comm.).

Life History. Adult steelhead trout leave the ocean to migrate up the Carmel River and its tributaries and San Jose Creek on high streamflows in response to seasonal rain, which typically occurs between December and March. Spawning can occur shortly thereafter or may occur later depending on the sexual maturity of the fish, but probably peaks from January through March. Adult steelhead trout spawn in shallow redds (nests) constructed in relatively clean, loose gravels typically at the tail end of pools and at the head of riffles where appropriate water depths and water velocities exist. Typically, adult steelhead trout return to the ocean after spawning by June of that same year (Shapovalov and Taft 1954).

The eggs incubate within the gravel and hatch anywhere from about 19 to 80 days at water temperatures ranging from 60° Fahrenheit (F) to 40°F, respectively. After hatching, the young fish (alevins) remain in the gravel for an additional 4-6 weeks before emerging. The juvenile fish live in the natal stream, feeding primarily on insects, for periods ranging from less than 1 year to 4 years. Most juvenile steelhead spend 1-3 years in fresh water before emigrating to the ocean. (Shapovalov and Taft 1954.)

Most of the juvenile steelhead trout typically migrate to the ocean as streamflow declines and water temperature increase. Before their downstream migration, the juveniles undergo physiological changes (smoltification) to prepare them for ocean life. Steelhead trout live in the ocean generally for 1-3 years before returning to fresh water to spawn.

Habitat Requirements. Requirements for *optional* juvenile rearing *conditions* include adequate cover, food supply, and water temperatures of 43°F-*68°F* 65°F *(Raleigh et al 1984). During a survey of tributaries to the Pajaro River, juvenile steelhead trout were found in streams with summer maximum water temperatures approaching 75 degrees when food was abundant (Smith 1982). The upper lethal temperature is considered to be 77 degrees (F). (Raleigh et al 1984).* Juvenile steelhead primarily occupy riffle habitats although pool habitats with adequate water depth and escape cover are especially critical during the summer low-flow period and during extensive

periods of drought. *Generally, summer* ~~Summer~~ rearing conditions *can be an important factor* ~~probably restrict the~~ overall steelhead trout *abundance* ~~population~~ because of reduced living space, increased competition for food and habitat, and poorer water quality conditions due to elevated water *temperatures and increased pollutant concentrations.*

Production-Limiting Factors. Factors affecting steelhead trout abundance include reduced streamflows associated with water diversions and existing drought conditions; sedimentation; predation, sportfishing, and poaching; floods; habitat degradation; migration barriers; and poor ocean conditions. Low streamflows reduce fish habitat by altering physical conditions and increasing water temperatures. Increased sedimentation has buried and cemented spawning gravels and food-producing areas, and filled pool habitats that are important as holding and rearing areas for adult and juvenile fish. Reductions in instream woody debris has reduced escape cover, making juveniles more susceptible to predation. Habitat degradation has occurred due to poor land use practices, destructive floods, and as the channel morphology adjusts in response to changes in the sediment levels and the timing and magnitude of streamflows.

Rainbow Trout

Some rainbow trout do not migrate to the ocean and remain in freshwater streams for the duration of their life cycle. These fish are considered to be resident. Life history and habitat requirements for rainbow trout are similar to those for steelhead trout. The only difference between these two fish is that the rainbow trout does not migrate to the ocean.

Other Species

Lamprey and stickleback are native to Las Garzas Creek. Green sunfish and largemouth bass were introduced to the Carmel River drainage. Largemouth bass are popular game fish and typical warmwater species. Largemouth bass were also present in Moore's Lake, which may be the source for the population in lower Las Garzas Creek. Only one Sacramento blackfish was captured during the survey in Las Garzas Creek. This species is not native to the Carmel River drainage and is believed at some point to have been stocked in Moore's Lake (BioSystems Analysis 1992). A DFG Natural Diversity Data Base search revealed no rare or endangered fish species in the proposed project area.

Carmel River Lagoon

During the summer, fish species typically found in the Carmel River Lagoon include juvenile steelhead trout, limited staghorn sculpin (*Leptocottus armatus*), hitch (*Lavinia exilicauda*), threespine stickleback, and occasionally starry flounder (*Platichthys stellatus*) (Dettman 1986.).

IMPACTS AND MITIGATION MEASURES

Approach and Methodology

Impacts of the proposed project were assessed based upon available technical information from DFG, ~~a 1992 survey~~ *surveys* conducted in the proposed project area by the Habitat Restoration Group *in 1990 and 1991*, and personal communications with public agency representatives.

Significance Criteria

Populations of fish and other aquatic organisms may be reduced because of increased mortality and changes in habitat availability and suitability that affect species survival, growth, migration, and reproduction. In general, impacts on fish populations are significant when project operations cause or contribute to substantial short- and long-term reductions in abundance and distribution. According to Appendix G of State CEQA Guidelines, a project will normally have a significant effect if it:

- substantially affects a rare or endangered species or the habitat of that species;
- interferes substantially with the movement of any resident or migratory fish species;
- substantially diminishes fish habitat;
- substantially causes fish habitat to drop below self-sustaining levels;
- has considerable cumulative effects when viewed with past, current, and reasonably foreseeable future projects; or
- results in direct mortality, permanent or temporary habitat loss, or habitat avoidance leading to increased mortality or lowered reproductive success for individuals of state or federally listed threatened or endangered fish species; substantial portions of local populations of candidates for state or federal listing; DFG species of special concern; USFWS- or Reclamation-designated sensitive species; or game species.

For additional discussion on erosion control and additional related mitigation measures not presented in this section, refer to Chapter 6, "Geology and Minerals". For additional discussion on surface water hydrology and additional related mitigation measures, refer to Chapter 9, "Runoff, Flooding, and Water Quality". For additional discussion on and mitigation measures for groundwater, refer to Chapter 8, "Groundwater Hydrology, Stream Base Flow, and Water Supply and Demand".

Construction-Related Activities

Impact: Potential for Acute and Chronic Toxicity to Fisheries and Reduced Fish Productivity

Construction materials, such as concrete, sealants, oil, and paint, could adversely affect water quality if accidental spills occurred during project construction. Increased pollutant concentrations could limit fish production, abundance, and distribution by reducing fish egg survival and causing direct mortality of fish. Steelhead trout inhabiting drainages at the proposed project area require relatively clean, cold, well-oxygenated water for successful growth, reproduction, and survival and are not well adapted to survive in degraded aquatic habitats. The potential for acute and chronic toxicity to fisheries and reduced fish productivity resulting from the proposed project is considered a significant impact. To reduce this impact to a less-than-significant level, the following mitigation measures should be implemented.

Applicant's Proposed Mitigation Measure *24*: Implement Appropriate Construction Practices. The proposed project includes implementation of the following construction practices:

- Pad drainage water would be directed away from fill slope areas. Suitable pad drainage would collect and direct pad runoff to stable offsite locations. All over-the-slope down drains would be lined or otherwise use culverts with adequate energy dissipaters at their lower ends. Pad drainage would be directed away from access driveways to minimize excess runoff accumulation.

- Construction of the main roads shall include the use of rock-lined swales and ditches; rock masonry to construct surface road crossing structures that provide appropriately textured habitat for microflora and microfauna; oversized culverts to provide for uninterrupted movement of small aquatic and riparian wildlife; and spanning bridges to minimize disturbances of streambeds and streambanks.

- No excavation or grading shall take place during rainfall, and vehicle movement on dirt roads shall be restricted when it is raining and roads are muddy.

Additional Mitigation Measure *9*: Implement Erosion Control Plans. See Chapter 7, "Soils", for a discussion of this mitigation measure.

Additional Mitigation Measure 21: Develop and Implement Stormwater Pollution Prevention Plan. *See Chapter 9, "Runoff, Flooding, and Water Quality", for a discussion of this mitigation measure.*

Impact: Reduced Spawning and Habitat Conditions Resulting from Increased Sedimentation

Activities associated with construction, grading, and culvert replacement could increase erosion processes, thereby increasing sedimentation and turbidity in downstream waterways. Excessive sediment quantities deposited in or near stream channels can degrade aquatic habitats.

Sediments can smother developing eggs, degrade spawning habitat, and decrease food production. *In addition, excess sediments can degrade rearing habitat by filling in pool habitats, and decreasing food production.* Increased turbidity can result in increased fish mortality; reduce feeding opportunities for fish, including rearing steelhead trout; and cause fish to avoid biologically important habitat. Reduced spawning conditions resulting from increased erosion is considered a significant impact. To reduce this impact to a less-than-significant level, the following mitigation measures should be implemented.

Applicant's Proposed Mitigation Measure *25*: Minimize Sediment-Laden Runoff That Enters Creeks. The proposed project includes implementation of the following construction practice.

> Erosion control measures shall be implemented to minimize the volume of sediment-laden runoff that enters creek bottoms to prevent erosion and siltation in creek channels. Temporary berms, sediment trapping basins, and spot grading shall be used to avoid unnecessary siltation into creeks during construction activities.

Additional Mitigation Measure *9*: Implement Erosion Control Plans. See Chapter 7, "Soils", for discussion of these mitigation measures.

Impact: Increased Water Temperature Resulting from Loss of Riparian Vegetation

Construction activities related to the proposed project would result in the loss of approximately 11.3 acres of riparian vegetation (or ~~5%~~ 0.7% of the riparian habitat) and could result in increased water temperatures. Activities requiring the removal of riparian vegetation include the construction of spanning bridges and culverts. The proposed project includes replacing degraded riparian habitat with a 3:1 replacement ratio. Because only a minimal amount of riparian vegetation would be removed and the project includes a replacement ratio of 3:1, increased water temperature resulting from the loss of riparian vegetation is considered a less-than-significant impact.

Mitigation Measure: No mitigation measures are required.

Project-Related Activities

Impact: Potential Reduction in Potrero Canyon, Las Garzas Creek, San Clemente Creek, and San Jose Creek Fisheries Habitat Resulting from Groundwater Extraction

Water will be supplied to the proposed project area with groundwater. Groundwater extraction would have the potential to result in substantial depletion of dry-season base flow, decreased long-term or drought-period base flow of Potrero Canyon, Las Garzas Creek, San Clemente Creek, and San Jose Creek or cause a long-term decrease in riparian habitat due to decreased reproductive success, which would result in reduced fisheries habitat. This habitat is

critical during the low-flow periods when persistent pools may provide the only available habitat. The reduction of fisheries habitat resulting from groundwater extraction is a significant impact because fisheries habitat would be reduced. However, implementation of the following mitigation measures would reduce this impact to a less-than-significant level.

Applicant's Proposed/Additional Mitigation Measure *14*: Delay Pumping at Wells near Base Flow Reaches. This mitigation measure is described in Chapter 8, "Groundwater Hydrology, Stream Base Flow, and Water Supply and Demand", under "Impact: Induced Seepage Losses from Creeks and Substantial Depletion of Dry-Season Base Flow".

Applicant's Proposed/Additional Mitigation Measure *15*: Drill New Wells Away from Base Flow Reaches. This mitigation measure is described in Chapter 8, "Groundwater Hydrology, Stream Base Flow, and Water Supply and Demand", under "Impact: Induced Seepage Losses from Creeks and Substantial Depletion of Dry-Season Base Flow".

Additional Mitigation Measure *16*: Monitor Base Flow in Creeks and Provide Supplemental Water *if* is Necessary. This mitigation measure is described in Chapter 8, "Groundwater Hydrology, Stream Base Flow, and Water Supply and Demand", under "Impact: Decreased Long-Term or Drought-Period Base Flow in Creeks".

Impact: Potential Reduction of Fisheries Habitat in Hitchcock Canyon and Robinson Canyon

Groundwater extraction should not result in the reduction of fisheries habitat in Hitchcock Canyon and Robinson Canyon. For a discussion on surface water hydrology resulting from groundwater extraction, refer to Chapter 8, "Groundwater Hydrology, Stream Base Flow, and Water Supply and Demand". This impact is considered less than significant.

Mitigation Measure: No mitigation measures are required.

Impact: Reduced Habitat Conditions Resulting from Increased Turbidity and Sedimentation

The proposed project has the potential to increase turbidity and sedimentation in watersheds within the project area, resulting from drain outfall structures.

Increased sedimentation and turbidity could cause direct and indirect impacts on fish species *from reductions in rearing habitat quality.* Direct impacts on fish species resulting from increased turbidity could include increased fish mortality, avoidance of biologically important habitat, and reduced feeding opportunities for sight-feeding fish. Indirect impacts on fish species resulting from increased sedimentation include smothering of developing eggs, degradation of spawning habitat, and decreased food production *from increases in cobble embeddedness and reductions in cobble abundance. Increases in cobble embeddedness can also reduce the amount of escape cover for young fish, thereby increasing mortality from increased predation.* This impact is considered

significant. To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Applicant's Proposed Mitigation Measure *26*: Implement Drainage Plan. The following elements are proposed as part of the applicant's drainage plan.

- Outlet structures shall be constructed to minimize disturbance to natural drainages and avoid use of hard bank structures. Where such structures must be used, natural rock or steel gabions shall be used for bank retaining walls. Potential risk of injury to wildlife by use of mesh-gabions shall be carefully evaluated and minimized in cases where such structures must be used. If concrete must be used, prefabricated crib wall construction shall be used rather than poured concrete. Rock grouting shall only be used if no other feasible alternative is available.

- Creek bottoms shall not be disturbed or altered by installation of drains and outlet structures. Based on availability, undisturbed natural rocks imbedded in creekbanks shall be utilized as a base to tie in riprap. Outlets shall be designed to end at the edge of the creekbank rather than entering the creek channel.

- Rock energy dissipators shall be installed at the ends of drain pipes. These structures may be used in combination with devices such as trash racks and baffles to ensure minimal erosion during storm events and to prevent children and large animals from entering the storm drain system.

- Culvert replacement should take place where sizing is inappropriate or the culvert is no longer functional. Replacement culverts on unpaved ranch roads should be oversized (minimum of 24 inches) to provide habitat and crossings for aquatic microfauna and mesofauna *and should be designed to provide minimum vertical fall, thereby reducing velocity and eliminating jumps at the ends of culverts (Hurst pers. comm.).*

Additionally, the applicant proposes to design outlet structures to end at the edge of the creekbank rather than enter into the creek channel and proposes to implement an erosion control plan *to reduce the potential for increased sedimentation in the streams.*

Applicant's Proposed Mitigation Measure *9*: Implement Erosion Control Plans. This mitigation measure is described *in* ~~See~~ Chapter 7, "Soils", under "Impact: Potential Accelerated Erosion, Sedimentation, and Reduction in Soil Productivity and Revegetation Potential". *Additionally, a mitigation monitoring program will be implemented to monitor sedimentation in San Jose Creek, Potrero Canyon, Las Garzas Creek, and San Clemente Canyon. The mitigation monitoring program includes monitoring the shifts and changes in the streamflow rating curve at the gaging station and taking pictures (using polarized filters) upstream and downstream of a stake driven into the ground. If excessive sedimentation is identified, then corrective action will be taken; such corrective action includes modifying erosion control practices to reduce sedimentation.*

Chapter 11. Biological Resources

INTRODUCTION

The Santa Lucia Preserve encompasses 19,815 acres of valleys, flats, rolling hills, and steep, dissected canyons in northwestern Monterey County. The preserve includes portions of seven major watersheds, including the Carmel River, Hitchcock Canyon, Las Garzas Creek, Potrero Canyon, Robinson Canyon, San Clemente Creek, and San Jose Creek. The proposed project would develop about 2,000 acres for housing, commercial, and recreational uses, while the remaining 17,815 acres would be preserved as permanent open space and managed as habitat for native plants and wildlife.

As stated in Chapter 2, "Project Description", an objective of this project is to establish a permanent preserve for native plants and wildlife, while pursuing development on the least environmentally sensitive lands. Thus, the primary goal of this biological resources analysis will be to evaluate the potential impacts of the proposed development project on important native vegetation communities, wildlife populations, and special-status species that occur in the study area.

METHODS

Background Information

This analysis of potential project-related impacts on plants and wildlife of the Santa Lucia Preserve is based on reviews of special-status biological resources reports (BioSystems Analysis 1992*a*, 1994*ba*), the forest and grazing management plans (Ralph Osterling Consultants 1994a, b and Sage Associates 1994a, respectively), the erosion control plan (Bestor Engineers 1994), the comprehensive development and resource management plans, (Rancho San Carlos Partnership 1994a, b), the biological study of the golf trail plan (BioSystems Analysis 1994b), and the applicant's mitigation monitoring plan (Denise Duffy & Associates 1994).

Since 1990, BioSystems Analysis (1994*b*) has conducted baseline inventories, habitat assessments, and focused special-status resource surveys throughout the Santa Lucia Preserve. The primary objective of these surveys was to compile a natural resources database that, when analyzed using a geographic information system (GIS), could provide a systematic overview of the preserve's sensitive biological resources. *BioSystems Analysis conducted intensive ranchwide surveys for special-status plants during 1990-1991. All surveys followed the protocol recommended by DFG*

and were conducted during the proper period of identification for special-status plants identified with potential to occur on the project site (BioSystems Analysis 1992a). A list of all plant species found during the surveys can be found in Appendix II of BioSystems Analysis (1992a).

Initially, the BioSystems Analysis surveys focused on the botanical and wildlife resources of upland habitats; the Habitat Restoration Group (HRG) focused on aquatic and riparian resources; and Wetlands Research Associates (WRA) studied wetland areas. Subsequently, BioSystems Analysis incorporated the riparian data gathered by HRG into a comprehensive vegetation classification scheme for the entire Santa Lucia Preserve. Information on verified jurisdictional wetlands and other waters of the United States is compiled in a separate, unpublished report prepared by WRA. BioSystems Analysis, in conjunction with Robert Lamb Hart, compiled nearly all biological data and natural resources studies into a GIS database to be used for future analyses.

In addition to reviewing the above-mentioned reports, Jones & Stokes Associates botanists and wildlife biologists reviewed other relevant published literature and unpublished reports, project correspondence, topographic maps, aerial photographs, and Jones & Stokes Associates file data to obtain additional information.

A Jones & Stokes Associates botanist and wildlife biologist conducted a reconnaissance-level field survey of Santa Lucia Preserve on December 13 and 14, 1994; personnel from BioSystems Analysis (Diehl and Thelander pers. comms.) and the Rancho San Carlos Partnership (Froke pers. comm.) provided an overview of the property and participated in the field survey. Jones & Stokes Associates biologists contacted personnel at DFG (*Wilcox* ~~Wilcoxon~~ pers. comm.) and USFWS (Rutherford pers. comm.) to obtain additional site-specific information to identify agency concerns regarding potential impacts of this project on biological resources.

Robert Lamb Hart operated the GIS database to produce distributional maps of biological resources, to generate acreages of biological communities presently occurring on the project site, and to determine the area of each biological community that would be directly affected by implementing the proposed project. Additionally, WRA provided information on jurisdictional wetlands and other waters of the United States that would be directly affected by project implementation.

SETTING

Overview of Vegetation Resources

The proposed Santa Lucia Preserve is located within the northern Santa Lucia Range of Monterey County. The varied topography and associated diversity of soil types combine with the heterogeneous influence of coastal fog over the project site to promote the occurrence of numerous habitat types and a great diversity of associated species.

The mosaic of plant communities includes oak woodlands and savannas, evergreen forests, scrubs and chaparrals, freshwater wetlands, and streams and ponds. The project site is located on the central coast within a biologically diverse and floristically rich region of California (Howitt and Howell 1964). Almost 600 plant taxa representing 93 families were identified on the site (Rancho San Carlos Partnership 1994a). Of these, only 20% were non-native plants.

Cultural influences have likely resulted in modifications in species composition and habitat arrangement; even so, significant vegetation resources are currently found on the site. These include six special-status plant species and important native communities such as oak woodlands and savannas, redwood and Monterey pine forests, coastal scrub, and riparian and wetland habitats. Active management measures recently implemented, including modifications to the grazing regime and the seeding of native grasses, are furthering the botanical habitat values on the site.

Overview of Wildlife Resources

Because of its large size and diversity of vegetation communities, the Santa Lucia Preserve supports a broad representation of the typical wildlife species that occur in the central Coast Ranges. This is in spite of the fact that wildlife habitats in the study area have experienced a century of heavy livestock grazing, human landscape modifications, and the introduction of non-native species, including bullfrogs, wild turkeys, and wild boars (BioSystems Analysis 1992*a* and 1994*b*). Current land management practices, however, include reduced grazing pressure and fencing of riparian habitats, which have significantly increased the wildlife habitat values of these areas in just a few years (Diehl and Froke pers. comms.).

The interspersion of native habitats, including chaparral, coastal scrub, grassland, redwood forest, oak woodland, oak savanna, riparian woodlands, and herbaceous wetlands, forms a complex, habitat mosaic across the Santa Lucia Preserve. Because of the proximity of distinct habitat types, one can observe a diversity of wildlife species within a relatively short distance.

The Santa Lucia Preserve protects several large, intact watersheds and, consequently, offers habitat for wide-ranging species such as golden eagles, prairie falcons, and mountain lions. Extensive areas of grassland, chaparral, woodland, and forest provide important linkages and movement corridors between watersheds and offer suitable breeding habitat for sensitive species with large home range requirements.

Biological Community Descriptions

The biological communities described by BioSystems Analysis (1994*b*) are summarized below under 10 general categories: oak woodlands and oak savannas, chaparrals, scrubs, grasslands, evergreen forests, riparian areas, herbaceous wetlands, reservoirs, other vegetated types, and other

nonvegetated types (Figure 11-1). Table 11-1 shows which of the detailed biological communities described by BioSystems Analysis are included under each of these general categories.

Typical plant and wildlife species of the general biological community types and an assessment of their distributional status and importance are summarized below. In-depth accounts of all the detailed communities identified by BioSystems Analysis can be found in the Rancho San Carlos special-status biological resources report (1994b). Common and scientific names of plant and wildlife species mentioned in the text are provided in Appendix D.

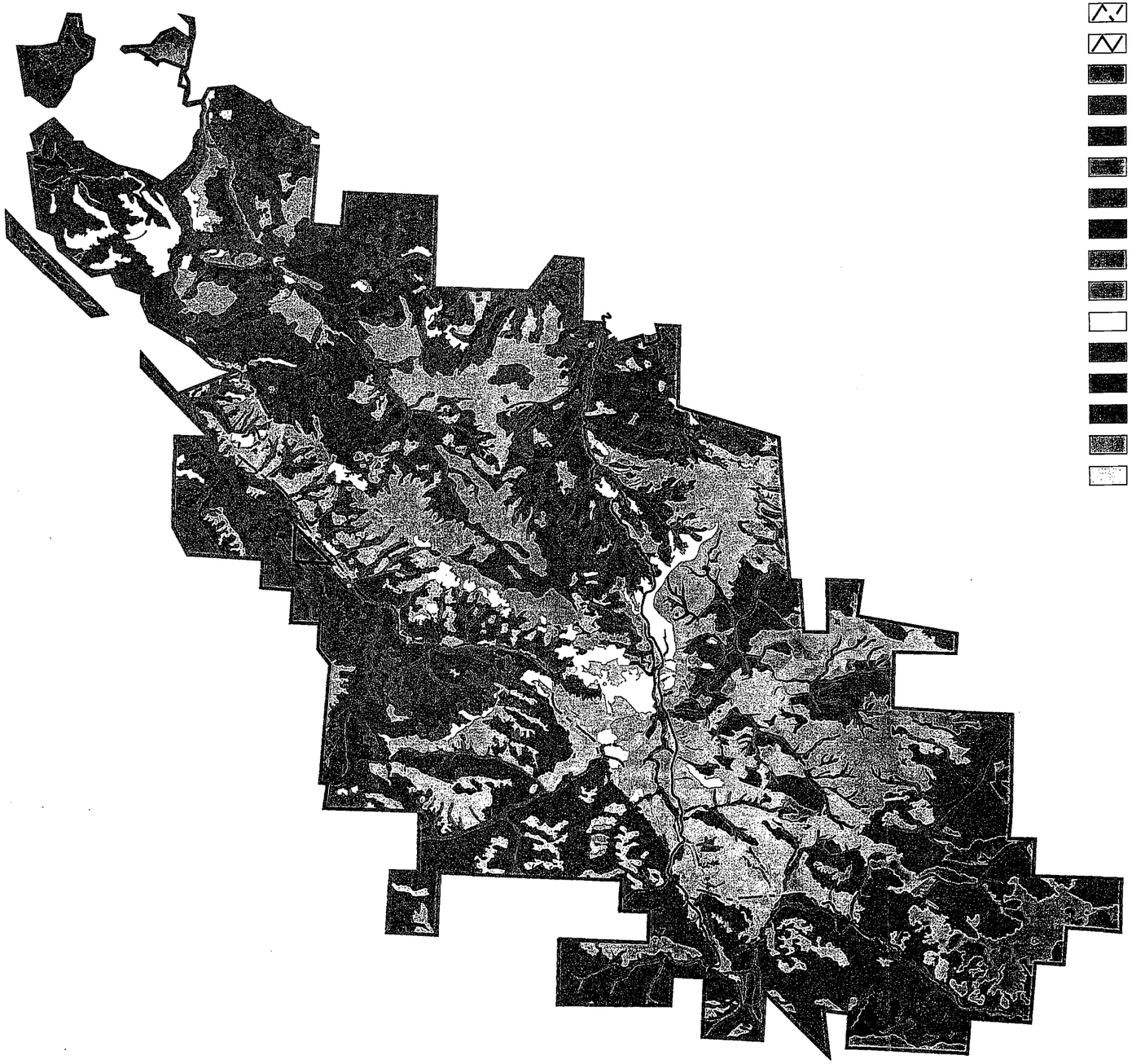
Oak Woodlands and Savannas

Oak Woodlands. Oak woodlands are communities characterized by a partially open canopy to mostly closed canopy. Dominant trees, which sometimes co-occur to dominate a community, include coast live oak, valley oak, black oak, and canyon live oak. Sparse to well-developed herbaceous and shrubby understories exist. Lace lichen, a nonvascular plant common in the coastal fog zone, can be found hanging on oak tree branches in many woodlands on the project site.

Mature oak woodlands of the Santa Lucia Preserve are especially attractive to wildlife because they provide important forage and cover. A large number of ground-, shrub-, and tree-nesting birds, including special-status raptors like Cooper's hawks, sharp-shinned hawks, and white-tailed kites use the oak woodlands. Wide-ranging predators such as bobcats and coyotes, as well as smaller predators such as gray fox and striped skunk, also frequent oak woodlands of the Santa Lucia Preserve.

A variety of woodpeckers can be found in oak woodlands of the Santa Lucia Preserve, including acorn woodpeckers, Nuttall's woodpeckers, Lewis' woodpeckers, downy woodpeckers, hairy woodpeckers, and northern flickers. Woodpeckers excavate nest holes in live and dead oaks, and these cavities are subsequently used by other cavity-nesting species, such as American kestrels, western screech-owls, tree swallows, violet-green swallows, ash-throated flycatchers, white-breasted nuthatches, plain titmice, and western bluebirds. Oak acorns provide an important food source for many species including band-tailed pigeons, acorn woodpeckers, scrub jays, yellow-billed magpies, western gray squirrels, deer mice, and black-tailed deer. Deer make extensive use of oak woodlands and savannas of the study area. Monterey dusky-footed woodrats inhabit oak woodland, chaparral, and scrub habitats with moderate to dense cover and abundant, dead, woody materials for next construction and their characteristic stick houses are present throughout the Santa Lucia Preserve.

Oak foliage and bark attract insects that are important to the diet of birds such as white-breasted nuthatches, plain titmice, Bewick's wrens, ruby-crowned kinglets, western bluebirds, blue-gray gnatcatchers, American robins, solitary vireos, Hutton's vireos, warbling vireos, orange-crowned warblers, Nashville warblers, yellow-rumped warblers, black-throated gray warblers, western tanagers, black-headed grosbeaks, fox sparrows, northern orioles, lesser goldfinches, Lawrence's goldfinches, and house finches.



Legend

- Project site boundary
- Rancho San Carlos Road
- Robinson Canyon Road
- Jurisdictional wetlands
- Riparian
- Oak woodland
- Oak savanna
- Scrub
- Reservoir
- Chaparral
- Annual Grassland
- Coastal Terrace Prairie
- Redwood forest
- Mixed Evergreen forest
- Monterey Pine forest
- Other vegetation type
- Developed or other nonvegetated areas

Figure 11-1
General Biological Communities

100 Acres

0 1/4 1/2 1 Mile

0 1000 2000 5000 Feet

NORTH

Jones & Stokes Associates, Inc.

Table 11-1. General Biological Communities and Subtypes Described in This Report and Corresponding Detailed Biological Communities Identified by BioSystems Analysis (1994)

Present Classification		BioSystems Analysis (1994) Classification	
Biological Community	Subtype	Habitat Number	Habitat Type
Oak woodlands and savannas	Oak woodlands	6	Mixed oak woodland
		7	Coast live oak-chamise woodland
		9	Coast live oak-bay woodland
		12	Coast live oak-black oak woodland
		15	Canyon live oak woodland
		18	Coast live oak-coyote brush woodland
		23	Valley oak-black oak woodland
		27	Valley oak-blue oak woodland
		30	Coast live oak-chamise-yucca-valley oak
		31	Mixed oak woodland-scrub
		32	Black oak woodland
		33	Coast live oak-chamise-manzanita
		37	Black oak-valley oak-manzanita
		40	Coast live oak woodland
		44	Coast live oak-valley oak woodland
		47	Coast live oak-valley oak-blue oak woodland
	Oak savannas	11	Valley oak savanna
		14	Valley oak-coast live oak savanna
		16	Coast live oak-savanna
		25	Valley oak-blue oak-savanna
		26	Coast live oak-black oak-savanna
		36	Black oak-savanna
		43	Valley oak-black oak-savanna
		70	Valley oak trees
Scrubs		2	Coyote brush scrub
		56	Coastal scrub
Chaparrals		5	Chamise-manzanita chaparral
		19	Ceanothus chaparral
		24	Chamise-yucca chaparral
		41	Chamise chaparral
Grasslands	Annual grassland	3	Ruderal grassland
	Coastal terrace prairie	10	Coastal terrace prairie

Present Classification		BioSystems Analysis (1994) Classification	
Biological Community	Subtype	Habitat Number	Habitat Type
Evergreen forests	Redwood forest	4	Redwood forest
	Redwood forest	38	Redwood forest-coyote brush
	Redwood forest	65	Tanoak seral stage
	Mixed evergreen forest	13	Mixed evergreen forest
	Mixed evergreen forest	68	Madrone seral stage
	Monterey pine forest	21	Monterey pine forest
Riparian		29	Coast live oak riparian
		35	Willow riparian
		101	Arroyo willow
		102	Arroyo willow mixed
		103	Arroyo willow-black cottonwood
		104	Arroyo willow-coast live oak mixed
		105	Arroyo willow mixed oak
		106	Arroyo willow-sycamore
		107	Arroyo willow-white alder mixed
		108	Bay mixed
		109	Bay-coast live oak mixed
		110	Bay-coyote brush
		111	Bay-redwood
		112	Black cottonwood
		113	Black cottonwood-arroyo willow
		114	Black cottonwood-white alder
		115	Black cottonwood-white alder mixed
		116	Coast live oak
		117	Coast live oak mixed
		118	Coast live oak-arroyo willow mixed
		119	Coast live oak-bay
		120	Coast live oak-buckeye mixed
		121	Coast live oak-maple mixed
		122	Coast live oak-redwood mixed
		123	Coast live oak-sycamore mixed
		124	Coast live oak-tanoak mixed
		125	Maple mixed
		126	Mixed

Present Classification		BioSystems Analysis (1994) Classification	
Biological Community	Subtype	Habitat Number	Habitat Type
		127	Mixed oak
		128	Mixed willow
		136	White alder mixed
		137	White alder-redwood mixed
		138	Valley oak
		139	Valley oak mixed
		140	Valley oak-arroyo willow mixed
		141	Valley oak-coast live oak mixed
		142	White alder-arroyo willow mixed
		143	Blue oak mixed
		144	Denuded
		200	Unidentified riparian
		130	Redwood alluvial
		131	Redwood-arroyo willow mixed
		132	Redwood-bay mixed
		133	Redwood-live oak
		134	Redwood-live oak mixed
		135	Redwood mixed
Herbaceous wetlands		28	Freshwater seep
		51	Wetland
		60	Willow-seep
Reservoirs		34	Reservoir
Other vegetated types		20	Monterey pine-Monterey cypress (introduced)
		22	Ponderosa pine grove
		52	Polo field
		62	Farm
		63	Golf course
Other nonvegetated types		8	Rock outcrop
		48	Gravel pit
		50	Ranch area
		57	Cliffs
		58	Developed
		64	Disturbed

Oak Savannas. Oak savannas are dominated by oak species similar to those stated above for oak woodlands but are characterized by a much larger herbaceous component. Trees are widely spaced in the landscape and a dense herbaceous understory layer supporting species typical of grasslands (described below) exists. The low density of oaks in savannas is generally attributed to the drier soil moisture conditions compared with those found in woodlands, but may also have resulted from past woodcutting activity or past grazing practices.

Scattered trees in oak savannas attract many of the same wildlife species found in oak woodlands, but shrub-dwelling species are usually absent. The grassland understories of oak savannas support all the same species as open grasslands and offer foraging habitat and cover for western fence lizards, California quail, wild turkeys, mourning doves, northern flickers, black-tailed hares, deer mice, gray fox, and black-tailed deer.

Distribution and Importance. Oak woodlands and savannas are found throughout the foothills of California and scattered in the valleys where the habitat requirements specific to each oak species are met. Oak woodlands and savannas are considered important native communities because they provide a variety of ecological, aesthetic, and economic values. The extent of oak woodlands and savannas in California has declined, however, as a result of agricultural conversion, urban development, fuelwood harvesting, and grazing activities. In response to this loss, the California Department of Forestry and Fire Protection (CDF), California Native Plant Society (CNPS), and The Nature Conservancy have identified the conservation and management of oak woodlands and savannas as major issues. The California State Senate passed a resolution identifying the conservation of these communities as a priority of state agencies when authorizing actions and projects (Senate Concurrent Resolution No. 17, January 18, 1989).

Chaparrals

Chaparral is composed of dense thickets of sclerophyllus shrubs. The dominant shrub species is chamise, which occurs alone and as a codominant with shaggy-barked manzanita or yucca. A small area dominated by blue blossom is also found on the project site.

Chaparral provides dense cover and foraging and nesting habitat for several shrub-dependent wildlife species. The wrentit is a bird found primarily in the chaparral belts of California. Chaparral plants provide browse, berries, and seeds for California quail, northern mockingbirds, California thrashers, American robins, hermit thrushes, rufous-sided towhees, California towhees, dark-eyed juncos, white-crowned sparrows, golden-crowned sparrows, brush mice, narrow-faced kangaroo rats, and black-tailed deer. Insectivorous birds, such as orange-crowned warblers, bushtits, blue-gray gnatcatchers, and Bewick's wrens feed on insects on chaparral foliage. Chaparral also provides habitat for mammals and reptiles, including gray foxes, deer mice, western fence lizards, western rattlesnakes, gopher snakes, and possibly silvery legless lizards.

Distribution and Importance. The chaparrals found on the project site are relatively common communities that occur on well-drained slopes and ridgetops throughout the region.

Scrub Communities

Scrub communities are composed of soft-leaved, low-stature shrubs that are typically found on slopes with shallow soils. Coyote brush scrub is the primary scrub community subtype on the project site. Openings are often found in coyote brush scrub that allow for the establishment and growth of grasses and forbs. Coastal scrub, a minor but important scrub community on the project site, is dominated by shrubs such as coast sagebrush, chamise, coyote brush, and ocean spray. Coastal scrub tends to form dense thickets that provide complete cover.

Scrub habitats at the Santa Lucia Preserve support most of the same wildlife species found in chaparral habitats. Berry-producing plants are less common in scrub habitats than in chaparral; therefore, wildlife species that require berries and other fruiting shrubs tend to be less abundant in scrub habitats.

Distribution and Importance. The coastal scrub found on the project site is abundant on the west side of the Santa Lucia Range between Monterey and Point Conception. Because of its limited range and current threats posed by a variety of factors, especially development, coastal scrub is considered an important native community. On the other hand, coyote brush scrub is more widely distributed throughout central and northern California.

Grasslands

Grasslands are herbaceous communities that support a variety of annual or perennial grasses and forbs. The project site supports mostly non-native annual grassland, but also has some significant stands of native grasses in the form of coastal terrace prairie grassland. These two grassland subtypes are described below.

Annual Grassland. Annual grassland is dominated mostly by non-native annual grasses and perennial and annual forbs. Non-native species apparently predominate because of past land use practices that resulted in significant disturbances, such as heavy grazing. Common grasses include wild oat, soft chess, ripgut grass, and silvery hairgrass. Typical herbs include California poppy, purple clarkia, red-stemmed filaree, and Douglas' annual lupine.

Annual grasslands, pasturelands, and historical dryland farmed areas provide important foraging areas for several special-status raptors such as golden eagles, northern harriers, red-shouldered hawks, and white-tailed kites. Grasslands support insects, amphibians, reptiles, small mammals, and birds that are preyed upon by predatory animals, including red-tailed hawks, red-shouldered hawks, American kestrels, coyotes, and gray foxes. Ungrazed grasslands, especially those near water, provide important cover for breeding waterfowl such as mallards and cinnamon teal. Improved grazing management at the preserve in recent years has probably enhanced the habitat value for these species.

Other typical wildlife in grassland habitats include Pacific treefrogs, gopher snakes, turkey vultures, Say's phoebes, western kingbirds, American crows, lark sparrows, western meadowlarks, California voles, western harvest mice, black-tailed hares, California ground squirrels, and black-tailed deer. Because they lack vertical vegetation layers, however, grasslands typically support fewer wildlife species than shrub- and tree-dominated habitats.

Coastal Terrace Prairie. This community supports non-native grasses such as those described above for annual grassland, but is also characterized by significant quantities of native grasses such as purple needlegrass, Parish's wheatgrass, California wild oat grass, slender hairgrass, alkali rye-grass, northern barley, and big squirreltail. A variety of native and non-native herbaceous forbs occur throughout this coastal terrace prairie.

Similar to annual grasslands, coastal terrace prairies offer similar foraging habitat for special-status raptors such as golden eagles, northern harriers, and white-tailed kites.

Wildlife commonly observed in coastal terrace prairies include western fence lizards, turkey vultures, Say's phoebes, tree swallows, western bluebirds, European starlings, lark sparrows, western meadowlarks, Brewer's blackbirds, brown-headed cowbirds, house finches, California ground squirrels, Botta's pocket gophers, California voles, black-tailed deer, and coyotes. Similar to grasslands and wet meadows, coastal prairies lack tall vegetation and support fewer species than shrub- or tree-dominated habitats.

Distribution and Importance. Coastal terrace prairie occurs on marine terraces within the coastal fog zone, with patchy distribution from Santa Cruz County to Oregon. Coastal terrace prairie is considered an important native community because of its limited distribution and threats facing remaining occurrences. On the other hand, annual grassland is a community that is common regionally and throughout California.

Evergreen Forests

Three primary subtypes of evergreen forest are found on the project site: redwood forest, mixed evergreen forest, and Monterey pine forest.

Redwood Forest. This community is dominated by a dense overstory of coast redwood and a heavy accumulation of litter on the forest floor. Occasionally, other trees such as California bay and tan-bark oak are found. Scattered shrubs that occur include ocean spray, common snowberry, and coffeeberry. Typical herbaceous species are Oregon wood-sorrel, redwood violet, wake robin, and a variety of ferns.

The wildlife found in redwood forest is similar to that described below for mixed evergreen forest.

Distribution and Importance. Redwood forest is an evergreen forest type that is considered an important natural community. Although prevalent and nearly continuous in the outer Coast Ranges from extreme southwestern Oregon to Sonoma County, redwood forest occurs only sporadically down the coast from Marin County to southern Monterey County. It is limited in the inland and upper latitudinal ranges by the lack of moisture carried by summer fogs. Redwood forest is considered an important biological community because of its limited distribution and threats posed by continued timber harvesting.

Mixed Evergreen Forest. Mixed evergreen forests are dense, closed-canopy communities dominated by any combination of the following trees: coast redwood, tan-bark oak, madrone, and Monterey pine. Broadleaf deciduous trees, such as bigleaf maple, black oak, and California sycamore, constitute minor components in mixed evergreen forest. The understory ranges from a sparse cover of forbs to a moderately dense cover of shrubs.

Mature groves of redwood and other mixed evergreen forests of the Santa Lucia Preserve have multilayered vegetation and the mid- and upper canopy layers that provide foraging opportunities, cover, and nesting, or roosting substrates for a diversity of wildlife, including special-status species, such as California spotted owls and marbled murrelets, which have the potential to occur.

Many wildlife species use the bark, branches, or foliage of these forests including red-shouldered hawks, red-tailed hawks, band-tailed pigeons, great horned owls, hairy woodpeckers, pileated woodpeckers, Pacific slope flycatchers, olive-sided flycatchers, western wood pewees, Steller's jays, chestnut-backed chickadees, brown creepers, white-breasted nuthatches, golden-crowned kinglets, warbling vireos, solitary vireos, Townsend's warblers, yellow-rumped warblers, western tanagers, black-headed grosbeaks, northern orioles, purple finches, and western gray squirrels. Acorns and nuts are an important autumn food for many species, such as black-tailed deer, band-tailed pigeons, California quail, northern flickers, and western gray squirrels.

Where present, the shrub layer of the mixed evergreen forest provides food and cover for wild turkeys, California quail, Swainson's thrushes, California towhees, rufous-sided towhees, dark-eyed juncos, orange-crowned warblers, fox sparrows, coyotes, gray foxes, black-tailed deer, and occasionally black bears. Typical reptiles and amphibians include the southern alligator lizards, California slender salamanders, and California newts.

Distribution and Importance. Mixed evergreen forest is relatively common in the outer Coast Ranges from Santa Cruz County northward into Oregon. *This community is also found on north-facing slopes of the inner north Coast Ranges, the Santa Lucia Ranges, and with small extensions to Santa Barbara County (Holland 1986).*

Monterey Pine Forest. Monterey pine forest is a relatively closed-canopy coniferous community dominated by Monterey pine. Scattered shrubs present in low densities include salal, shaggy-barked manzanita, canyon gooseberry, and blue blossom. A dense needle litter layer covers the forest floor, so that few herbaceous plants exist.

Monterey pine forests would support many of the same wildlife species present in mixed evergreen forests. Species requiring a distinct shrub layer, however, would be less common in dense stands of Monterey pine. A few species, such as pygmy nuthatches, strongly prefer pine trees over other conifers (Roberson 1985) and tend to be most abundant in Monterey pine forests of the study area.

Distribution and Importance. Although Monterey pine is a widely planted tree, native stands are restricted to three areas in coastal California and two islands off the coast of Baja California (Jones & Stokes Associates 1994). The limited distribution of Monterey pine forest relative to historical extent and ongoing threats posed by development and pitch canker, a fungus that may threaten the viability of Monterey pine trees, warrant the designation of Monterey pine forest as an important native community.

Riparian Communities

Riparian communities occur on the banks of creeks and drainages that are seasonally or perennially flooded and have a year-round high water table. This streamside vegetation is typically characterized by multilayered strata consisting of tree, shrub, and herbaceous layers. Common species include arroyo willow, black cottonwood, white alder, California bay, coast live oak, and coast redwood. The two latter species tend to form monospecific stands on canyon slopes that are characterized by more moderate water table levels. California blackberry, Himalayan berry, and poison-oak are common shrub species. Riparian areas that pond or flood water for long duration may support a herbaceous wetland component that includes rushes and sedges. Ferns are also common on the mesic banks of riparian canyons. An open water component of riparian habitats is represented by perennial and seasonal streams and drainages.

Mixed riparian forests support the densest and most diverse bird communities in northern California (Gaines 1974). Their variety of plant species, multilayered vegetation, perennial surface water, and abundant food sources make riparian habitats especially attractive to wildlife (Warner 1979).

Mature willows, alders, and cottonwoods provide high-quality nesting habitat for nesting raptors such as red-tailed hawks, red-shouldered hawks, and white-tailed kites. Cavity-nesting birds, such as Nuttall's woodpeckers, downy woodpeckers, northern flickers, plain titmice, and white-breasted nuthatches, prefer mature stands of trees. Wildlife species in riparian habitats dominated by coast redwood or coast live oak are more similar to those observed in analogous upland habitat types, especially in moist groves with well-developed understory vegetation.

Riparian shrubs produce important fall and winter foods for birds and mammals. Common wildlife species that depend on the nectar, fruits, and seeds of riparian plants include Anna's hummingbirds, black-headed grosbeaks, rufous-sided towhees, California towhees, song sparrows, Lincoln's sparrows, raccoons, ringtails, striped skunks, and western gray squirrels. Larger predators such as mountain lions and bobcats often use riparian habitats as travel corridors.

The permanent to semipermanent water in riparian habitats allows for a high abundance of amphibians relative to other habitats, such as Pacific treefrog, California newt, arboreal salamander, and slender salamander.

Riparian vegetation supports an abundance of insects that feed on foliage and stems during the growing season. These insects, in turn, support a high density of migratory and resident insect-eating birds, including the Pacific-slope flycatchers, western wood pewees, Swainson's thrushes, yellow warblers, MacGillivray's warblers, Wilson's warblers, yellow-breasted chats, warbling vireos, bushtits, and house wrens.

Insectivorous species that have declined dramatically or been eliminated from northern California's nesting avifauna include yellow-billed cuckoos, willow flycatchers, Bell's vireos, yellow warblers, yellow-breasted chats, and blue grosbeaks (Remsen 1978). Throughout this range, habitat destruction and fragmentation, or nest parasitism by the brown-headed cowbird are the primary causes of their declines (Gaines 1974, Remsen 1978, Sanders and Flett 1989, Harris et al. 1991).

BioSystems Analysis (1994*b*) detected relatively few brown-headed cowbirds in riparian habitats of the Santa Lucia Preserve. Fencing of riparian habitats and reducing the overall grazing intensity at the Santa Lucia Preserve offer benefits to all riparian nesting species by reducing the risk of nest losses due to trampling, browsing, and brown-headed cowbirds. Recent, probable breeding of yellow warblers and yellow-breasted chats at Moore's Lake and at the lower end of Potrero Canyon suggests that riparian habitat conditions may be improving for these sensitive, insectivorous songbirds.

BioSystems Analysis (1992*a*) identified the riparian habitats around Moore's Lake and Cienega Pond and those along the lower Potrero Canyon area and the Carmel River as particularly important habitat areas at the Santa Lucia Preserve.

Distribution and Importance. Riparian areas are recognized throughout California as important communities because of their limited extent compared to their historical distribution, their importance to dependent plant and wildlife species, and threats facing remaining occurrences. Their value and current status qualify them as important native communities. This status is supported by the DFG policy promoting "no net loss" of wetland habitat, which often includes riparian areas (California Fish and Game Commission 1987).

Riparian areas along the reaches of San Francisquito Creek near the hacienda qualify as wetlands under Section 404 of the Clean Water Act, and the seasonal and perennial open water habitats of streams and drainages within riparian areas qualify as other waters of the United States (see "Waters of the United States" below).

Herbaceous Wetlands

Herbaceous wetlands on the project site consist of wet meadow and marsh communities, which are described below.

Wet Meadows. Wet meadows are herbaceous communities occurring in catchments and along seeps and low-lying channels. Typical plant species found in wet meadows that are adapted to hydric conditions include iris-leaved rush, yellow buttercup, meadowfoam, popcornflower, stinging nettle, and water hemlock.

The high plant diversity and variable hydrology of wet meadows make them attractive foraging, nesting, and resting habitat for many wetland-dependent birds, reptiles, and amphibians in the study area. The mosaic of grasslands, marshes, or open water near most wet meadows in the study area enhances their value for wildlife. Because wet meadows are associated with saturated soils, however, they receive limited use by most species of small mammals and their predators.

Water birds such as great blue herons, great egrets, and mallards forage in wet meadows of the Santa Lucia Preserve. Wet meadows also offer important foraging habitat for other wetland wildlife species including black phoebes, tree swallows, barn swallows, marsh wrens, American robins, common yellowthroats, song sparrows, red-winged blackbirds, striped skunks, Pacific treefrogs, western toads, and garter snakes. Special-status species such as tricolored blackbirds also forage in wet meadows of the Santa Lucia Preserve and may attempt to breed in nearby marshland habitats or bramble thickets (Froke pers. comm.).

Marshes. At the Santa Lucia Preserve, marshes usually occur as inclusions within other wetland habitats such as wet meadows, riparian areas, and reservoirs. Marshes are characterized by a prevalence of perennial emergent vegetation with intermixed grasslike herbaceous species. Dominant plants include narrow-leaved cattail, bulrush, and spikerush.

Bulrushes and cattails fringing Moore's Lake and elsewhere in the study area provide high-quality foraging and breeding habitat and cover for wildlife including waterfowl, marsh birds, and songbirds. During the winter, freshwater marshes provide seeds and invertebrate foods consumed by waterfowl, including mallards, American widgeon, and wood ducks. Common wintering songbirds at these small marshlands include black phoebes, song sparrows, Lincoln's sparrows, and red-winged blackbirds.

In general, the marshes available at the Santa Lucia Preserve are not large enough or sufficiently protected (i.e., on islands) to meet the nesting requirements of tricolored blackbirds, as described by Beedy et al. (1991).

Distribution and Importance. Wetland habitats, including wet meadows and marshes, have been significantly reduced regionally and statewide by agricultural and urban development. Herbaceous wetlands are important because they provide habitat for dependent plant and wildlife species and serve as stormwater detention basins and sites for groundwater infiltration. DFG values

wetland habitats and supports their protection through a "no net loss" policy (California Fish and Game Commission 1987). Herbaceous wetlands on the project site qualify as jurisdictional wetlands under Section 404 of the Clean Water Act. See "Waters of the United States" below for a discussion of Corps regulation over wetlands and other waters of the United States.

Reservoirs

Reservoirs, also referred to as lakes, stock ponds, and borrow pits, are artificially created open water habitats. The shallow, inundated pond margins and adjacent seasonally flooded edges are characterized by wetland vegetation described above for wet meadows and marshes. Aquatic vegetation such as manna grass, pondweeds and water buttercup grow in moderately deep portions of the ponds. Growth of rooted, vascular plants is inhibited in the deepest parts of the ponds. Occasionally, scattered riparian plants such as willows also occur around reservoir margins.

Moore's Lake, stock ponds, and other artificial water impoundments attract significant numbers of wildlife, especially if they contain permanent water and wildlife cover such as emergent or riparian vegetation. Typical wildlife observed near open water habitats of the preserve include great blue herons, green herons, wood ducks, mallards, American widgeon, ring-necked ducks, ruddy ducks, buffleheads, and American coots. Stock ponds also provide drinking water for many wildlife species, including black-tailed deer, feral pigs, California quail, wild turkeys, gray fox, and raccoons. Pied-billed grebes and belted kingfishers also forage for fish in open water habitats.

BioSystems Analysis (1992*a*) surveyed 26 ponds, seeps, and drainages to determine the status and distribution of aquatic and semiaquatic amphibians and reptiles at the Santa Lucia Preserve. These surveys were primarily designed to detect the presence of special-status amphibians and reptiles including California red-legged frogs, California tiger salamanders, western pond turtles, and San Francisco garter snakes.

Bullfrogs and fish are known predators of native amphibians. BioSystems Analysis (1992*a*) reported adult bullfrogs and their tadpoles in 11 of the 26 ponds they surveyed. Pacific treefrogs were detected most frequently in these surveys, followed by California newts, California red-legged frogs, California tiger salamanders, western pond turtles, and an unidentified garter snake. In general, ponds supporting bullfrogs or bluegill fish were characterized by low amphibian and reptile diversity (BioSystems Analysis 1992*a*).

Distribution and Importance. Artificially created impoundments are common locally, regionally, and statewide. Aquatic habitats characterized by open waters are typically considered waters of the United States under Section 404 of the federal Clean Water Act (see "Waters of the United States" below).

Other Vegetated Types

Several community types were combined by BioSystems Analysis into the category "other vegetated types" because of the small areas they occupy or because of extensive cultural modifications. The communities include a planted stand of Monterey pine and Monterey cypress near an old home site, a small 3-acre stand of ponderosa pines, a polo field, farm, golf course, freshwater seep, wetland, and willow-seep. The wetland communities (freshwater seep, wetland, and willow-seep) were assessed separately for the purposes of this report under "Wet Meadows", "Marshes", and "Riparian" areas (above) and below in the discussion of "Waters of the United States".

Other Nonvegetated Types

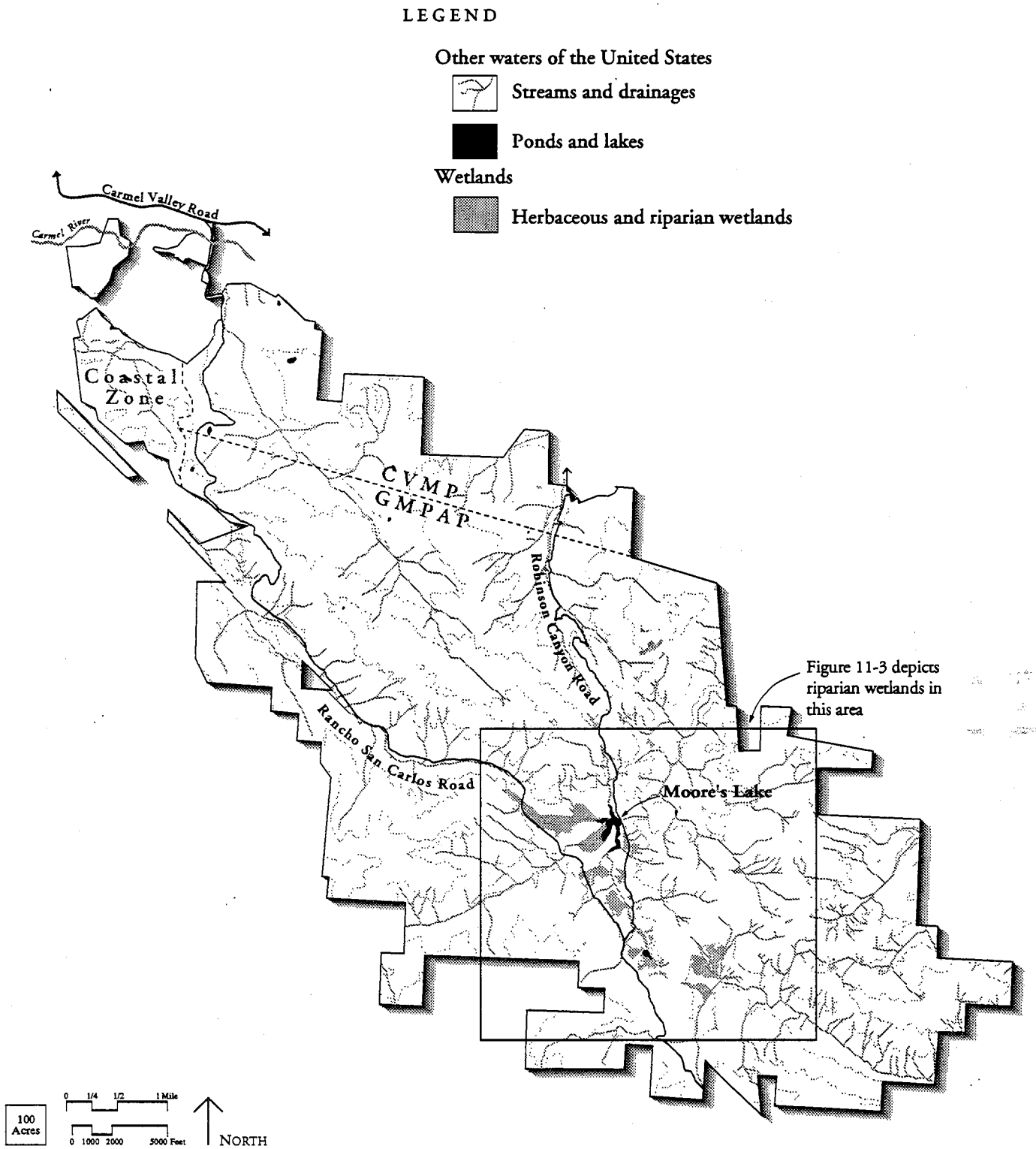
Other nonvegetated types include rock outcrop, gravel pit, the ranch area, cliffs, and developed and disturbed areas. These communities support little natural vegetation because of lack of soil or their disturbed nature. Steep cliffs near Peñon Peak and elsewhere at the Santa Lucia Preserve provide suitable nesting habitat for several special-status raptors, including golden eagles, prairie falcons, and peregrine falcons; however, no occupied nesting eyries were found during the 1991 surveys (BioSystems Analysis 1994a).

Waters of the United States

Areas that meet the definition of wetlands and other waters of the United States under Section 404 of the Clean Water Act (33 CFR 238.3 and 328.4, 40 CFR 230.3) were identified by WRA, and accepted by the San Francisco District of the Corps of Engineers as representing its jurisdiction, and are shown in Figures 11-2 and 11-3 (Josselyn pers. comm.). "Waters of the United States" is the encompassing term for areas under federal jurisdiction pursuant to Section 404 of the Clean Water Act. Waters of the United States are divided into "wetlands" and "other waters of the United States".

Wetlands are defined as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3[b], 40 CFR 230.3). To be considered under federal jurisdiction, a wetland must support positive indicators for hydrophytic vegetation, hydric soil, and wetland hydrology. Wet meadows, marshes, and riparian areas on the project site that meet these criteria are considered jurisdictional wetlands.

Other waters of the United States are seasonal or perennial water bodies, including lakes, stream channels, drainages, ponds, and other surface water features that exhibit an ordinary high water-mark but lack positive indicators for one or more of the three wetland parameters (33 CFR 328.4).



Source: Adapted from Rancho San Carlos Partnership 1994a.

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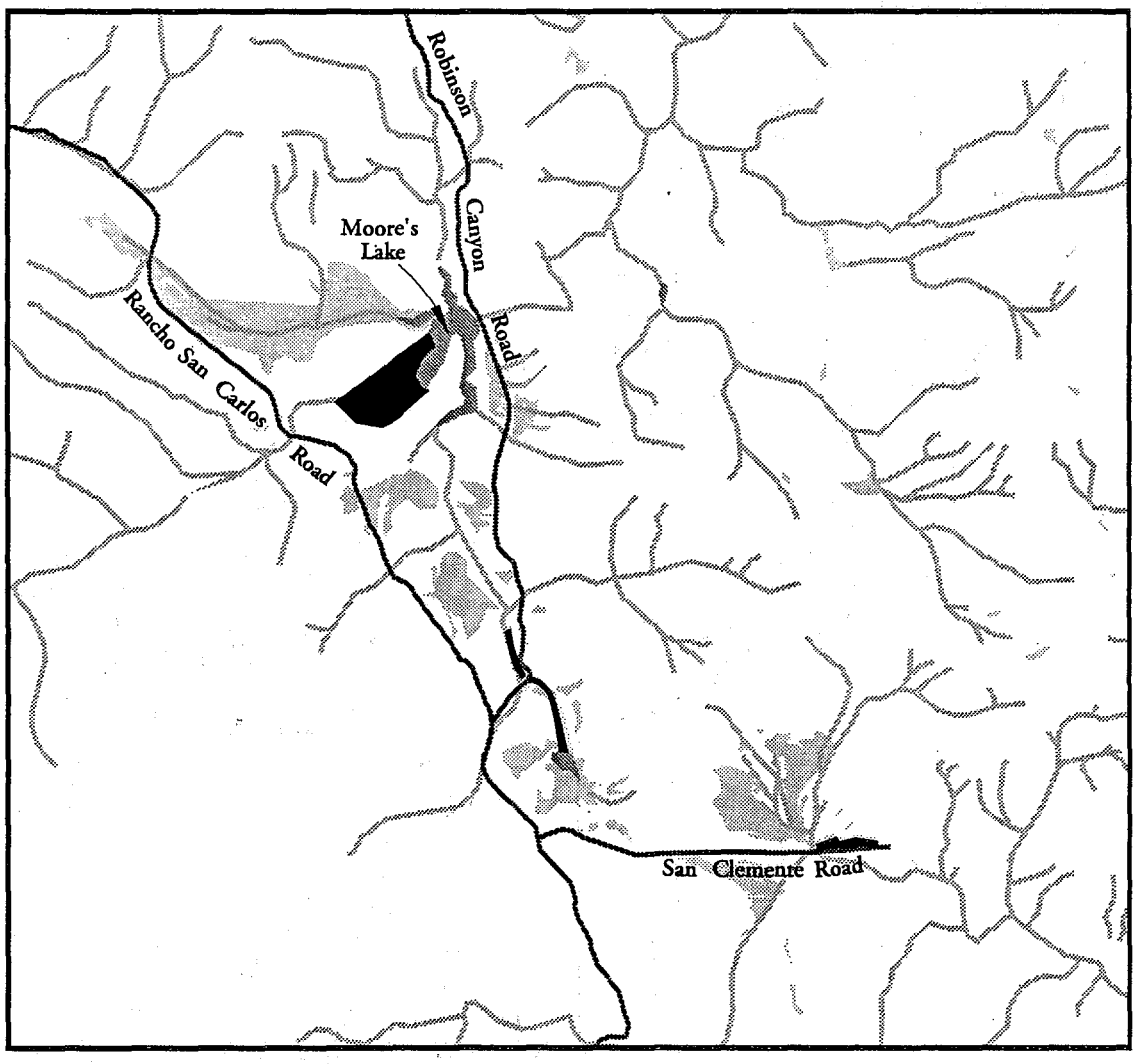
Figure 11-2
Jurisdictional Waters of the United States at Rancho San Carlos

LEGEND

Riparian wetlands



100 Acres

0 1/4 1/2 1 Mile

0 1000 2000 5000 Feet

NORTH

Source: Adapted from Rancho San Carlos Partnership 1994a.

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Figure 11-3
Location of Jurisdictional
Riparian Wetlands at Rancho San Carlos

Special-Status Species
Definitions of Special-Status Species

Special-status species include plants and animals listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (ESA) (50 CFR 1711-12), and state-listed threatened or endangered species that are protected under the state ESA (California Administrative Code, Title 14, Section 670.5).

In additional to listed and proposed species, special-status species include plants and animals in the following categories:

- plants and animals that are Category 1 or 2 candidates for possible future listing as threatened or endangered under the federal ESA (59 Federal Register [219]:58982-59028, November 15, 1994);
- animal species of special concern to DFG (Remsen 1978 [birds] and Williams 1986 [mammals]);
- animals fully protected in California (California Fish and Game Code, Section 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]);
- active and recently active raptor nests (California Fish and Game Code, Section 3503.5);
- plants considered rare and endangered by the California Native Plant Society (Lists 1B and 2) (Skinner and Pavlik 1994); and
- plants listed by CNPS as plants about which more information is needed to determine their status and plants of limited distribution (Lists 3 and 4 in Skinner and Pavlik 1994), which may be included as special-status species on the basis of local significance or recent biological information.

Special-Status Plants

Twenty-eight special-status plant species were identified as having potential to occur on the project site (BioSystems Analysis 1994) and are listed in Table 11-2, along with their distributions and habitat requirements. Of these, six species were identified as occurring on the project site: Douglas' spineflower, Lewis' clarkia, Pinnacles buckwheat, small-leaved lomatium, Gairdner's yampah, and Monterey pine (BioSystems Analysis 1994*b*). The known distributions of these plants on the project site are shown in Figure 11-4.

None of these species are state or federally listed as threatened or endangered. Monterey pine and Pinnacles buckwheat are considered rare, threatened, or endangered in California and elsewhere

Table 11-2. Special-Status Plants with Known Potential for Occurrence at the Santa Lucia Preserve, Monterey County[a]

Common and Scientific Name	Legal Status[b] Federal/State/CNPS	Habitat Requirements	Distribution	Known from Project Site	Potential Project Impact
Hickman's onion (*Allium hickmanii*)	C1/--1B	Grassy openings in closed-cone pine forests, maritime chaparral, and valley and foothill grasslands	Monterey Peninsula, Fort Ord, Monterey Airport, and San Luis Obispo County	No	No
Little Sur manzanita (*Arctostaphylos edmundsii* var. *edmundsii*)	C2/--/1B	Coastal bluff scrub and chaparral	Monterey County	No	No
Hooker's manzanita (*Arctostaphylos hookeri* ssp. *hookeri*)	--/--/1B	Inhabits sandy soils, sandy shales, and sandstone outcrops	Del Monte Forest, Monterey Peninsula, near Prunedale, Fort Ord, and the Larkin Valley	No	No
Toro manzanita (*Arctostaphylos montereyensis*)	C2/--/1B	Occurs in stabilized sandy soils and badlands in maritime chaparral	Restricted to several sites in Monterey County, including Fort Ord, Toro Regional Park, and Monterey Airport	No	No
Sandmat manzanita (*Arctostaphylos pumila*)	C2/--/1B	Sandhills of maritime chaparral and coast live oak woodland	Scattered locations around the Monterey Peninsula and an extensive area on Fort Ord	No	No
Monterey ceanothus (*Ceanothus cuneatus* ssp. *rigidus*)	C2/--/4	Sandy hills and flats of maritime chaparral, closed-cone coniferous forests, and coastal scrub	Monterey County along the coast and Toro Regional Park, Monterey Airport, Fort Ord, and near Prunedale	No	No
Douglas' spineflower (*Chorizanthe douglasii*)	--/--/4	Gravelly or sandy slopes	Southern Coast Ranges from San Benito and Monterey Counties to San Obispo County	Yes	No
Robust spineflower (*Chorizanthe robusta* var. *robusta*)	E/--/1B	Sandy soils in coastal dune and coastal scrub habitats	Historically from Alameda and San Mateo Counties south to Santa Cruz and near the coast from southern Santa Cruz County to northern Monterey County, much of which is now developed	No	No
Lewis' clarkia (*Clarkia lewisii*)	--/--/4	Coastal scrub, oak woodland, and chaparral communities	Monterey and San Benito Counties	Yes	No

Common and Scientific Name	Legal Status[b] Federal/State/CNPS	Habitat Requirements	Distribution	Known from Project Site	Potential Project Impact
Seaside bird's-beak (*Cordylanthus rigidus* ssp. *littoralis*)	C1/E/1B	Inhabits sandy soils of stabilized dunes, maritime chaparral, coastal scrub, and closed-cone coniferous forest	Monterey and Santa Barbara Counties, including Fort Ord, Monterey Airport, and between Carmel and Elkhorn Slough in Monterey County, and on Button Mesa in Santa Barbara County	No	No
Monterey cypress (*Cupressus macrocarpa*)	C2/--/1B	Closed-cone coniferous forest	Known from only two native occurrences in the Monterey area, widely planted and naturalized elsewhere	No	No
Hutchinson's larkspur (*Delphinium hutchinsoniae*)	C2/--/1B	Coastal scrub, coastal prairie, and mixed evergreen forest	Monterey County	No	No
Eastwood's ericameria (*Ericameria fasciculata*)	C2/--/1B	Coastal dune and scrub, maritime chaparral, and closed-cone coniferous forest communities	Found in Monterey County, including Del Monte Forest, Monterey Airport, Toro Regional Park, near Prunedale, and Fort Ord	No	No
Pinnacles buckwheat (*Eriogonum nortonii*)	C3c/--/1B	Sandy soils in chaparral and grassland communities, often found on recent burns	Monterey and San Benito Counties	Yes	No
Fragrant fritillary (*Fritillaria liliaceae*)	C2/--/1B	Coastal scrub and grassland; often on ultramafic soils	Sonoma County to Monterey County	No	No
Cone Peak bedstraw (*Galium californicum* ssp. *lucinese*)	C2/--/1B	Pine and oak woodlands	Known from fewer than 10 occurrences in the northern Santa Lucia Ranges of Monterey County	No	No
Wedge-leaved horkelia (*Horkelia cuneata* ssp. *sericea*)	C2/--/1B	Sandy and gravelly places in coastal scrub, maritime chaparral, and closed-cone coniferous forest communities	Along the coast from Sonoma County to Santa Barbara County	No	No
Small-leaved lomatium (*Lomatium parvifolium*)	--/--/4	Occurs in chaparral and open pine forests	Monterey, Santa Cruz, and San Luis Obispo Counties	Yes	No

Common and Scientific Name	Legal Status[b] Federal/State/CNPS	Habitat Requirements	Distribution	Known from Project Site	Potential Project Impact
Carmel Valley bush mallow (*Malacothamnus palmeri* var. *involucratus*)	C2/--/1B	Cismontane woodland	Monterey and San Luis Obispo Counties	No	No
Carmel Valley malacothix (*Malacothix saxatilis* var. *arachnoidea*)	C2/--/1B	Rocky open banks of chaparral and mixed evergreen forest	Monterey and Santa Barbara Counties	No	No
Mount Diablo cottonweed (*Micropus amphibola*)	--/--/4	Bare, grassy, or rocky slopes in broadleaf upland forests, woodlands, and grasslands	Widely distributed from Lake County to Alameda County, as well as in Santa Cruz, Monterey, and Santa Barbara Counties	No	No
Curly-leaved monardella (*Monardella undulata* var. *undulata*)	--/--/4	Chaparral and coastal dunes and scrub near the coast	Santa Cruz and Monterey Counties	No	No
Dudley's lousewort (*Pedicularis dudleyi*)	C2/R/1B	Maritime chaparral, forest, and grassland communities	Known from fewer than 15 occurrences in Monterey, San Luis Obispo, and San Mateo Counties; extirpated from Santa Cruz County	No	No
Gairdner's yampah (*Perideridia gairdneri* ssp. *gairdneri*)	C2/--/4	Chaparral and broadleafed upland forest, typically on wet, heavy soils	San Diego County north to Sonoma County	Yes	Yes
Monterey pine (*Pinus radiata*)	C2/--/1B	Closed-cone coniferous forest	Native stands restricted to three areas in coastal California and two islands off the coast of Baja California	Yes	No
Muir's raillardella (*Raillardiopsis muirii*)	C3c/--/1B	Dry, open sites in granitic soils	Southern Sierra Nevada in Fresno, Kern, and Tulare Counties, and in Ventana Double Cone in the Santa Lucia Ranges of Monterey County	No	No
Hoffman's sanicle (*Sanicula hoffmanii*)	--/--/4	Shrubby coastal hills and pine woodlands, often on serpentinite or clay	Central and south coast regions and on Santa Rosa Island	No	No

Common and Scientific Name	Legal Status [b] Federal/State/CNPS	Habitat Requirements	Distribution	Known from Project Site	Potential Project Impact
Santa Cruz microseris (*Stebbinsoeris decipiens*)	C2/--/1B	Open, sandy, shaley, or serpentine sites	Monterey, Marin, and Santa Cruz Counties	No	No

[a] Source: BioSystems Analysis 1994.

[b] Status explanations (see the "Definitions of Special-Status Species" section above for citations):

Federal

E = listed as endangered under the federal Endangered Species Act.

C1 = Category 1 candidate for federal listing. Category 1 includes species for which USFWS has on file enough substantial information on biological vulnerability and threat to support proposals to list them.

C2 = Category 2 candidate for federal listing. Category 2 includes species for which USFWS has some biological information indicating that listing may be appropriate but for which further biological research and field study are usually needed to clarify the most appropriate status. Category 2 species are not necessarily less rare, threatened, or endangered than Category 1 species or listed species; the distinction relates to the amount of data available and is therefore administrative, not biological.

C3c = no longer a candidate for federal listing. Category C3c species have been dropped from the candidate list because they are too widespread or not threatened at this time.

-- = not applicable.

State

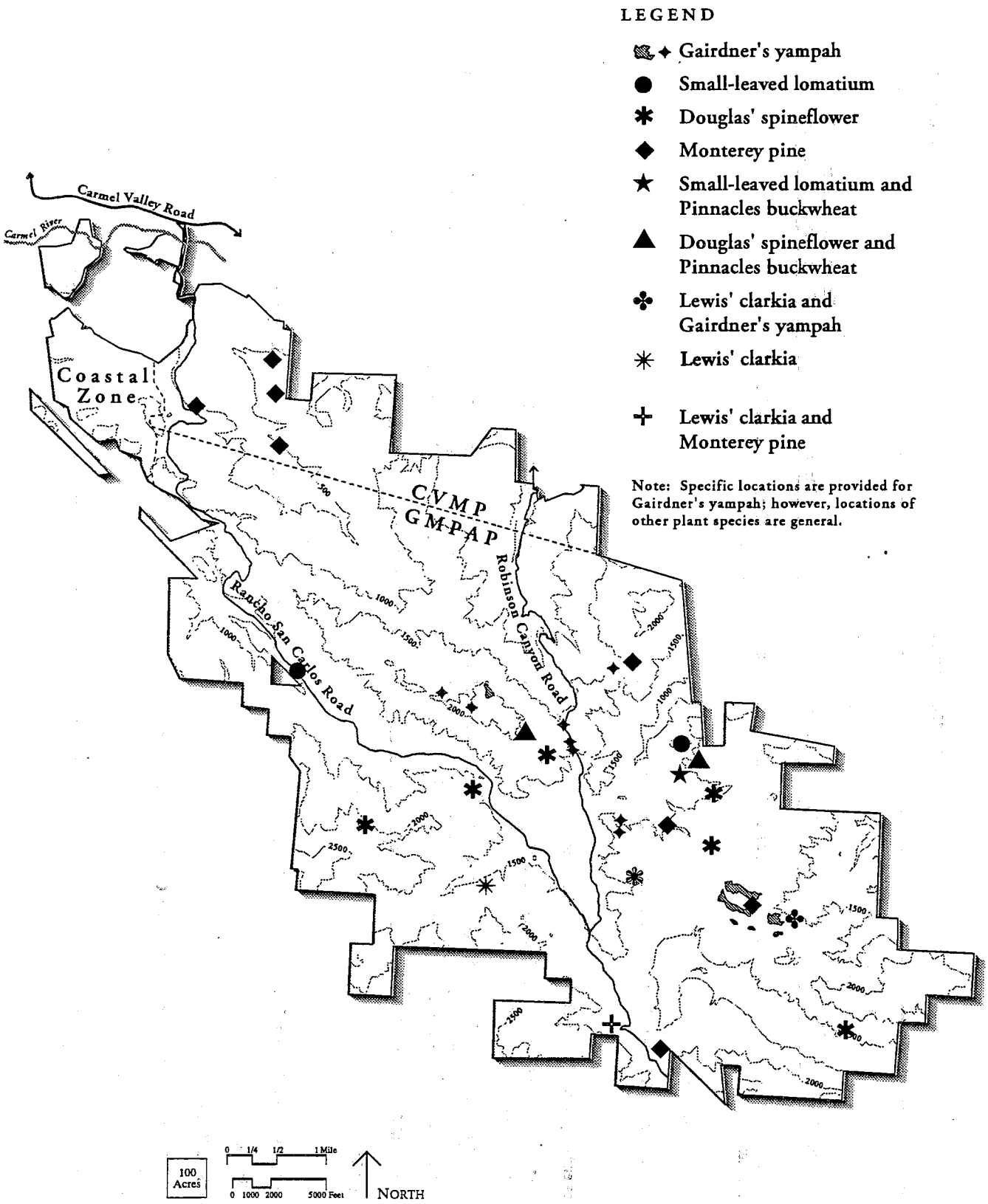
R = listed as rare under the California Endangered Species Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.

-- = not applicable.

California Native Plant Society

1B = List 1B species: rare, threatened, or endangered in California and elsewhere.

4 = List 4 species: plants of limited distribution.



Source: Adapted from Rancho San Carlos Partnership 1994a.

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Figure 11-4
Known Distributions of Special-Status Plant Species

by CNPS (List 1B). Gairdner's yampah and Monterey pine are candidates for federal listing as threatened or endangered. Additionally, Gairdner's yampah, Douglas' spineflower, Lewis' clarkia, and small-leaved lomatium are considered plants of limited distribution by CNPS (List 4).

Detailed accounts of the special-status species known to occur on the project site can be found in BioSystems Analysis (1994*b*).

Special-Status Wildlife

Special-status wildlife species known or with potential to occur at Santa Lucia Preserve and vicinity are summarized in Table 11-3. Site-specific information provided in this table was primarily derived from BioSystems Analysis' (1994*b*) detailed descriptions of the status of each species in the study area.

State-Listed and Federally Listed Species

State-listed and federally listed threatened and endangered wildlife species potentially occurring at Rancho San Carlos include the Smith's blue butterfly, bald eagle, peregrine falcon, marbled murrelet, and willow flycatcher. Based on focused field surveys for these species, only the Smith's blue butterfly is known to occur regularly at the Santa Lucia Preserve (BioSystems Analysis 1994*b*, Table 10-3).

A single subadult bald eagle observed at Moore's Lake in 1991 is the only record for the preserve (BioSystems Analysis 1994*b*). Similarly, only one peregrine falcon was observed during the 1991 field surveys. Willow flycatchers are no longer known to breed in Monterey County, but they are regular fall migrants there (Roberson 1985); nonbreeding individuals could visit the Santa Lucia Preserve in migration, but they were not reported by BioSystems Analysis (1994*b*). Finally, focused surveys for marbled murrelets did not reveal any individuals in the study area (BioSystems Analysis 1994*b*).

Other Special-Status Species

During 1991 field surveys, BioSystems Analysis (1994*b*) assessed breeding habitat at the Santa Lucia Preserve for other special-status species. Based on field observations, the following species have a high potential to breed at the project site: California tiger salamanders, California red-legged frogs, southwestern pond turtles, white-tailed kites, Cooper's hawks, golden eagles, long-eared owls, California spotted owls, California horned larks, purple martins, yellow warblers, yellow-breasted chats, pallid bats, and American badgers (Table 11-3). Potentially suitable breeding habitats also exist at the preserve for sharp-shinned hawks, prairie falcons, burrowing owls, tricolored blackbirds, and Townsend's western big-eared bats, but only nonbreeding individuals, or evidence of them, have been observed there (BioSystems Analysis 1994*b*).

Table 11-3. Special-Status and Special-Interest Wildlife with Known and Potential Occurrence at the Santa Lucia Preserve, Monterey County

Common and Scientific Names	Legal Status [a] Federal/State	Habitat Requirements	California Distribution	Occurrence in Study Area	Suitable Breeding Habitat Present	Potential Project Impact
SPECIAL-STATUS SPECIES						
Insects						
+ Smith's blue butterfly (*Euphilotes enoptes smithi*)	E/–	Uses coastal dunes and hillsides that support seacliff buckwheat (*Eriogonum parvifolium*) or coast buckwheat (*Eriogonum latifolium*); these plants are used as a nectar source for adults and host plant for larvae	Restricted to localized populations along the coast and coastal canyons of Monterey County; single populations reported in Santa Cruz and San Mateo Counties	Populations of preferred buckwheat found at 41 locations, including the Animus, Chamisal Ridge, Peñon Peak, and the Touche; Smith's blue butterflies were observed at 16 of these locations during 1991 surveys, mostly in the Animus and on Peñon Peak	Yes	No
Amphibians						
+ California tiger salamander (*Ambystoma tigrinum californiense*)	C1/CSC	Small ponds, lakes, or vernal pools in grasslands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults	Central Valley, including Sierra Nevada foothills, up to about 1,000 feet, and coastal region from Butte County south to Santa Barbara County	Larvae were found in a stock pond near the summit of Peñon Peak during May and June 1991 surveys	Yes	No
+ California red-legged frog (*Rana aurora draytoni*)	PE/CSC	Associated with coldwater pools with emergent and submergent vegetation and riparian species along the edges; may also occur in stock ponds; adults may estivate during dry periods in rodent holes or cracks in the soil	Found along the coast and coastal mountain ranges of California, from Del Norte County south to San Diego County, and formerly occurred in the Sierra Nevada	Observed at the stock pond near the summit of Peñon Peak and at Moore's Lake during 1991 surveys; numerous along a 7-mile section of Las Garzas Creek beginning about 4 miles downstream from Moore's Lake; possible occurrence at San Jose Creek	Yes	No
Foothill yellow-legged frog (*Rana boylei*)	C2/CSC	Creeks or rivers in woodlands or forests; usually found near riffles with rocks and sunny banks nearby	Coast Range south to Los Angeles County and Sierra Nevada foothills to about 6,000 feet elevation	Not observed during 1991 surveys	No	No

Common and Scientific Names	Legal Status [a] Federal/State	Habitat Requirements	California Distribution	Occurrence in Study Area	Suitable Breeding Habitat Present	Potential Project Impact
Reptiles						
California horned lizard (*Phrynosoma coronatum frontale*)	C2/CSC	Grasslands, brushlands, woodlands, and open coniferous forest with sandy or loose soil; requires abundant ant colonies for foraging	Sacramento Valley, including foothills, south to southern California; Coast Range south of Sonoma County; below 4,000 feet in northern California	Not observed during 1991 surveys	Yes	Minor habitat loss
Silvery legless lizard (*Anniella pulchra pulchra*)	C2/CSC	Requires moist, warm habitats with loose soil for burrowing and prostrate plant cover; often forages in leaf litter at plant bases; may be found on beaches, sandy washes, and in woodland, chaparral, and riparian areas	Along the coast and transverse and peninsular ranges from Contra Costa County to San Diego County with spotty occurrences in the San Joaquin Valley	Not observed during 1991 surveys	Yes	Minor habitat loss
+ Southwestern pond turtle (*Clemmys marmorata pallida*)	C2/CSC	Occupies ponds, marshes, rivers, streams, and irrigation canals, typically with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation for cover	Occurs along the central coast of California east to the Sierra Nevada, and along the southern California coast inland to the Mojave and Colorado Deserts; the range overlaps with that of the northwestern pond turtle throughout the Delta and in the Central Valley from Sacramento County to Tulare County	Observed at three ponds on several occasions during 1991-1993	Yes	No
Birds						
Double-crested cormorant (*Phalacrocorax auritus*)	--/CSC	Open water for foraging and roosting, valley oaks and cottonwood forests for nesting	Marine and inland sites; frequents lakes, sloughs, and larger rivers in the interior, nests on protected islands or tall trees at lake margins	Nonbreeding individual observed during 1991 surveys	No	No

Common and Scientific Names	Legal Status[a] Federal/State	Habitat Requirements	California Distribution	Occurrence in Study Area	Suitable Breeding Habitat Present	Potential Project Impact
+ White-tailed kite (*Elanus caeruleus*)	–/FP	Riparian habitat and other broad-leaved trees for nesting and roosting; wetlands and grasslands for foraging	Widespread in grasslands and agricultural areas of the Central Valley and foothill valleys of the Sierra Nevada and Coast Range; uncommon in coastal southern California	Potential breeding pairs were observed near building envelopes PN-01 and SF-33 in 1992 and 1993, respectively; not observed at interior locations in 1991 surveys	Yes	No
+ Bald eagle (*Haliaeetus leucocephalus*)	E/E	Coniferous forests with suitable snags within 1 mile of the edge of lakes, reservoirs, or rivers for nesting and roosting	Most nesting occurs in Shasta, Lassen, and Plumas Counties; few pairs nest in Trinity, Modoc, Butte, Lake, and El Dorado Counties; winters in the Klamath Basin, and smaller numbers occur in the Sacramento and San Joaquin Valleys and along foothill creeks	A subadult individual was observed at Moore's Lake on 2 successive days during winter 1991 surveys; no other observations of this species have been reported in the study area	No	No
+ Northern harrier (*Circus cyaneus*)	–/CSC	Marshes, meadows, and seasonal and agricultural wetlands providing tall cover	Grasslands and wetlands throughout lowland California; has been recorded at high elevations in fall	Not observed during 1991 breeding bird surveys and little potential breeding habitat is present; nonbreeding or wintering individuals could visit the study area	No	No
+ Sharp-shinned hawk (*Accipiter striatus*)	–/CSC	Densely canopied trees in proximity to open or brushy areas for foraging	Uncommon winter visitor in California; occurs in midelevation coniferous forests and some lowland riparian habitats; very rare nester in the state	Nonbreeding individuals observed but no nests detected; unlikely to breed in the study area	Yes	No
+ Cooper's hawk (*Accipiter cooperii*)	–/CSC	Densely canopied trees including oak woodlands, montane conifer forest, and riparian forests for nesting; requires open or brushy habitats nearby for foraging	Throughout California in both the breeding and nonbreeding seasons	Observed during the breeding season, but no nests found; extensive potential breeding habitat is present	Yes	Minor habitat loss

Common and Scientific Names	Legal Status [a] Federal/State	Habitat Requirements	California Distribution	Occurrence in Study Area	Suitable Breeding Habitat Present	Potential Project Impact
+ Golden eagle (*Aquila chrysaetos*)	PR/CSC, FP	Cliffs and escarpments or tall trees for nesting; annual grasslands, chaparral, and oak woodlands with plentiful medium-sized and large mammals for prey	Foothills and mountains throughout California; uncommon nonbreeding visitor to lowlands such as the Central Valley	Frequently observed at higher elevations during 1991 surveys; two pairs were consistently noted, including the Peñon Peak and Hall's Ridge pairs and they had either uncertain or failed nesting status in 1991	Yes	Minor habitat loss
Merlin (*Falco columbarius*)	--/CSC	Forages along coastlines, open grasslands, savannas, and woodlands; often near lakes and other wetlands	Rare but widespread winter visitor to the Central Valley and coastal areas; does not nest in California	Three observations of this species were made in April 1991; uncommon migrant and winter visitor to Monterey County	No	No
+ Peregrine falcon (*Falco peregrinus*)	E/E	Protected ledges of high cliffs, usually adjacent to marshes, lakes, or rivers that support plentiful bird populations	Nests in central and north Coast Ranges and Sierra Nevada; winters in Sacramento and San Joaquin Valleys	One foraging bird observed at the Touche grasslands on June 6, 1991; numerous ponds and other watered areas provide potential foraging habitat for this species	Yes	No
+ Prairie falcon (*Falco mexicanus*)	--/CSC	Cliffs or escarpments for nesting; adjacent dry, open terrain or uplands, marshes, and seasonal agricultural wetlands for foraging	Protected cliff ledges throughout California from low elevations up to the crest of the Sierra Nevada	During winter and early spring 1991, an individual was observed at Peñon Peak and vicinity, but potential nest sites in this area were not occupied; none of the known eyries in Monterey County is within 20 miles of the study area	Yes	No
Marbled murrelet (*Brachyramphus marmoratus*)	T/E	Requires mature, coastal coniferous forests for nesting and nearby coastal water for nesting; forages in nearshore coastal waters	Coastal California from Del Norte County south to Santa Barbara County	Not observed during focused surveys in June and July 1991	No	No
+ Burrowing owl (*Athene cunicularia*)	C2/CSC	Ground burrows in sparse grassland or desert habitats for nesting and foraging	Lowlands throughout California including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas; rare along south coast	During 1990 and 1991 surveys, observed in upper Peñon pasture and in Mesa pasture; these individuals were not present during the breeding season despite the availability of suitable ground squirrel burrows	Yes	Minor habitat loss

Common and Scientific Names	Legal Status [a] Federal/State	Habitat Requirements	California Distribution	Occurrence in Study Area	Suitable Breeding Habitat Present	Potential Project Impact
+ California spotted owl (*Strix occidentalis occidentalis*)	C2/CSC	Dense woodlands and conifer forests; wooded canyons and shaded ravines are preferred for daytime roosting	Western Sierra Nevada and transverse ranges of southern California; rare in Coast Ranges south of San Francisco Bay	During the 1991 surveys, three probable breeding pairs were detected in the study area, including the upper ends of Van Winkley's and Williams Canyons and along lower San Clemente Creek; unmated males were found along upper San Jose Creek and along Potrero Creek; a historical nesting location in Robinson Canyon was not occupied in 1991	Yes	Minor habitat loss
+ Long-eared owl (*Asio otus*)	--/CSC	Riparian habitats for roosting; wetlands, grasslands, and agricultural habitats for foraging	Rare and secretive winter visitor to lowland riparian habitats; rare breeder in northeastern California, Sierra Nevada foothills, and in Coast Range from Sonoma County south to San Luis Obispo County	During April and May 1991 surveys, individuals were detected at three locations; two on the north side of Chamisal Ridge and one along upper San Clemente Creek; extensive areas of potential nesting habitat are present in riparian and redwood forests in the study area	Yes	Minor habitat loss
Willow flycatcher (*Empidonax traillii*)	--/E	Riparian areas, especially those dominated by willows	Fairly common fall migrant in lowland riparian habitats; extirpated as a nesting species from most lowland habitats in California	Not observed during 1991 surveys	No	No
+ California horned lark (*Eremophila alpestris actia*)	--/CSC	Level or rolling, short-grass prairies and other sparsely vegetated areas, including mountain meadows, fallow grain fields, and alkali flats	Lowland habitats throughout California	Nonbreeding individuals observed in pasture below Peñon Peak; not known to breed in the study area	Yes	Minor habitat loss
Bank swallow (*Riparia riparia*)	--/T	Vertical banks and cliffs with fine-textured soils near streams, rivers, lakes, or the ocean required for breeding	Colonial nesters; large numbers nest along Sacramento and Feather Rivers; also along lower American River	Not observed during 1991 surveys	No	No

Common and Scientific Names	Legal Status [a] Federal/State	Habitat Requirements	California Distribution	Occurrence in Study Area	Suitable Breeding Habitat Present	Potential Project Impact
+ Purple martin (*Progne subis*)	–/CSC	Abandoned woodpecker holes in valley oak and cottonwood forests for nesting; also nests in vertical holes in highway bridges; open areas required for feeding	Nests along the Sacramento River; uncommon elsewhere in the Central Valley; uncommon summer visitor to coastal areas from Del Norte County south to Santa Barbara County; rare in southern California	May breed in the study area because an adult was observed feeding young near building envelope M-05 in 1993; individuals were also noted near the Mesa and the ranch house during 1991 breeding bird surveys	Yes	Minor habitat loss
Loggerhead shrike (*Lanius ludovicianus*)	–/CSC	Open habitats with sparse shrubs and trees or other suitable perches	Lowland habitats throughout California	Not observed during 1991 surveys	No	No
+ Yellow warbler (*Dendroica petechia*)	–/CSC	Edges of streams and ponds bordered by willows, alders, and elderberry preferred	Montane riparian woodlands in the Sierra Nevada, northeastern California, interior valleys, and south-central coast; nests along Salinas and Nacimiento Rivers; extirpated as a nesting species in the Central Valley	A probable breeding pair was detected in dense riparian habitat at the lower end of Potrero Canyon on May 5, 1991; a single individual was noted at Moore's Lake on May 1, 1991	Yes	Minor habitat loss
+ Yellow-breasted chat (*Icteria virens*)	–/CSC	Dense riparian forests of willows and brush near water; often associated with blackberry or grape vines for nesting	Uncommon to rare breeder throughout southern and central California	A probable breeding pair was detected in dense riparian habitat at the lower end of Potrero Canyon on May 5, 1991; a single individual was noted at Moore's Lake on May 1, 1991	Yes	Minor habitat loss
+ Tricolored blackbird (*Agelaius tricolor*)	C2/CSC	Nests in dense colonies in emergent marsh vegetation such as tules and cattails or upland sites with nettles, thistles, brambles, and grain fields; probably requires water at or near the nesting colony; forages in marshes, pastures, agricultural wetlands, dairies, and feedlots where abundant insect supplies are available	Largely endemic to California; primarily breeds in Central Valley from Shasta County intermittently south to Kern County; nests in Modoc, Shasta, and Lassen Counties at scattered coastal locations from Marin County south to San Diego County	Colonies of 240 individuals at Moore's Lake and 75 birds near Cienega Pond were observed on May 3, 1991 but nesting was not confirmed; foraging flocks of 350 individuals have been noted in the vicinity of these colony sites	No	No

Common and Scientific Names	Legal Status[a] Federal/State	Habitat Requirements	California Distribution	Occurrence in Study Area	Suitable Breeding Habitat Present	Potential Project Impact
Mammals						
+ Pallid bat (*Antrozous pallidus*)	--/CSC	Rocky outcrops, cliffs, and crevices for roosting; access to open habitats required for foraging	Low elevations throughout California	Six individuals radio-tagged in 1991 foraged exclusively in forested areas in oak woodlands north and south of the ranch house or in riparian areas of Las Garzas and Salsipuedes Creeks; also near Moore's Lake	Yes	Minor habitat loss
Townsend's big-eared bat (*Plecotus townsendii townsendii*)	C2/CSC	Mesic habitat; gleans insects from brush or trees and feeds along habitat edges; roosts in caves, mine tunnels, or dark attics of abandoned buildings	Throughout California except the highest elevations of the Sierra Nevada	Not positively identified during 1991 surveys, but possible roosts found in a shed near the upper mesa pond and in redwood trees in Robinson Canyon	Yes	Minor habitat loss
California mastiff bat (*Bassariscus astutus*)	C2/CSC	Open areas for foraging with abundant roost location provided by crevices in rock outcrops and buildings	Resident of eastern San Joaquin Valley and Sierra Nevada foothills; Coast Range from Bay Area south to San Diego County	Not observed during 1991 surveys; unlikely to occur in the study area	No	No
Monterey dusky-footed woodrat (*Neotama fuscipes luciana*)	C2/--	Uses habitats with moderate to dense cover and abundant dead wood for nest construction; maritime chaparral and coastal live oak woodland at Fort Ord	Restricted to Monterey County and northern San Luis Obispo County	Not observed during 1991 surveys	Yes	Minor habitat loss
SPECIAL-INTEREST SPECIES						
+ Great blue heron (*Ardea herodias*) great egret (*Casmerodias albus*), and black-crowned night-heron (*Nycticorax nycticorax*) rookeries	--/--	Valley oak woodlands and cottonwood forests for nesting (rookery) sites; night-herons often next in dense marshes	Widespread in Central Valley and coastal portions of California	Nonbreeding individuals observed during 1991 surveys; no suitable breeding habitat available in the study area	No	No

+ = observed at the Santa Lucia Preserve during 1990-1994 (BioSystems Analysis 1994).

[a] Status explanations:

Federal

E = listed as endangered under the federal Endangered Species Act.

T = listed as threatened under the federal Endangered Species Act.

PR = protected.

C1 = Category 1 candidate for federal listing. Category 1 includes species for which USFWS has on file enough substantial information on biological vulnerability and threat to support proposals to list them.

C2 = Category 2 candidate for federal listing. Category 2 includes species for which USFWS has some biological information indicating that listing may be appropriate but for which further biological research and field study are usually needed to clarify the most appropriate status. Category 2 species are not necessarily less rare, threatened, or endangered than Category 1 species or listed species; the distinction relates to the amount of data available and is therefore administrative, not biological.

-- = no data available.

State

E = listed as endangered under the California Endangered Species Act.

FP = fully protected under the California Fish and Game Code.

CSC = California species of concern.

-- = no data available.

Foothill yellow-legged frogs, silvery legless lizards, California horned lizards, willow fly-catchers, bank swallows, loggerhead shrikes, California mastiff bats, and Monterey dusky-footed woodrats were not reported during the 1991 field surveys (Table 11-3). However, subsequent analyses suggest that Monterey dusky-footed woodrats are present throughout the Santa Lucia Preserve (Froke pers. comm.). Similarly, suitable breeding habitats were not identified at the Santa Lucia Preserve for double-crested cormorants, great blue herons, great egrets, black-crowned night-herons, bald eagles, northern harriers, merlins, and loggerhead shrikes and only nonbreeding individuals were observed during the 1991 and subsequent surveys (BioSystems Analysis 1994*b*, Table 11-3).

IMPACTS AND MITIGATION MEASURES

The approach and methodology and significance criteria used to assess impacts of the proposed project are described below. A discussion of impacts resulting from the proposed project follows. Appropriate mitigation is recommended for impacts determined to be significant.

Approach and Methodology

The approach and methodology used for determining direct and indirect impacts of the proposed project are described below.

Direct Impacts

Overview. BioSystems Analysis (1992, 1994a, and 1994b) assessed vegetation and wildlife resources that could be affected by the development plan proposed by the Rancho San Carlos Partnership. Focused field surveys were conducted at the proposed building envelopes, roads, and driveway alignments identified on the Vesting Tentative Map (VTM) and for the footprint of the golf trail; these surveys are described in detail by BioSystems Analysis (1994a) and Rancho San Carlos Partnership (1994b).

Jones & Stokes Associates' evaluations of potential impacts of the proposed project on existing plant and wildlife habitats were based on the findings of BioSystems Analysis (1994*a, b*) and GIS analysis conducted by Robert Lamb Hart. The approach considered the number of acres of specific habitat types that would be lost or disturbed compared to the overall coverage of each type at the Santa Lucia Preserve. It was assumed that all natural communities occurring in the Settled Lands (see Chapter 2, "Project Description") could be lost or degraded due to construction of home sites and other project facility human activities, increased lighting, and other impacts that could adversely affect the quality of natural communities. *Private landowners, however, will be limited in*

the development activities that may occur on settled lands by a conservation easement and therefore this worst-case scenario approach will probably not be realized. Direct losses of special-status wildlife species habitat and of special-status plant populations were also based on BioSystems Analysis findings and compared with the total potential habitat available at the preserve for each species.

The project was also evaluated to determine whether it would result in a substantial loss, degradation, or fragmentation of important native communities and associated sensitive wildlife habitat, such as wetlands, riparian corridors, coastal terrace prairie, oak woodlands and savannas, redwood forests, and Monterey pine forest.

Golf Trail. In November 1994, BioSystems Analysis prepared a Special-Status Wildlife and Botanical Resources report for the golf trail application. BioSystems Analysis documented the presence of five upland and eight riparian vegetation communities within the golf trail. No state or federally listed threatened or endangered plant or wildlife species was found within the proposed golf trail. Special-status habitats of riparian and oak communities were present on the site.

In November 1994, Ralph Osterling Consultants prepared a Tree Management Plan. Seven tree species were identified on the site. Eighty-one percent of the trees are mature to overmature valley oak. A total of 280 trees were evaluated along the proposed golf trail routing. Of the 280 trees, 136 are proposed for removal. Of those, 21 are recommended for removal based on safety considerations. Seventy-eight of the trees proposed for removal are landmark oak trees as defined in Chapter 16.60.030 of the Monterey County Code.

Mitigation measures were provided in the BioSystems Analysis report and the Resource Management Plan for the special-status wildlife species observed in the proposed golf trail including the California tiger salamander, California red-legged frog, foothill yellow-legged frog, southwestern turtle, Cooper's hawk, golden eagle, northern harrier, white-tailed kite, burrowing owl, California horned lark, purple martin, tricolored blackbird, yellow warbler, yellow-breasted chat, pallid bat, and American badger.

Planting is proposed based on native oak clusters, riparian features and grasslands, and consistent with the Resource Management Plan, only native plant materials will be used. In accordance with the minimum mitigation standards established by the Resource Management Plan, (i.e., 3:1 or 5:1 depending upon the nature of the tree) 136 existing trees will be removed and replaced. (Additional details can be found in the Tree Management Plan included in the golf use permit application.)

In November 1994, Wetlands Research Associates prepared a Wetland and Riparian Habitat Management Plan. Environmental protection measures have been incorporated to mitigate impacts and also improve habitat value within the golf trail area. The golf trail design was selected to minimize impacts on wetland and riparian resources. In cases where unavoidable impacts occur due to stream and wetland crossings, a habitat replacement program is proposed to be implemented to increase wetland and riparian habitats.

A summary of the biological resources that would be affected by the golf trail is provided in Tables 11-4 and 11-5. It is important to note, however, that these impacts are included within the overall impact analysis and are not to be added to the quantities of acreages that would be lost or degraded as described in the discussion under "Biological Communities".

Indirect Impacts

Several potential indirect impacts of the proposed project plan on vegetation and wildlife resources were also considered, including:

- loss or degradation of special-status wildlife species habitat (e.g., raptor nest sites) and direct loss of special-status plant populations and important native communities in remote areas of the preserve that could become more accessible to humans because of construction of proposed recreational trails or that could be affected by grazing activities;

- disturbance or mortality of native wildlife populations by free-roaming dogs and feral cats associated with developed areas; and,

- increased mortality of wildlife on roads because of increased vehicular traffic.

As conditions of their proposed development plan (Froke pers. comm., Sage Associates 1994a), the Rancho San Carlos Partnership proposes to:

- conduct focused surveys for special-status species and habitats and important native communities in potentially suitable habitat before constructing any new trails or roads, and would route all new public access to avoid sensitive biological resources;

- conduct annual focused surveys for special-status plants in areas subject to grazing activities and modify grazing regimes as needed to sustain healthy, viable populations;

- enforce strict leash laws that would confine dogs to ~~fenced~~ areas immediately adjacent to developed sites, or the direct leash control of their owners; and

- enforce a maximum speed limit of 35 miles per hour throughout the preserve (speed limits would be lower on smaller access roads and driveways).

The potential indirect effects are not addressed further in this EIR because they would be less than significant through the implementation of the above-listed elements of the project.

Table 11-4. Summary of Impacts on Biological Communities from the Golf Trail and Total Project

Community	Total Acreage Affected by the Proposed Project (GMPAP) (#'s are rounded)	Percent of Total Community Affected at Rancho San Carlos	Acreage of Community Affected by the Golf Trail
Oak woodlands and savannas	575	5	53
Chaparral	25	2	0
Scrub	29	1	0
Annual grassland	235	9	45
Coastal terrace prairie	27	5	0
Redwood forest	5.1	0.5	0
Mixed evergreen forest	3	0.5	0
Riparian habitats	6	1	5
Herbaceous wetlands	5	3	3.8
Other vegetated types	0.1	0.2	0
Other nonvegetated types	20	8	0

Table 11-5. Summary of Impacts on Important Wildlife Species Habitat from the Golf Trail and Total Project

Species	Total Acreage of Habitat Affected by the Proposed Project (GMPAP)	Percent of Total Habitat Affected at Rancho San Carlos	Acreage of Habitat Affected by Golf Trail
Cooper's hawk	168	5	2
Golden eagle	594	11	94
American badger	594	11	94
Burrowing owl	262	8	46
California horned lark	262	8	46
Spotted owl	6	<1	0
Townsend's western big-eared bat	6	<1	0
Long-eared owl	12	<1	0
Purple martin	590	5	53
Pallid bat	590	5	53
Yellow warbler	4	1	3
Yellow-breasted chat	4	1	3
Dusky-footed woodrat	324	3	2

Significance Criteria

The criteria used to evaluate the effects on biological resources were based on federal, state, and local laws, regulations, and policies (e.g., federal ESA, Clean Water Act, CEQA, California ESA, California Fish and Game Code, California Coastal Act, and Monterey County Code). This analysis assumes that the proposed project will have a substantial effect on biological resources if it results in:

- any direct losses of individuals or habitats occupied by state or federally listed threatened or endangered species;
- more than minor (10%) reductions in the total potential habitat available at the preserve for state species of special concern, federal candidate species, and CNPS List 4 and 1B species;
- substantial loss (greater than 10%) of a common natural community and associated wildlife habitat;
- a substantial introduction of new invasive species of plants or animals into an area or an introduction of a barrier to the normal replenishment of existing species;
- a substantial adverse effect (5% or greater loss or degradation of a community type on the project site) on important native communities (oak woodlands and savannas, riparian habitats, wetlands, coastal terrace prairie, redwood forest, and Monterey pine forest); or
- a conflict with federal, state, or county policies, such as those regarding wetlands, oak woodlands, and landmark trees.

Applicant's Proposed Mitigation Measures

A summary of the mitigation measures proposed by the applicant for biological resources is given below. The designations following each mitigation summary are those assigned to specific measures included in applicant's mitigation monitoring plan (Denise Duffy & Associates 1994). More detailed accounts of the mitigation measures referred to below can be found in the Santa Lucia Preserve Mitigation Monitoring Plan (Denise Duffy & Associates 1994), the Rancho San Carlos special-status biological resources report (BioSystems Analysis 1994b), the Rancho San Carlos Forest Management Plan (Ralph Osterling Consultants 1994*a*), the Rancho San Carlos Cattle Grazing Plan (Sage Associates 1994a), and The Santa Lucia Preserve Golf Trail Preliminary Drainage Report (Bestor Engineers 1994b). The applicant proposes to do the following (designations following each statement refer to specific measures of the mitigation monitoring plan; RMP = resource management

plan, GP = grazing plan, FMP = forest management plan, APP = application, ERO = preliminary drainage and erosion control plan, BIO = biological recovery report):

- Protect special-status plants by providing measures to prevent disturbance to Gairdner's yampah plants during construction and by conducting annual monitoring in grazed and ungrazed areas to identify and protect special-status plants. (RMP 1; GP 8, 9)

- Protect wetlands and reservoirs from runoff, erosion, drainage, pollutants, overgrazing, and hydrological alteration. Impacts on wetlands and riparian areas that cannot be avoided will be mitigated by enhancing or replacing habitat in-kind at a 3:1 replacement ratio. (RMP 2, 3, 5, 7, 8; APP 9, 11, 12, 13, 14; GP 2, 5)

- Protect forested areas by providing for long-term protection measures. (RMP L6)

- Protect riparian areas through erosion control, setbacks, and fencing. (RMP 11, 67, 68; APP 7, 10; ERO 12; GP 1, 4, 5, 7, 19)

- Minimize the loss and disturbance of trees and associated woodlands. Recommended measures are to be implemented during the siting, design, development, and postconstruction phases of the project. (RMP 12 through 37; APP 21; FMP 6 through 14)

- Control invasive exotics by revegetating disturbed areas with native plants and actively eradicating species such as scotch broom and pampas grass. In addition, guidelines for homeowners will be established to prevent the use of invasive exotics as ornamentals. (RMP 69; FMP 15; ERO 14; BIO 2, 3, 4; GP 13)

- Minimize the loss of redwood trees and limit high-impact use in redwood forests. Redwood trees that are removed because avoidance is not feasible will be replaced at a 5:1 replacement ratio (APP 15, 16, and Compensation 2)

- Implement native grassland and oak woodland restoration programs. (RMP 3; APP 22; FMP 5)

- Minimize the loss of native vegetation and disturbance to sensitive habitats (RMP 8; APP 17, 18, 19; GP 3, 7)

- Replace non-landmark trees by planting at a 3:1 replacement ratio and replace landmark trees by planting at a 5:1 replacement ratio. Seeds will be gathered onsite and a 5-year survival guarantee will be provided for each tree. (FMP 1)

- Protect areas grazed by cattle from overutilization. (GP 6, 10, and 12).

- Reforestation shall occur concurrently with grading and construction activities (FMP 3).
- The reforestation program shall carry a 5-year survival guarantee for each tree (FMP 4).

Biological Communities

Impact: Potential Loss or Degradation of 574.7 Acres (5.8%) of Oak Woodlands and Savannas

Approximately 575 acres (6%) of oak woodlands and savannas and associated wildlife habitat would be lost or degraded as a result of implementing the GMPAP area of the proposed project. An additional unquantified minor amount of oak woodlands could also be lost through development in the CVMP and coastal zone. This impact is considered significant because a substantial reduction in the extent of an important native community would occur. Implementing the following mitigation measure, advocated by the project applicant, would reduce this impact to a less-than-significant level.

Applicant's Proposed Mitigation Measure *27*: Enhance Oak Woodland and Savanna Habitat by Planting Oak Species Removed Onsite. The project applicant has stated that non-landmark tree species removed as a result of the project will be planted at a 3:1 replacement ratio, and landmark trees will be planted at a 5:1 replacement ratio (see "Other Important Biological Resources" below for further discussion on impact on landmark trees). Seeds will be collected onsite, and plantings will be focused on degraded areas onsite characterized by conditions suitable for supporting oak species. *Additionally, nursery and/or field propagation of oak seedlings and/or saplings will be initiated at stated ratio prior to the onset of the particular development phase.* ~~Additionally, replanting of oak trees at the stated ratios will be completed prior to the onset of the particular phase of development that results in the loss of oak trees.~~ The details of this mitigation can be found in the mitigation monitoring plan (Denise Duffy & Associates 1994) and the forest management plan (Ralph Osterling Consultants 1994*a*).

Impact: Potential Loss or Degradation of 24.7 Acres (1.6%) of Chaparral

Implementing the GMPAP area proposed project would result in the loss or degradation of about 25 acres, or 2%, of the chaparrals and associated wildlife habitat on the project site. An additional unquantified minor amount of chaparral could also be lost through development in the CVMP and coastal zone. Because chaparrals are considered common biological communities and a substantial reduction in this community would not occur on the project site, this impact is considered less than significant.

Mitigation Measure: No mitigation measures are required.

Impact: Potential Loss or Degradation of 28.5 Acres (1.3%) of Scrub

Implementing the proposed project would result in the loss or degradation of approximately 29 acres, or 1%, of the scrubs on the project site. An additional unquantified minor amount of chaparral could also be lost through development in the CVMP and coastal zone. This impact is considered less than significant because no substantial reductions in common or important native communities and associated wildlife habitat would occur.

Mitigation Measure: No mitigation measures are required.

Impact: Potential Loss or Degradation of 235.4 Acres (9.0%) of Annual Grassland

Implementing the proposed project would result in the loss or degradation of about 235 acres (9%) of the annual grassland community and associated wildlife habitat. An additional unquantified minor amount of chaparral could also be lost through development in the CVMP and coastal zone. This impact is considered less than significant because annual grassland is common locally, regionally, and statewide and less than 10% of this habitat would be removed on the project site.

Mitigation Measure: No mitigation measures are required.

Impact: Potential Loss or Degradation of 26.6 Acres (5%) of Coastal Terrace Prairie

Implementing the proposed project would result in the loss or degradation of about 27 acres (5%) of coastal terrace prairie and associated wildlife habitat. An additional unquantified minor amount of coastal terrace prairie could be lost through development in the CVMP and coastal zone. Because a substantial loss of an important native community would occur, this impact is considered significant. Implementing the mitigation measure recommended below, which is advocated by the project applicant, would reduce this impact to a less-than-significant level.

Applicant's Proposed Mitigation Measure *28*: Modify Grazing Regime to Increase the Density of Native Grasses in Annual Grassland. A grazing plan prepared by Sage Associates (1994a) shows favorable potential to improve native grass stands in historically overgrazed annual grasslands (see discussion under "Other Important Biological Resources" below). Complete details of this mitigation are provided in Sage Associates (1994a). Implementing the grazing plan would reduce the estimated 5% loss of coastal terrace prairie to a less-than-significant level.

Impact: Potential Loss or Degradation of 5.1 Acres (0.5%) of Redwood Forest

Implementing the project would result in the loss or degradation of 5.1 acres, or 0.5%, of redwood forest community, including 0.5 acre of redwood riparian habitat. It should be noted, however, that only two redwood trees would be removed. This impact is considered less than significant because only a minor amount of this community type would be affected.

Mitigation Measure *29*: No mitigation measures are required. The project applicant, however, proposes the following mitigation to compensate for losses incurred on redwood forest.

- **Enhance Redwood Forest by Planting Redwoods Onsite**. To compensate for losses that could result from the proposed project, plantings will be installed at a 5:1 replacement ratio for redwoods that are removed. Complete details on this mitigation can be found in the mitigation monitoring plan (Denise Duffy & Associates 1994).

Impact: Potential Loss or Degradation of 2.6 Acres (0.5%) of Mixed Evergreen Forest

Approximately 3 acres, or 0.5%, of mixed evergreen forest would be lost or degraded from implementing the project. This impact is considered less than significant because only a minor loss of this common natural community would occur.

Mitigation Measure: No mitigation measures are required.

Impact: Potential Loss or Degradation of *6.2* ~~11.3~~ Acres (*0.5%* ~~0.7%~~) of Riparian Habitats

Construction activities related to the proposed project would result in the loss or degradation of approximately *6* ~~11~~ acres, or about *0.5%* ~~1%~~, of riparian habitats. This includes approximately 0.75 acre of stream crossings that would qualify as other waters of the United States under Section 404 of the Clean Water Act. Because only a minor amount of a significant native community would be adversely affected relative to that preserved, this impact is considered less than significant from a CEQA perspective.

Mitigation Measure *30*: No mitigation measures are required. However, the project applicant will implement the following measure to compensate for any losses to riparian habitat (a recommended measure may also assist the applicant in obtaining a streambed alteration agreement from DFG).

- **Enhance or Restore Degraded Riparian Habitat**. Degraded riparian habitat will be restored or enhanced at a 3:1 mitigation ratio. Details of this mitigation measure can be found in the comprehensive development plan (Rancho San Carlos Partnership 1994a).

Impact: Loss or Disturbance of *5.4* ~~5.82~~ Acres (3%) of Herbaceous Wetlands

Implementation of the project would result in the *net* loss of approximately *4.6* ~~6~~ acres of herbaceous wetlands, which are also considered jurisdictional wetlands under Section 404 of the Clean Water Act. *Approximately 0.8 acres of herbaceous wetlands will also be temporarily disturbed during projects construction, but will be restored to their original condition upon completion of construction (Josselyn pers. comm.). The total of herbaceous wetlands potentially disturbed is 5.4 acres.* The applicant has minimized the amount of fill in wetlands to the extent possible under the proposed project, and limited fill to that amount necessary to provide for roadways and other incidental project actions (Josselyn pers. comm.). The amount of fill represents about 3% of all herbaceous wetlands on the project site. Because this loss constitutes a minor adverse effect on an important native community (i.e., less than 5% loss), this impact is considered less than significant and no mitigation is needed to fulfill State CEQA requirements.

Mitigation Measure *31*: No mitigation measures are required. The project applicant, however, will be required to obtain a permit from the Corps under Section 404 of the Clean Water Act to proceed with fill activities in jurisdictional wetlands. The project applicant has recommended mitigation measures to compensate for the loss of wetland habitat. Additional measures are suggested to ensure that this objective is successfully obtained.

- **Enhance or Replace Lost and Disturbed Wetland Habitat.** Lost or disturbed wetland habitat will be enhanced or replaced at a 3:1 mitigation ratio. The project applicant would prepare a detailed wetland mitigation and monitoring plan before implementing the project. *The plan should include an assessment of suitable mitigation sites and detailed methods for enhancement or creation of replacement habitat.* Performance standards would be detailed in the plan and remedial measures outlined to ensure restoration efforts will be successful. Performance standards should be based on measurements of percent cover, species diversity, and other indicators indicative of success. The objective of these efforts would be to enhance or replace habitat of similar type, functions, and quality to what is removed or disturbed. The mitigation and monitoring plan should be reviewed and approved by the County Planning Department, DFG, and the Corps.

The project applicant would retain a qualified professional to monitor mitigation success on an annual basis for 5 years or until the performance standards established in the plan (minimum 1:1 performance ratio) have been met. Success of the mitigation would be monitored by the qualified professional according to the criteria outlined in the mitigation and monitoring plan. Annual monitoring reports would be submitted to Monterey County, DFG, and the Corps to evaluate the success of mitigation efforts and to determine whether the amount and quality of habitat meet the success criteria. The monitoring period would begin again if significant remedial action is required at any time. The Corps will be the agency responsible for approval of a finalized wetlands mitigation plan (Josselyn pers. comm.).

Impact: Loss or Degradation of 0.1 Acre (0.2%) of Other Vegetated Types

Less than 1 acre (0.2%) of other vegetated types would be lost or degraded as a result of project implementation. Because this represents minor losses of common biological communities and associated wildlife habitats, this impact is considered less than significant.

Mitigation Measure: No mitigation measures are required.

Impact: Loss or Degradation of 19.7 Acres (8.2%) of Other Nonvegetated Types

Project implementation would result in the loss or degradation of 19.7 acres, or 8.2%, of other nonvegetated habitat types. Because less than 10% of these biological communities would be adversely affected, this impact is considered less than significant.

Mitigation Measure: No mitigation measures are required.

Special-Status Plants

The building envelopes were designated to avoid any losses to ~~Implementing the proposed project is not expected to result in the direct loss of~~ individuals or populations of ~~any~~ special-status plant species (BioSystems Analysis 1994), (Table 11-2). However, the following *two* potential indirect impact*s were* ~~was~~ identified. ~~for Gairdner's yampah populations located near proposed building envelopes and driveways.~~

Impact: Potential Loss or Disturbance to Special-Status Plants from Fuel Modification Activities

Fuel modification activities will be conducted to reduce fuel loads and improve public safety. Activities related to fuel modification include constructing firebreaks and fuel breaks, and removing brush and dead or dying trees located immediately adjacent to structures. These activities could inadvertently lead to the loss or disturbance of special-status plant species. This impact is considered significant, but can be reduced to a less-than-significant level by implementing the following mitigation measure.

Mitigation Measure 32: Avoid Special-Status Plant Species Occurrences When Conducting Fuel Modification Activities. *Individuals implementing fuel modification activities should be informed about the importance and location of special-status plant populations and instructed on how to identify them. Areas occupied by special-status plant species and a 100-foot buffer around such populations should be avoided when fuel modification activities are carried out, including the construction of firebreaks and fuel breaks.*

Impact: Potential Disturbance to Gairdner's Yampah Populations

Gairdner's yampah populations are found adjacent to three proposed building envelopes (Lots 144, 145, and 170) and four proposed driveways (216/217, 145, SC-167/168, and Water Tank 14-4), and adjacent to two roads (Chamisal Pass and Touche Pass) (BioSystems Analysis 1994*b*). Potential impacts include excessive dust, runoff, and disturbance during construction and the spread of invasive exotic plants in the post-development phase of the project. This impact is considered less than significant because only minor disturbances to Gairdner's yampah populations are expected to occur.

Applicant's Proposed Mitigation Measures *33 and 34*: No mitigation measures are required. However, the following measures recommended by the project applicant will further reduce the potential for this impact to occur.

- **Prevent Disturbance to Gairdner's Yampah Populations during Construction.** Yampah plants located adjacent to development sites will be protected from disturbance during construction by implementing measures described in the erosion control report (Bestor Engineers 1994a).

- **Control the Introduction and Spread of Invasive Exotic Plants**. The introduction of invasive exotic plants will be prohibited and detailed in a series of guidelines developed for homeowners that will discuss appropriate landscaping techniques. Additionally, invasive exotics such as scotch broom and pampas grass will be actively removed, and disturbed areas will be revegetated with native plants to limit the spread of weedy species (Denise Duffy & Associates 1994, Bestor Engineers 1994a, BioSystems Analysis 1994*b*, and Sage Associates 1994a).

Special-Status Wildlife

Threatened and Endangered Species

Implementing the proposed project is not expected to result in any loss of individuals or occupied habitat for any state or federally listed species, including Smith's blue butterfly, bald eagle, peregrine falcon, marbled murrelet, or willow flycatcher (BioSystems Analysis 1994*b*, Table 11-3).

Proposed development components (i.e., roads, driveway alignments, building envelopes, and other ranch facilities) were situated to avoid all potential impacts on Smith's blue butterflies and their required buckwheat host plants (BioSystems Analysis 1994*b*). In addition, implementing the sedimentation, erosion, and dust reduction practices will further protect buckwheat populations near construction sites. Thus, the proposed project will not cause any adverse impacts on Smith's blue butterflies.

Bald eagles and peregrine falcons are extremely rare, nonbreeding visitors to the Santa Lucia Preserve and the proposed project will have no effect on local or regional populations of these species. Occurrences of marbled murrelets and willow flycatchers have not been recorded at the preserve (BioSystems Analysis 1994*b*).

Other Special-Status Species

The proposed project would not cause any losses of individuals or known occupied breeding habitats for the following special-status species: California tiger salamander, California red-legged frog, foothill yellow-legged frog, southwestern pond turtle, double-crested cormorant, great blue heron, great egret, black-crowned night-heron, northern harrier, sharp-shinned hawk, merlin, prairie falcon, bank swallow, loggerhead shrike, and California mastiff bat (BioSystems Analysis 1994*b*, Table 11-3).

Most of these special-status species are rare or highly localized at the Santa Lucia Preserve and all occupied locations will be avoided by the project. BioSystems Analysis (1994*b*) conducted special-status species surveys at all of the building envelopes identified on the VTM. Where appropriate, wildlife biologists made recommendations to ensure that proposed road and driveway alignments, building envelopes, and other ranch facilities avoid sensitive wildlife habitats and other biological resources (Diehl, Froke, and Thelander pers. comms.).

As discussed for individual species below, BioSystems Analysis (1994*b*) and Jones & Stokes Associates' review of existing data suggested that the following species could experience minor (i.e., less than 10%) habitat losses from implementation of the proposed project, as defined by the VTM: California horned lizard, silvery legless lizard, Cooper's hawk, golden eagle, burrowing owl, California spotted owl, long-eared owl, California horned lark, purple martin, yellow warbler, yellow-breasted chat, pallid bat, Townsend's western big-eared bat, Monterey dusky-footed woodrat, and American badger.

BioSystems Analysis (1994*b*) did not conduct focused surveys for the California horned lizard, the silvery legless lizard, or the Monterey dusky-footed woodrat. All three species are known to exist in Monterey County (California Department of Fish and Game 1994, Froke pers. comm.) and could occur in suitable habitats at the Santa Lucia Preserve (Table 11-3). Although focused surveys were not conducted for these species, extensive surveys were conducted by BioSystems Analysis in suitable habitat. No occurrences of the California horned lizard or the silvery legless lizard were observed. Numerous midden locations of Monterey dusky-footed woodrats, however, were observed throughout woodland and chaparral habitats (Thelander pers. comm.).

Impact: Loss of 173 Acres (5%) of Potential Cooper's Hawk Breeding Habitat

Implementing the proposed project could affect 173 acres of potential Cooper's hawk nesting habitat, including 3 acres in the CVMP area and approximately 170 acres in the GMPAP area

(BioSystems Analysis 1994*b*). In this analysis, Cooper's hawk breeding habitat was defined as closed-canopy woodlands larger than 15 acres and within 1,000 feet of perennial water (BioSystems Analysis 1994*b*). This habitat loss is considered less than significant because it represents only 5% of the total Cooper's hawk breeding habitat available at the preserve.

Potential Cooper's hawk nesting habitats were defined as closed-canopy woodlands larger than 15 acres within 1,000 feet of perennial water (BioSystems Analysis 1994). Development will fragment some areas of potential Cooper's hawk habitat into blocks smaller than 15 acres, and about 40 additional acres will be affected. Thus, the total habitat area that could experience direct and indirect effects would equal approximately 210 acres. This total represents only about 6% of the estimated 3,694 acres of potential breeding habitat available to this species at the preserve and the combined impacts would not be considered significant.

Mitigation Measure: No mitigation measures are required.

Impact: Construction-Induced Disruption of Nesting Cooper's Hawks

No Cooper's hawk nests are known to be in or near project construction areas (BioSystems Analysis 1994*b*). General management practices should recognize that nesting pairs often move considerable distances from year to year and could take up residence in proposed development areas. Noise and disturbance associated with construction could cause abandonment of an active nest. This impact is considered significant. To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Additional Mitigation Measure *35*: Delay Construction Until the Young Have Fledged. Nesting surveys should be conducted within 60 days of the initiation of construction activities in potential Cooper's hawk habitat areas. If active nests are found, construction activities should be delayed until the young have fledged.

Impact: Loss of 601 Acres (9%) of Grasslands and Oak Savannas, Including Potential Golden Eagle and American Badger Foraging Habitat

Only one inactive golden eagle nest was identified during 1991 field surveys. This nest was near Steelhead Run and could be reoccupied in future years. If the nest was occupied, possible impacts include disturbance at the nest site and loss of 601 acres of potential foraging habitat. ~~Similarly, American badgers are rare at the Santa Lucia Preserve, but they could occupy the grassland habitats proposed for development~~ (BioSystems Analysis 1994*b*).

A loss of 601 acres of golden eagle ~~and American badger~~ foraging habitat due to development represents 11% of estimated 5,415 acres of suitable habitat for these species at the Santa Lucia Preserve. Approximately 594 acres of the developed habitat would be on GMPAP lands and the remaining 7 acres would be in the CVMP area (BioSystems Analysis 1994*b*). Not all of this habitat

would be permanently lost or disturbed, but temporary construction will affect its availability as golden eagle and American badger foraging habitat. Similarly, some of these habitat losses could be partially offset by increased small mammal prey productivity on protected lands in response to implementation of improved grazing, sediment control, and erosion control plans for the preserve (BioSystems Analysis 1994*b*). This impact is considered less than significant.

Mitigation Measure: No mitigation measures are required.

Impact: Construction-Induced Disruption of Nesting Golden Eagles

Construction-induced disruption of an active nesting pair of golden eagles would be considered a significant impact. To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Mitigation Measure *35*: Delay Construction until the Young Have Fledged. Nesting surveys should be conducted within 60 days of the initiation of construction activities near any potential golden eagle nesting sites. If active nests are found, construction activities should be delayed until the young have fledged.

Impact: Loss of 268.5 Acres (7%) of Short-Grass Grassland, Including Potential Burrowing Owl and California Horned Lark Breeding and Foraging Habitat

Although burrowing owls and California horned larks are not known to breed at the Santa Lucia Preserve, about 3,287 acres of suitable breeding and foraging habitat exist there for these species. The proposed development plans would affect about 268.5 acres of short-grass grassland that provide suitable burrowing owl and California horned lark habitat; this represents about 8% of the potential habitat available for these species at the preserve including 262.5 acres in the GMPAP area and 6 acres in the CVMP area (BioSystems Analysis 1994*b*). Because more than 90% of its potential habitat would be preserved by implementing the proposed project, loss of this grassland habitat is not considered a significant impact on burrowing owls or California horned larks.

Mitigation Measure: No mitigation measures are required.

Impact: Loss of 6 Acres (Less than 1%) of Redwood Forest, Including Potential California Spotted Owl and Townsend's Western Big-Eared Bat Breeding, Roosting, and Foraging Habitat

Approximately 1,115 acres of suitable habitat for California spotted owls and Townsend's western big-eared bats currently exist at the Santa Lucia Preserve. Implementing of the proposed project would eliminate about 6 acres, mostly in the GMPAP area. This represents less than 1% of

the potential habitat available for these species at the preserve, and impacts on them are considered less than significant.

Mitigation Measure: No mitigation measures are required.

Impact: Loss of 14 Acres (Less than 1%) of Potential Long-Eared Owl Breeding, Roosting, and Foraging Habitat

Approximately 14 acres of potential long-eared owl breeding, roosting, and foraging habitat would be lost due to implementation of the proposed project, including 12 acres in the GMPAP area and 2 acres in the CVMP area (BioSystems Analysis 1994*b*). This habitat loss represents less than 1% of the 2,283 acres of potential long-eared owl habitat that currently exist at the Santa Lucia Preserve and this impact is considered less than significant.

Mitigation Measure: No mitigation measures are required.

Impact: Loss of 592.4 Acres (4%) of Oak Woodland Habitat, Including Potential Purple Martin and Pallid Bat Breeding Habitat

The proposed project could directly affect 592.4 acres of oak woodland habitat that could contain purple martin and pallid bat colony trees. The disturbance area represents only about 5% of the 12,493 acres that could contain suitable colony trees, including 589.4 acres in the GMPAP area and 3 acres in the CVMP area. Because of the widespread occurrence of suitable colony trees in proposed preserve areas, this habitat loss is considered a less-than-significant impact.

Mitigation Measure: No mitigation measures are required.

Impact: Loss of 4 Acres (Less than 1%) of Riparian Woodland, Potential Yellow Warbler and Yellow-Breasted Chat Breeding Habitat

The proposed project would result in a total loss of 4 acres of potential yellow warbler and yellow-breasted chat breeding habitat, including 3.5 acres in the GMPAP area and 0.5 acre in the CVMP area. This habitat loss represents approximately 1% of the 279 acres of suitable nesting habitat for these species and is considered a less-than-significant impact.

Mitigation Measure: No mitigation measures are required.

Impact: Potential Loss of Silvery Legless Lizard Habitat

Based on a conservative assumption that silvery legless lizards actually occur in "normal" densities on the Santa Lucia Preserve, it is reasonable to expect that construction and/or restoration activities in areas of suitable habitats may directly affect individual lizards. Ground disturbance associated with home site and infrastructure development in oak forests, chaparral, and adjoining grasslands could result in direct impacts on the species; and in instances where structures and facilities would permanently supplant occupied habitats, lasting impacts on lizards could occur. The hypothetical presence of the species in proposed construction locations, all of which are recently or currently affected by agricultural operations and are intensively rooted by wild boars, and its documented occurrence near human dwellings (i.e, Hastings Natural History Reserve headquarters) suggests the species' resiliency to temporary or intermittent disturbance of its habitat and to continuous human activity.

This impact is considered less than significant because the protection of approximately 18,000 acres of wildland open space, including potential lizard habitat, will provide sufficient onsite protection for the species. Further, proposed modification of grazing practices and enhancement of habitat conditions through management (e.g., density reduction and local exclusion of boar) will result in reduced disturbances to lizard habitat throughout the preserve.

As a potential special-status wildlife species at the Santa Lucia Preserve, silvery legless lizards will be the focus of continuous, long-range surveys and, if confirmed, perennial monitoring and conservation management.

Mitigation Measure: No mitigation measures are required.

Impact: Loss of 326 Acres (3%) of Oak Woodland and Chaparral, Including Potential Monterey Dusky-Footed Woodrat Habitat

The proposed project could affect 326 acres of Monterey dusky-footed woodrat habitat. The disturbance area represents only about 3% of the 11,495 acres of suitable habitat in the GMPAP area. This habitat loss is considered less than significant.

Creation of the Santa Lucia Preserve and permanent dedication of 18,000 acres to wildlife conservation purposes, including preservation of 97% of potential woodrat habitat in the GMPAP area, will provide sufficient onsite protection for the species. Further, proposed modifications of ranchwide grazing practices coupled with riparian restoration and woodland reforestation will augment and enhance the availability and quality of habitat for woodrats.

Mitigation Measure: No mitigation measures are required.

Other Important Biological Resources

Impact: Potential Loss of Approximately 229 Landmark Trees

Approximately 229 landmark trees (Chapter 16.60.030E of the Monterey County Code) of the approximately 14,850 landmark trees on the Santa Lucia Preserve will be removed by road and driveway improvement and construction, as a result of building site development and construction of the golf trail (Ralph Osterling Consultants 1994a and 1994b). This represents about 1.5% of all landmark trees on the preserve. Landmark trees are defined as those having a diameter of 24 inches or greater measured 2 feet above ground level. Most of the trees to be removed are oak species. In addition, potential exists for loss of trees, including landmark trees, to occur from installing septic fields on Lots 2, 119, 155, 161, 162, 167, 168, 173, 177, 179, 181, 182, 228, 231, 236, and 244. This may involve the loss of landmark trees. The loss of landmark trees is considered a significant impact because they are important components of oak woodlands and savannas, which are considered important native communities, and because Monterey County values the preservation and protection of landmark trees (Monterey County Code Chapter 16.60). To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Applicant's Proposed Mitigation Measure *36*: Compensate for Loss of Landmark Trees by Planting In-Kind Onsite at a 5:1 Replacement Ratio. The Rancho San Carlos Partnership has recommended appropriate mitigation that would reduce the loss of landmark trees to a less-than-significant level. Mitigation is described in detail in the forest management plan (Ralph Osterling Consultants 1994a, b), the resource management plan (Rancho San Carlos Partnership 1994c), and the mitigation and monitoring plan (Denise Duffy & Associates 1994).

Landmark tree species removed will be planted onsite at a 5:1 in-kind replacement ratio. Seeds will be collected onsite to maintain the local genetic integrity of affected species and plantings will be focused on degraded habitat. A qualified resource ecologist will determine appropriate sites for the plantings. Successful tree replacement will be procured before the removal of any landmark trees.

Impact: Potential Adverse Effect on Riparian Vegetation Resulting from Changes in Groundwater Hydrology

Well pumping along creeks and associated riparian corridors may potentially result in lowered groundwater levels and ensuing modifications in the hydrologic regime of riparian habitats (see discussion of groundwater hydrology in Chapter 8). Groundwater levels are not expected to decline substantially in riparian areas, and increased groundwater recharge resulting from the Cattle Grazing Plan might prevent declines altogether. Nevertheless, water levels might decline enough along the fringes of some riparian areas to interfere with regeneration of riparian vegetation and decrease the total area of riparian vegetation by more than 5% over a period of decades. A decrease of this magnitude is considered a significant impact because riparian habitats are considered important native

communities. To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Additional Mitigation Measure *17*: Monitor Riparian Vegetation and Maintain Total Area of Riparian Vegetation. This mitigation measure is described in Chapter 8, "Groundwater Hydrology, Stream Base Flow, and Water Supply and Demand". It provides for long-term monitoring of riparian vegetation and revegetation, if necessary, to maintain a total riparian area equal to at least 95% of the existing area.

Impact: Improvement of Grassland and Oak Savanna Habitats

Changes proposed in the grazing regime (Sage Associates 1994a) will likely result in increased densities of native grasses, as evidenced by observations in recently erected exclosures (Froke pers. comm.), and possible increases in species diversity in grassland and oak savanna habitats. These two habitats have undergone most of the historical grazing pressures on the site. The proposed grazing plan would improve the condition of grassland and oak savanna habitats and is therefore considered a beneficial impact.

Mitigation Measure: No mitigation measures are required.

Impact: Reduction in Extent of Invasive Exotic Plant Species

The active introduction of invasive exotic plants will be prohibited and detailed in a series of guidelines developed for homeowners that will discuss appropriate landscaping techniques. Additionally, invasive exotics such as scotch broom and pampas grass will be actively removed, and disturbed areas will be revegetated with native plants to limit the spread of weedy species (Denise Duffy & Associates 1994, Bestor Engineers 1994a, BioSystems Analysis 1994*b*, Sage Associates 1994a). These measures constitute a beneficial impact of the project.

Mitigation Measure: No mitigation measures are required.

Chapter 12. Aesthetics

INTRODUCTION

The "Setting" section of this chapter describes visual resources associated with the project area and site, regional visual resources, and the methodology for assessing visual resources. The "Impacts and Mitigation Measures" section identifies the approach and methodology for evaluating impacts on visual resources, significance criteria, the impacts on visual resources that would result from implementing the proposed project and also describes recommended mitigation measures.

SETTING

Methodology

Webster's New World Dictionary (Neufeldt and Guralnik 1989) defines aesthetics as "the study or theory of beauty and the psychological responses to it". Evaluating the existing conditions of aesthetic resources in the landscape requires the application of a process that objectively identifies the visual features or resources of the landscape; assesses the character and quality of those resources relative to overall regional visual character; and identifies the importance to people, or sensitivity, of views of visual resources in the landscape.

With this preliminary establishment of the baseline (existing) condition, changes to the landscape by a proposed project can be systematically evaluated for the degree of impact. The degree of impact depends on both the magnitude of change in the visual resource (i.e., visual character and quality) and viewers' responses to and concern for those changes. This general process is similar for all established federal procedures for visual assessment (Smardon et al. 1986) and represents a suitable methodology for visual assessment of the project area.

This section identifies the existing conditions for visual character and quality, and viewer sensitivity or concern for the project area.

The visual resources assessment process involves identification of the following:

- relevant local policies and concerns for protection of visual resources;

- visual resources (i.e., visual character and quality) of the region and the immediate project site;

- important viewing locations (e.g., roads, trails, and overlooks), the general visibility of the project area and site, using descriptions and photographs; and

- viewer groups and their sensitivity.

Criteria for Visual Assessment

The visual character and quality of the project site were evaluated using well-established FHWA criteria for visual landscape relationships. These criteria are vividness, intactness, and unity. They are defined as follows:

- Vividness is the visual power or memorability of landscape components as they combine in striking or distinctive visual patterns.

- Intactness is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements; this factor can be present in well-kept urban and rural landscapes, as well as in natural settings.

- Unity is the visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the landscape. (Federal Highway Administration 1983.)

The appearance of the landscape is evaluated below using these three criteria and descriptions of the elements of form, line, color, and texture. These elements are the basic components used to describe visual character and quality for most visual assessments (U.S. Forest Service 1974, Federal Highway Administration 1983).

Viewer Sensitivity

Viewer sensitivity or concern is based on the visibility of resources in the landscape, the proximity of viewers to visual resources, the elevational position of viewers relative to visual resources, the frequency and duration of views, the number of viewers, and the type and expectations of individuals and viewer groups.

One criterion for identifying the importance of views is related in part to the position of the viewer relative to the resource. An area of the landscape that is visible from a particular location (e.g., an overlook) or series of points (e.g., a road or trail) is defined as a viewshed. To identify the importance of views of resources, a viewshed may be broken into distance zones of foreground,

middleground, and background. Generally, the closer a resource is to the viewer, the more dominant it is and the greater is its importance to the viewer. Although distance zones in viewsheds may vary between different geographic regions or types of terrain, a commonly used set of criteria identifies the foreground distance zone as being 0.25-0.5 mile from the viewer, the middleground zone as extending from the foreground zone to 3-5 miles from the viewer, and the background zone as extending from the middleground zone to infinity (U.S. Forest Service 1974). Also, resources that are higher in elevation than the viewer generally tend to take on greater visual importance than resources located at a lower elevation than the viewer.

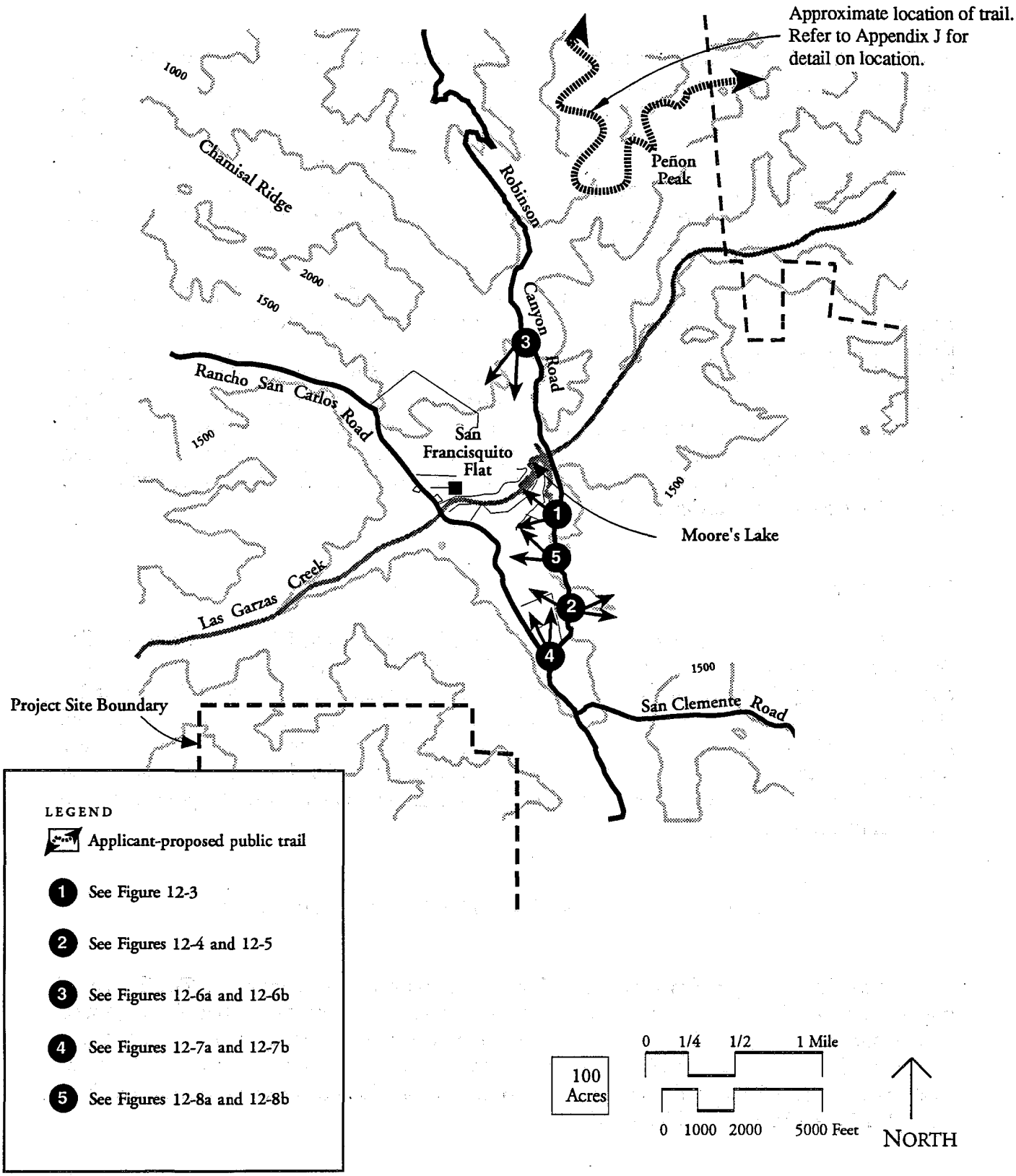
Visual sensitivity also depends on the number and type of viewers and the frequency and duration of views. Generally, visual sensitivity increases with an increase in total numbers of viewers, the frequency of viewing (e.g., daily or seasonally), and the duration of views (i.e., how long a scene is viewed). Visual sensitivity is higher for views seen by people who are driving for pleasure; people engaging in recreational activities such as hiking, biking, or camping; and homeowners. Views from recreation trails and areas, scenic highways, and scenic overlooks are generally assessed as having high visual sensitivity. Visual sensitivity tends to be lower for views seen by people driving to and from work or as part of their work (U.S. Forest Service 1974, Federal Highway Administration 1983, U.S. Soil Conservation Service 1978).

Data Collection

Data for this visual assessment were gathered from existing Monterey County policy documents, documents and maps prepared by the applicant for this project, a visual resource map and overlay depicting ridgelines and development, maps of the area, and a site visit on December 13, 1994. The site visit was conducted to document existing site conditions and assess potential visual impacts associated with development of the project. Important public views of the area were photographed during the site visit. The project's viewpoints and visual resources are shown on Figure 12-1 and the photograph locations and orientations of photographs of the project site are shown in Figure 12-2.

Relevant Policies and Goals for Visual Resource Protection

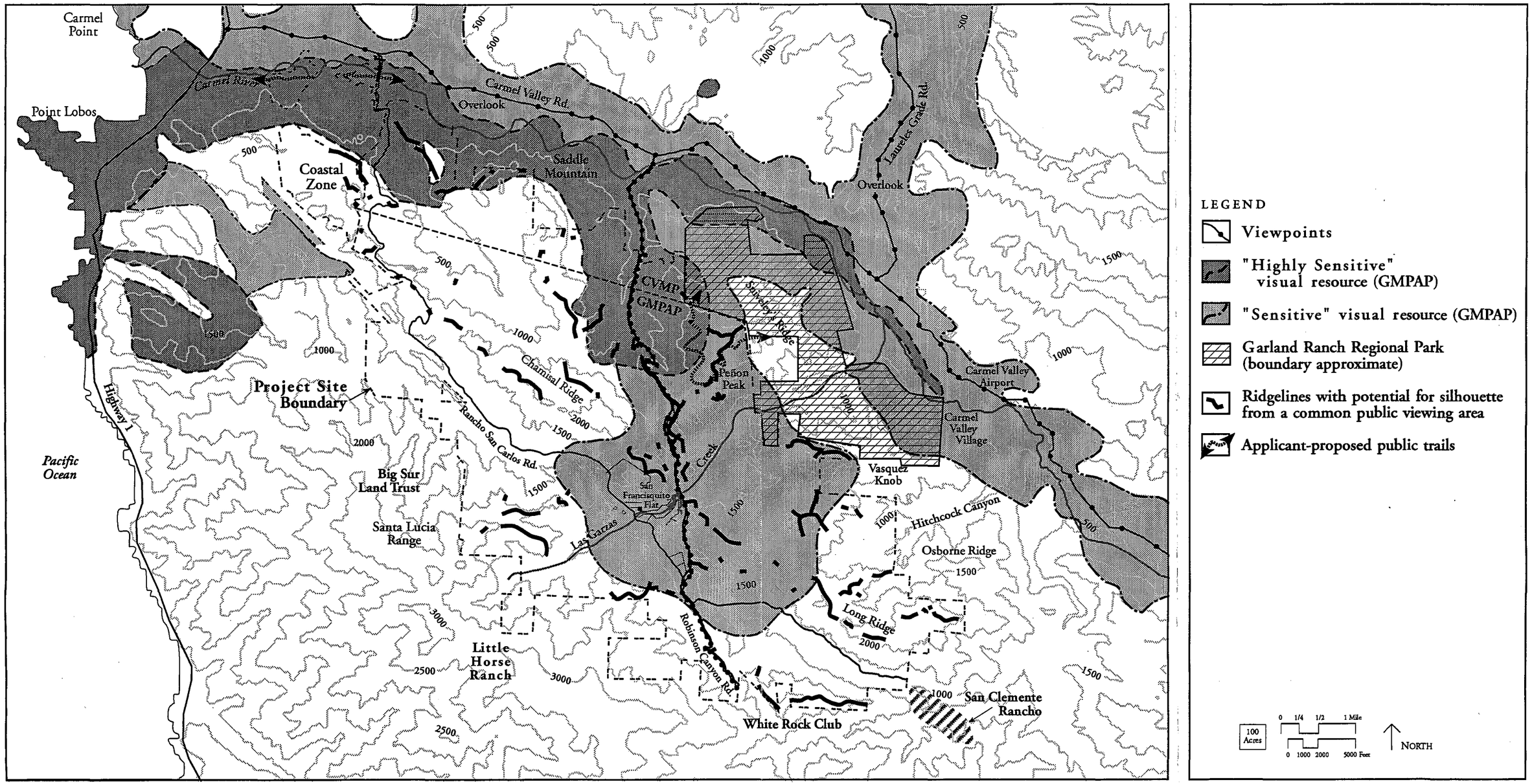
Visual resource policies in Monterey County address two areas of concern. The first set of policies addresses the issues of development on ridgelines visible from common public viewing areas. The second set of policies addresses the visual impact of development within "sensitive" or "highly sensitive" visual resource areas (as designated by the County of Monterey) that are visible from existing and proposed county scenic routes. Important policies for visual resource protection from local planning documents are identified below.



Source: Adapted from Rancho San Carlos Partnership 1994d.

Jones & Stokes Associates, Inc.

Figure 12-2
Viewpoints of Photographed Locations and Simulations



Source: Adapted from Rancho San Carlos Partnership 1994d.

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Figure 12-1
Visual Resources
in the Project Vicinity

Policies Pertaining to Ridgeline Development

An important goal for natural and cultural resource protection is to retain the scenic and rural character of Monterey County. Both the Monterey County General Plan (Monterey County 1992) and the Monterey County Zoning Ordinance, Title 21.66.010, Standards for Ridgeline Development, define ridgeline development as "development on the crest of a hill which has the potential to create a silhouette or other substantially adverse impact when viewed from a common public viewing area". A "common public viewing area" means a public area such as a street, road, designated vista point or public park from which the general public ordinarily views the surrounding viewshed (Monterey County Zoning Ordinance, 21.06.195). To preserve the character of the county, development on all portions of the ridgelines is to be avoided, unless a special permit is granted. To receive a permit, the applicant must show that the proposed development is consistent with the following policies:

- General Plan Policy 26.1.9: In order to preserve the county's scenic and rural character, ridgeline development will not be allowed unless a special permit is first obtained. Such a permit shall only be granted upon findings being made that the development, as conditioned by permit will not create a substantially adverse visual impact when viewed from a common public viewing area. New subdivisions shall avoid lot configurations which create building sites that will constitute ridgeline development. Siting of new development visible from private viewing areas may be taken into consideration during the subdivision process.

- Monterey County Zoning Ordinance, Title 21: This regulation requires the applicant to obtain a use permit for ridgeline development; approval of the permit requires a finding that the development will not create a substantially adverse visual impact when viewed from a common public viewing area. (Common public viewing area means a public area such as a public street, designated vista point, or public park from which the general public ordinarily views the surrounding viewshed.)

Policies Pertaining to Sensitive and Highly Sensitive Visual Resources

The project site contains areas that are identified by Monterey County as "sensitive and highly sensitive" visual resource areas that are visible from existing, potential, and proposed scenic routes. The county defines "sensitive" visual resources as those "having local or community significance". Sensitive visual resource areas of the site include much of the southeastern part of the site, including San Francisquito Flat and areas near the southern part of Robinson Canyon Road. Both areas are designated on the Santa Lucia Preserve viewer sensitive-resources map (Figure 12-1).

Monterey County defines "highly sensitive" visual resources as "general areas having regional or county significance". Highly sensitive visual resource areas within the project site include the northern portion of the site and near the northern part of Robinson Canyon Road. Relevant county policies for protecting the visual quality of sensitive and highly sensitive visual areas include:

- Greater Monterey Peninsula Area Plan (GMPAP) Policy 1.1.3 - Uses the Extract from GMPAP Figure 10, Visual Sensitivity and Scenic Routes map, to depict broad, general areas that are sensitive and highly sensitive (Rancho San Carlos Partnership 1994d). The sensitive areas consist of the areas east and west to Robinson Canyon Road from a point approximately 3 miles south of Carmel Road to a point approximately 6 miles south of Carmel Valley Road.

- General Plan Policy 40.2.1 - Requires additional sensitive treatment provisions to be applied within the scenic corridor, including locating utilities underground, where feasible; architectural and landscape control; outdoor advertising restrictions; encouragement of use of area native plants; and cooperative landscape programs with adjoining public and private open space.

- General Plan Policy 40.2.2 - Requires land use controls to protect the scenic corridor and to encourage sensitive selection of sites and open space preservation. Also suggests that landowners voluntarily dedicate a scenic easement to protect the scenic corridor.

- General Plan Policy 40.2.7 - Requires proposed development to avoid sites designated on the Extract from GMPAP Figure 10 as highly sensitive and to minimize the visible effects of the proposed elements to the greatest extent possible. The landowner is required to use landscape screening and other techniques to achieve the maximum protection of visual resources.

- General Plan Policy 40.2.9 - Requires any new development that would be located in areas mapped as sensitive or highly sensitive to maintain the character of the area in various ways. The development is required to use appropriate location, design, materials, and landscaping to be compatible with the area's visual character. The development must maintain no less than a 100-foot setback from the scenic right-of-way. All earth movement associated with the development must be mitigated to prevent permanent scarring. The amount of tree removal must be minimized. To maintain unity, the use of surrounding native vegetation for screening and restoration is required.

The county is required to review architectural projects to confirm compatibility of the development with the surrounding character of the land. Development in open grassland areas shown on the Extract from GMPAP Figure 10 as sensitive and highly sensitive must minimize its impact on the viewshed. If compelling circumstances are demonstrated, exceptions to the above requirements may be considered.

Regional Visual Resources

Describing the visual character of a region provides a context and frame of reference for assessing the visual quality of the project site. The landscape of the northern region of Monterey County is highly scenic in character. The area contains a diverse mix of natural and cultural elements that contribute to the area's rural character. The natural features of the region include varied and often rugged topography. The low mountains of the Coast Ranges contain steep slopes, narrow canyons, prominent ridges, and some broad valleys and rolling hills. The cultural features of the region include numerous scattered residences and residential developments, commercial centers, and agricultural operations. Residences located within areas of rugged terrain are often visible because they stand out on the steep slopes and ridges.

Elevation in the region ranges from about 3,000 feet for high ridges and peaks to roughly 30 feet on the floor of the Carmel Valley in the north area. The ridges and valleys generally trend northwest-southeast (Figure 12-1). The region has many small creeks with drainages that are generally ~~heavily~~ vegetated with *sycamores,* Douglas-fir, redwood, bay, oaks, and willows. Many of the slopes and ridges are heavily vegetated with forests and chaparral shrublands. There are also areas of open grasslands on slopes and in the valleys.

The area is an important destination for tourists and recreationists because of its high scenic quality. This region of northern Monterey County is linked by several scenic routes. State Highway 68 connects Monterey to Salinas and merges with Highway 218; both connect with Highway 1, near Monterey Bay. Highway 1, which runs mostly along the coastal terrace, is the primary highway in the region and is heavily used by recreationists traveling to and through the region.

Visual Resources of the Project Area and Site

The project site ~~, known as the Santa Lucia Preserve,~~ consists of approximately 20,000 acres located in northwestern Monterey County. The site is approximately 5 miles east of the Pacific Coast and approximately 2 miles south of Carmel Valley, extending approximately 10 miles south of the valley. Carmel Valley Road connects to Highway 1 in the north near Carmel Bay and intersects with Rancho San Carlos Road and Robinson Canyon Road. Access to San Francisquito Flat is provided by Rancho San Carlos Road, a 9-mile paved private road that extends south from Carmel Valley Road. The road becomes gated about 1 mile south of Carmel Valley Road. To the east, access is provided by Robinson Canyon Road, a public road used primarily by local residents, bicyclists, and some tourists. Robinson Canyon Road is not a through road and has light traffic; it extends from Carmel Valley Road, intersecting with Rancho San Carlos Road in the southern end of the Santa Lucia Preserve, and continues south, ending at the entrance to the White Rock Club.

The project site is bordered by the Carmel Valley on the north and northeast, by undeveloped land on the east and west, and by recreational private development to the south and southeast. The western and southern portions of the site are situated in the Santa Lucia Range. Within the site are valleys surrounded by forested slopes; areas of steep exposed rock with numerous caves; and areas of oak woodland, redwoods, and annual grassland. Prominent ridgelines, such as Sniveley's Ridge, are located near the site (Figure 12-1).

San Francisquito Flat is in the south-central portion of the project site and consists of areas of riparian vegetation and annual grassland with scattered oaks on nearby slopes. Some structures, including the hacienda, a barn and equestrian facilities, and employee houses, are scattered through the valley. Figure 12-3 shows a typical view of the hacienda and its surroundings in San Francisquito Flat.

Land uses bordering the site consist of ranching and grazing, public and private recreation and open space, and residential developments. Public and private recreation and open space uses surround the project site to the east and south, with urban lands located north of the site in the Carmel Valley (Figure 12-1). Portions of the site are visible mostly in middleground and background views from the San Clemente residential area section of the project site.

Surface water resources vary from perennial ponds, springs, and seeps to seasonal streams and ponds. Las Garzas Creek, which runs west into Moore's Lake, divides the site (Figure 12-1). The property encompasses most of the drainage basins of Hitchcock Canyon, Las Garzas Creek, Potrero Canyon, Robinson Canyon, and San Clemente Creek (all tributaries of the Carmel River) and San Jose Creek, which flows into Carmel Bay north of Point Lobos.

The primary private unpaved ranch roads within the project site are Chamisal Pass, Pronghorn Run, and Vasquez Trail. Vasquez Trail is a Garland Ranch Regional Park trail that is proposed to be extended into the project site. A public trail that runs along Sniveley's Ridge in Garland Ranch Regional Park east of the site has some views of portions of the site, including San Francisquito Flat. This trail is not heavily used. Most of the site is not visible to the general public; however, some high ridges on the site are visible from portions of Carmel Valley Road and Laureles Grade Road.

Views from Robinson Canyon Road

The most extensive views of the site are primarily from Robinson Canyon Road. The San Francisquito Flat area is bounded by Robinson Canyon Road on the east and Rancho San Carlos Road on the west. Views overlooking the site from the northern portion of Robinson Canyon Road are of slopes of forested rolling hills and ridgelines descending to grasslands, and corridors of riparian vegetation in the valley containing San Francisquito Flat. For this portion of the road, virtually all views of facilities lie in the middleground and foreground zones. People traveling south toward Moore's Lake have intermittent views of the hacienda. Views from this part of the road are of the hacienda, the equestrian center, including a metal barn, and forested hills rising in the background.

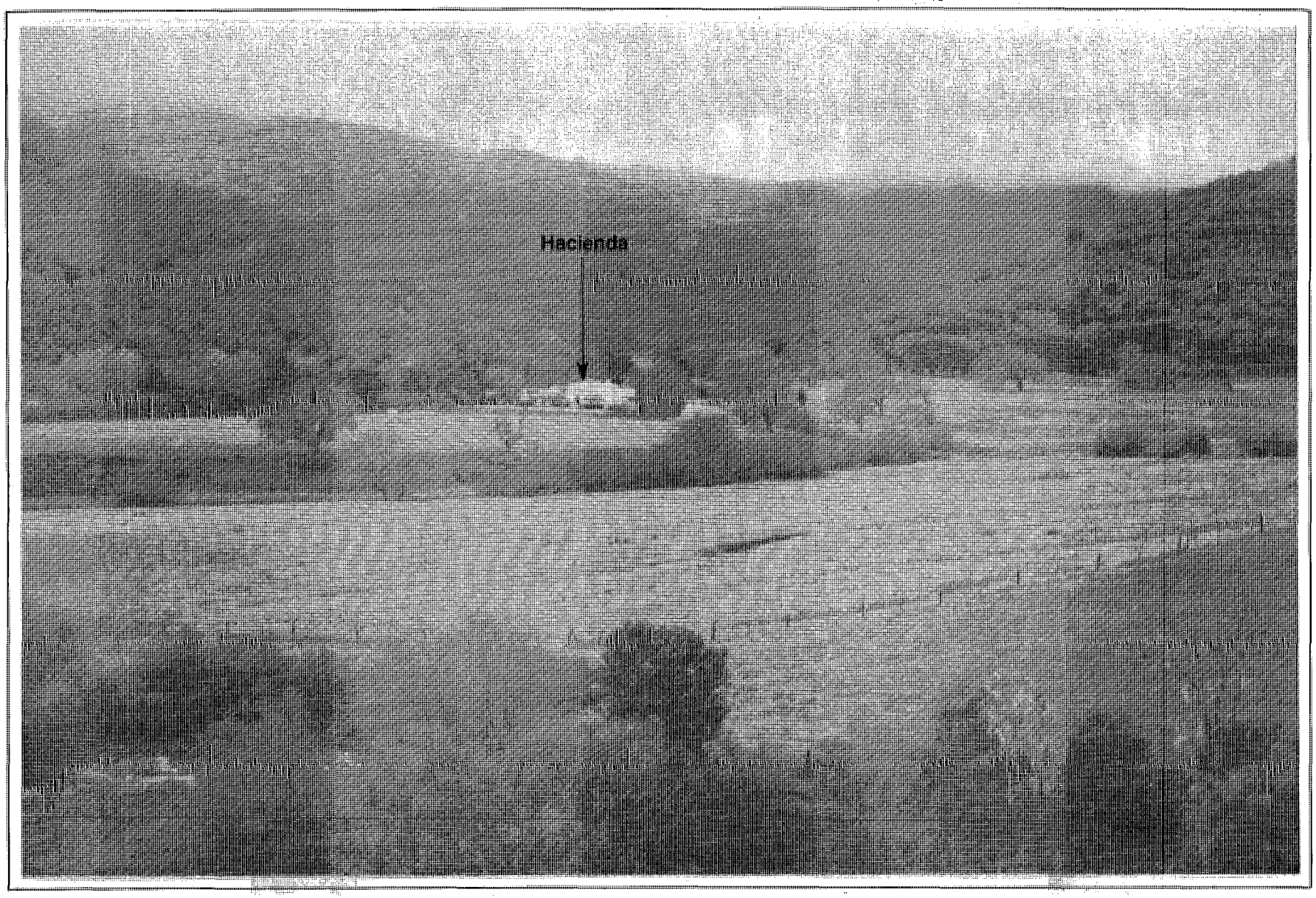

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Figure 12-3
View of the Hacienda and a Portion of San Francisquito Flat at the Project Site from Robinson Canyon Road

The connection of Pronghorn Run to Vasquez Trail is visible in the middleground behind a low screen of riparian vegetation (Figure 12-4).

Views to the north from the intersection of Robinson Canyon Road with Rancho San Carlos Road are expansive and sensitive. From this location, views are of San Francisquito Flat. In the foreground, native vegetation borders the creek extending from Moore's Lake to the east, with overhead power lines visible in the foreground. Portions of the barn and hacienda are visible along with some views of riparian areas and grazed grassland. In the background, forested rolling hills of Chamisal Ridge are highly visible. Distant views of forested slopes and prominent ridges are to the north and northwest (Figure 12-3).

Along the entire stretch of Robinson Canyon Road within the San Francisquito Flat area to the east are views of cattle grazing, scattered oaks, grasslands, and barbed-wire fences (Figure 12-5). The viewshed to the west consists of various views of the landscape's natural features, partially screened by riparian vegetation (Figure 12-4).

Views from Robinson Canyon Road of the San Francisquito Flat are generally high in vividness, intactness, and unity. The landscape contains diverse patterns of vegetation and varied topography and some cultural features that give the area a rural character. Few elements exist that detract from the area's visual quality.

Views from Public Trails

The project site is visible from trails that meander through areas outside the San Francisquito Flat project area. Viewer groups are mostly hikers. Sniveley's Ridge Trail and Vasquez Trail are the only public trails adjacent to the project site; they run along part of the mountaintop on the southwestern edge of Garland Ranch Regional Park in Carmel Valley and are accessible from various locations in the park (Figure 12-1). The trail begins at Carmel Valley Road north of the park visitor center, which is located on Carmel Valley Road 8.5 miles from Highway 1. Views to the west from Sniveley's Ridge Trail consist of the forested canyons and rolling hills of Chamisal Ridge and the valley that contains San Francisquito Flat. Because of the steepness of the trail and the time it takes to hike to ridgetops providing views of the project site, few people see the project site from the trail.

Views from Private Residences

Approximately 200 cabins are located at San Clemente Rancho and the White Rock Club to the south and southeast of the project area. Some of the cabins have views of portions of the project site. The Dormody residences are a private development in the San Clemente area near the top of Ponciano Ridge. The residences are about 1-2 miles from the southernmost end of the project site. A landing strip is located on one of the ridges near the Dormody residence.

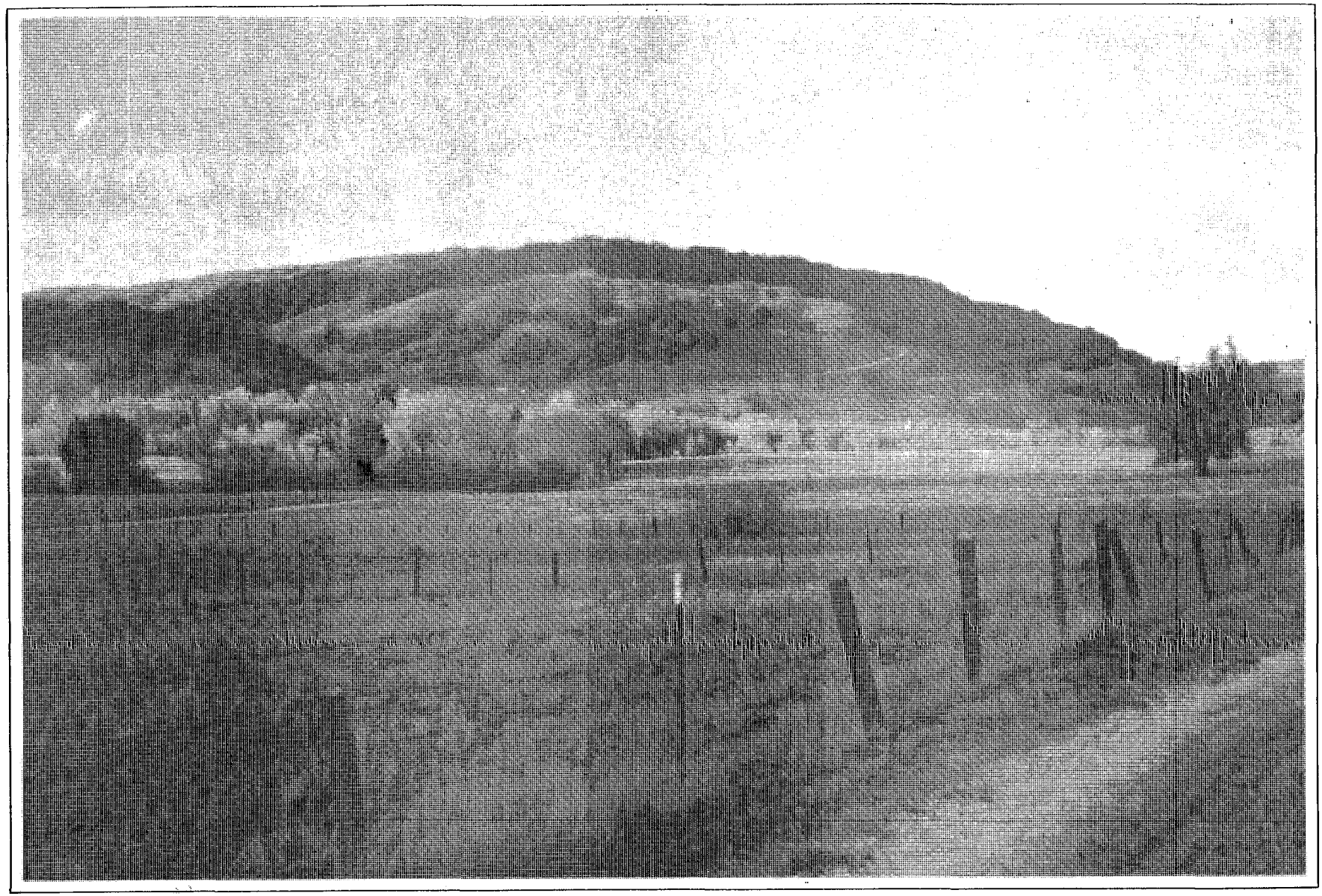

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Figure 12-4

View of the Project Site within San Francisquito Flat to the West

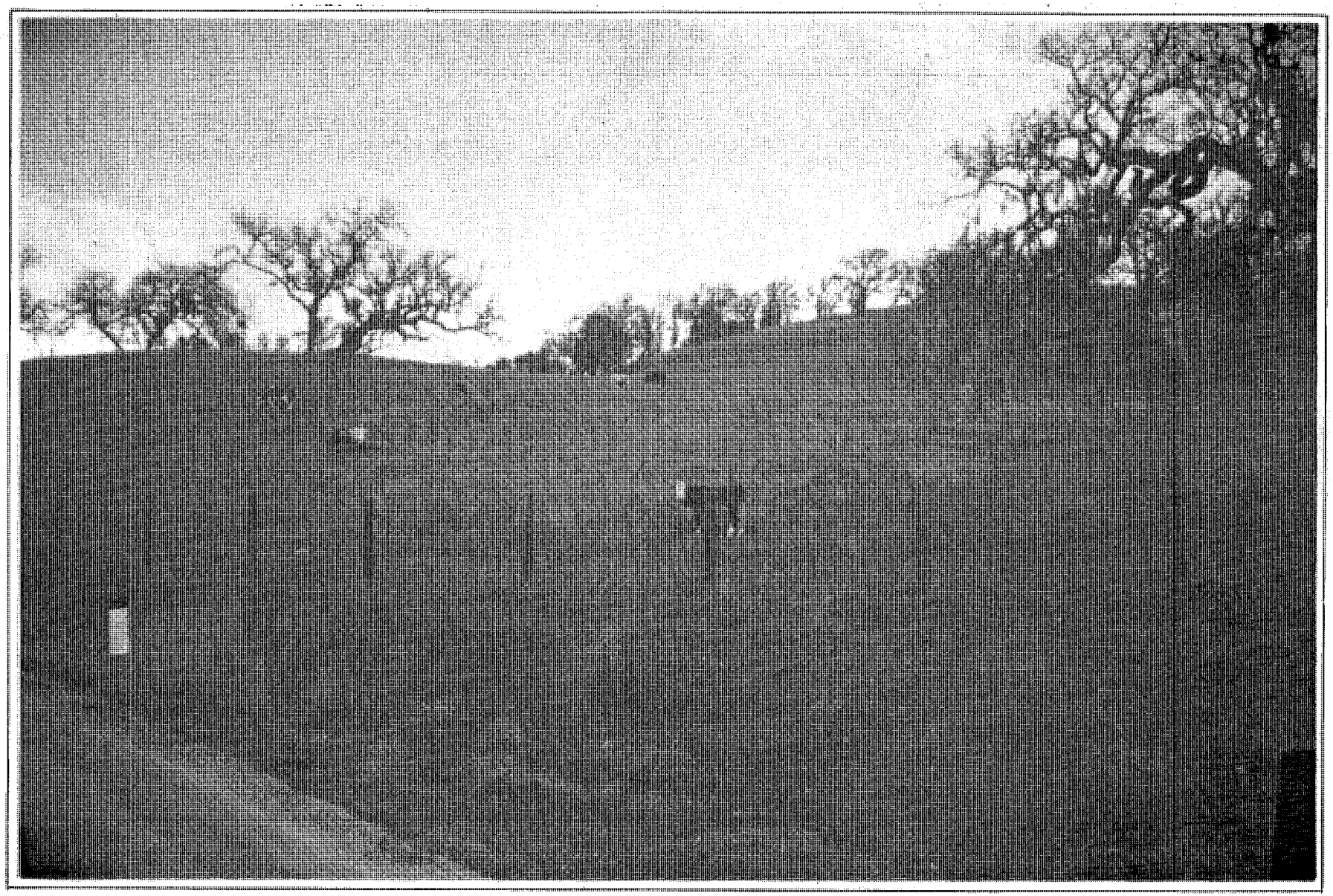

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Figure 12-5
View of the Project Site within San Francisquito Flat to the East

IMPACTS AND MITIGATION MEASURES

Approach and Methodology

The approach used for this visual assessment is adapted from the FHWA's visual impact assessment system (1983) in combination with direct observation from public trails, roads, and review of site plans and visual resource maps prepared by the applicant.

The visual impact assessment process involves identification of the following:

- thresholds of significance for visual impacts;
- impacts and the levels of significance of visual impacts of the proposed project; and
- mitigation measures that would reduce impacts to less-than-significant levels.

The visual impacts of the proposed development on the landscape were objectively evaluated for their degree of impact. Impacts were evaluated for their level of significance using criteria from the State CEQA Guidelines. For impacts determined to be significant, mitigation measures are identified to reduce them to less-than-significant levels. To assist in identifying the visual impacts of the project, computer-generated photosimulations were prepared for three key views of the project site from Robinson Canyon Road, a designated county scenic road.

Significance Criteria

Criteria for determining the significance of impacts are based on Appendix G of the State CEQA Guidelines. Guidelines applicable to visual impacts state that a project will normally have a significant effect on the environment if it will:

- conflict with adopted environmental plans and goals of the community where it is located or
- have a substantial, demonstrable negative aesthetic effect.

Visual impacts of this project are considered significant if the project causes substantial changes to the existing landscape that:

- create a silhouette or are otherwise visible on important ridges or crests of hills when viewed from common public viewing areas or

- reduce the visual quality of "sensitive" and "highly sensitive" visual resources from the county's designated scenic routes.

Visual quality would be reduced by the introduction of ridgeline development or substantial changes to sensitive and highly sensitive visual resources in the landscape. Substantial changes would result from introduced elements that are visually incongruous with existing conditions in terms of form, line, color, or texture and that negatively affect vividness, intactness, or unity of important or sensitive views. Visual quality also could be reduced by substantial alteration of existing natural landforms or vegetation patterns, introduction of elements that substantially increase light and glare, or substantial alteration of the visual character of the area from natural or rural to more developed. These criteria are based on county policies identified in the section "Relevant Policies and Goals for Visual Resource Protection" above.

Impacts on Views from Robinson Canyon Road

Impact: Changes in Views South from Robinson Canyon Road

Views south from Robinson Canyon Road where it enters the northern end of San Francisquito Flat are of the broad valley and surrounding forested hills and ridges. Views of the valley and surrounding hills are highly vivid and intact. The hacienda and portions of the equestrian center, notably the barn, are visible but not intrusive. Several structures for employee housing are proposed to be built on hillslopes just west of Robinson Canyon Road. To avoid potential for visual impact, as part of the zoning a height limit of 24 feet is proposed by the applicant for lots 65, 77, 83, 84, 134, 224, 225, 226, 251, 253, and 254; a limit of 18 feet for lots 28, 29, 30, 31; and a limit of 16 feet for lot 27. These structures will be visible to, and in the foreground distance zone for, viewers traveling along the scenic road. The existing metal barn located south of the hacienda is noticeable largely because of its high color contrast with its surroundings. It will be removed and replaced with another large barn that will be visible from Robinson Canyon Road. The new barn would have a darker colored roof that would not contrast strongly with its surroundings.

Other new structures and features associated with the hacienda, equestrian center, sporting center, ranch center, wastewater treatment plant, lodge, employee recreation center, ranch operations center, trails, and road improvements will be visible from the county scenic road. The golf trail, which has the potential to be visible on "non-silhouette" ridgelines, may be visible from common public viewing areas; while the clubhouse is covered by mature vegetation that blocks any potential views. These new features would be located beyond the foreground distance zone and virtually all

structures would be located beyond the 100-foot county-designated buffer zone adjacent to county scenic roads. To obtain a public use permit, most proposed features would be sited near or associated with existing vegetation or are proposed to be screened from public view by vegetation to be planted.

Colors proposed to be used for structures are largely subdued earth tones and colors intended to maintain unity with the surrounding vegetation and the architectural style of the hacienda. The employee housing structures proposed to be located near the road would be sited near groups of trees and below ridgelines to help blend them with their surroundings. Also, the low profile ~~and the earth-tone colors~~ identified for the structures would help visually blend them with the surrounding landscape.

The proposed project will alter the views of the area south from Robinson Canyon Road. Figure 12-6a and 12-6b shows the extent of change to views south from the scenic road as it enters the valley area from the north. Portions of new structures, paths, and roads would be visible. Existing vegetation patterns in the area would be changed by a reduction of open grasslands and an increase in riparian vegetation and other native trees. There would be no apparent substantial changes to the area landforms. Although portions of new structures would be visible and vegetation patterns would be changed, these changes would not substantially reduce the intactness, vividness, or unity of views of the area from a public viewing area and sensitive ridgelines would not be visually impacted. The proposed changes in views are consistent with county policies for protecting visual resources. For these reasons, this impact is considered less than significant.

Mitigation Measure: No mitigation measures are required. *However, to ensure that views of the structures are screened year round, the following measures are recommended.*

- *Establish new native vegetation in advance of development to screen views from Robinson Canyon Road.*
- *Use colors for structures that blend with the surrounding landscape.*

Impact: Changes in Views North from the Intersection of Robinson Canyon Road and Rancho San Carlos Road

Views north from the intersection of Robinson Canyon Road and Rancho San Carlos Road are of the valley area of San Francisquito Flat and surrounding hills and ridges. From this location, views are fairly expansive and high in intactness and vividness. Highly intact and vivid views of the valley and ridges and diverse vegetation patterns are important visual resources in the region. People using the county-designated scenic road consist of both recreationists, a sensitive viewer group, and local residents of the San Clemente development to the south. New native vegetation would be planted within and near the 100-foot buffer area for the scenic road to help screen views of the ranch operations center proposed to be located just north of the intersection. After several years, the new screening vegetation would effectively obstruct the open views north from the intersection and

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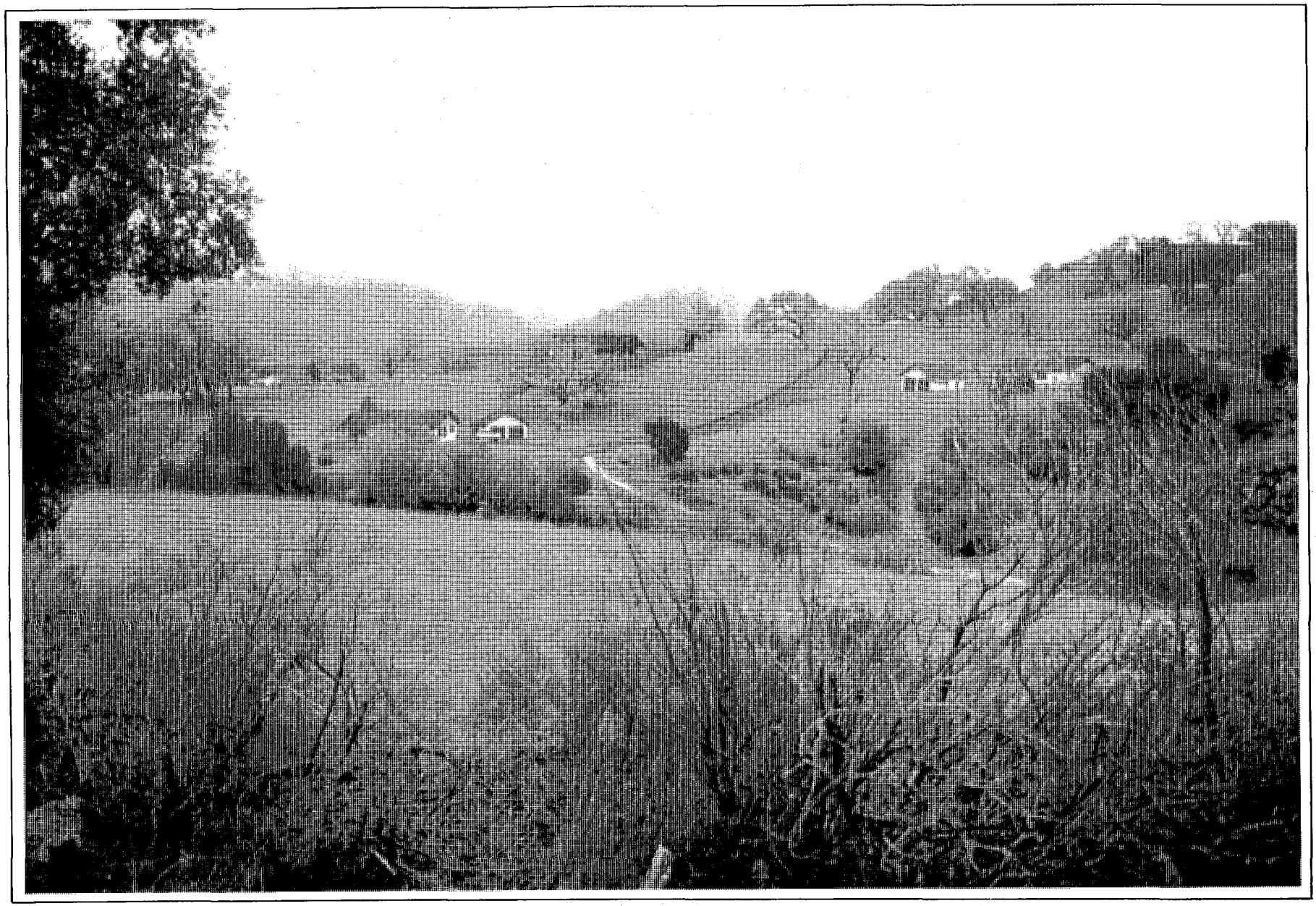
Figure 12-6a
Existing View of the Project Site from the Northern Portion of Robinson Canyon Road



Note: This computer-generated photo simulation depicts the projected changes in the view.

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Figure 12-6b

Projected Change in the View of the Project Site from the Northern Portion of Robinson Canyon Road

substantially reduce the vividness of these views. Figure 12-7a and 12-7b shows the change in views that would occur after several years of growth of vegetation proposed to be planted at this location. Generally, the proposed screening vegetation would obstruct views of prominent visual elements in the foreground and middleground of the view, including the forested rolling hills of Chamisal Ridge.

This impact would result in loss of a highly vivid view and a substantial reduction of visual quality for a sensitive visual resource viewed from a county-designated scenic route. This impact is inconsistent with Monterey County General Plan, Policy 40.2.9 for visual quality, which states specifically that "development shall use appropriate location, design, materials, and landscaping to be compatible with an area's visual character" and "developments in open grassland areas shown on the Visual Sensitivity Map [Extract from GMPAP Figure 10] as sensitive and highly sensitive shall minimize its impacts on the viewshed" (Monterey County 1992). For the reasons described above, this impact would be considered significant. To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Additional Mitigation Measure *37*: Relocate or Redesign the Ranch Operations Center and Employee Recreation Center. The ranch operations center and employee recreation ~~center~~ *center's tallest structures* should be relocated to the ~~north~~ *northeast* ~~approximately 300 feet~~ or redesigned to allow screening vegetation planted near the structures to be located a minimum of 300 feet from the scenic road edge. The area between the road edge and the new screening vegetation should be maintained either as grassland or as low shrubs and other vegetation to maintain distant and vivid views north. Screening vegetation should be mostly native to the region and similar in form and character to other vegetation growing on the preserve. *The proposed locations of the ranch operations center and the employee recreation center have been changed to reflect this mitigation measure. Refer to the updated vesting tentative map in Appendix J.*

Impact: Changes in Other Views from Robinson Canyon Road

Other views from Robinson Canyon Road are of San Francisquito Flat valley and surrounding hills and ridges. Important visual resources also include Moore's Lake and the hacienda. Barbed-wire fences; cattle grazing; the narrow, winding road; and other visual elements contribute to the rural character of the area. Views in this area are generally of high quality and are high in intactness and unity and moderate in vividness.

Proposed development and vegetative screening will change the character of the area from rural to more developed. More structures will be visible or partially visible; the amount of open, grazed grassland will be reduced; and portions of the golf course will be visible from the scenic road. Intactness of views would be slightly reduced by the addition of structures and other visual changes to the landscape. The unity of most views from the road may increase slightly given the overall design consistency of proposed built elements and the increased amount of vegetation. The removal of the metal barn at the equestrian center and its replacement with a wood barn with an earth-tone color roof would improve the quality of views of that area. The metal barn is a source of glare and contrasts strongly with its surroundings (Figure 12-8a and 12-8b).

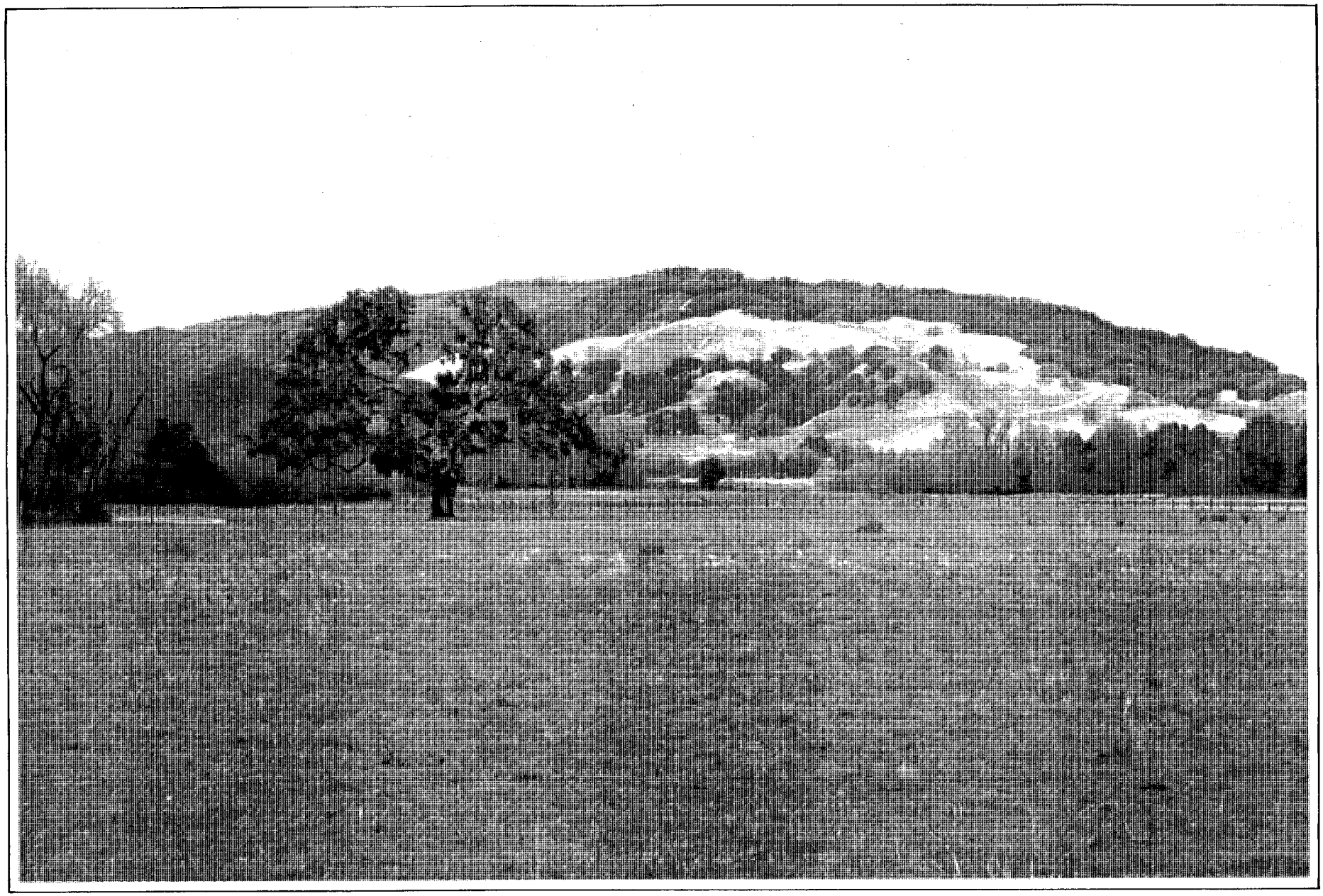

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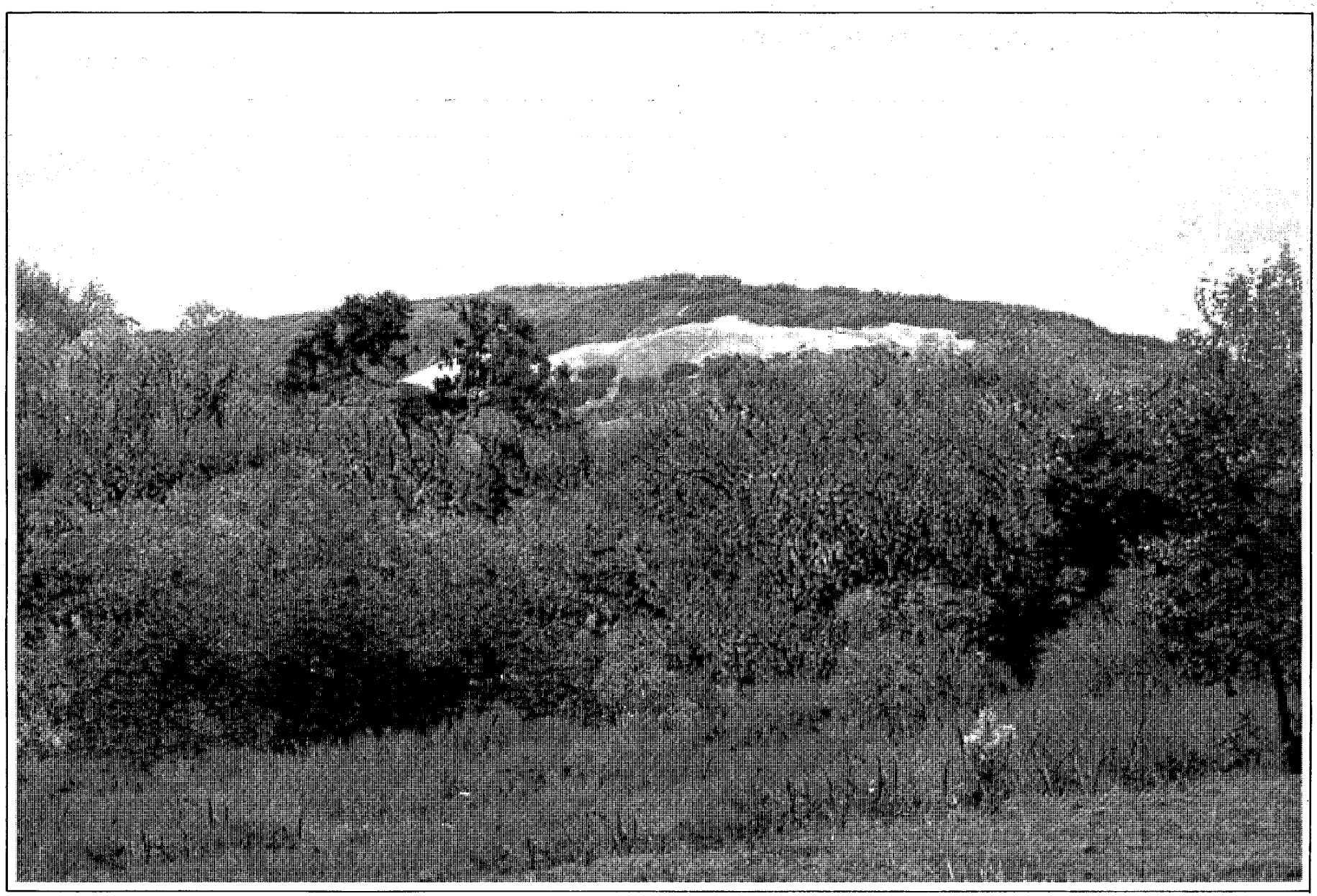
Figure 12-7a

Existing View of the Project Site from the Intersection of Robinson Canyon Road and Rancho San Carlos Road



Note: This computer-generated photo simulation depicts the projected changes in the view. Because the locations of ranch operations center and the employee recreation center have been changed in response to the mitigation measure on page 12-8, less vegetation screening than indicated here will be required.

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Figure 12-7b

Projected Change in the View from the Intersection of Robinson Canyon Road and Rancho San Carlos Road after Several Years of Vegetation Growth

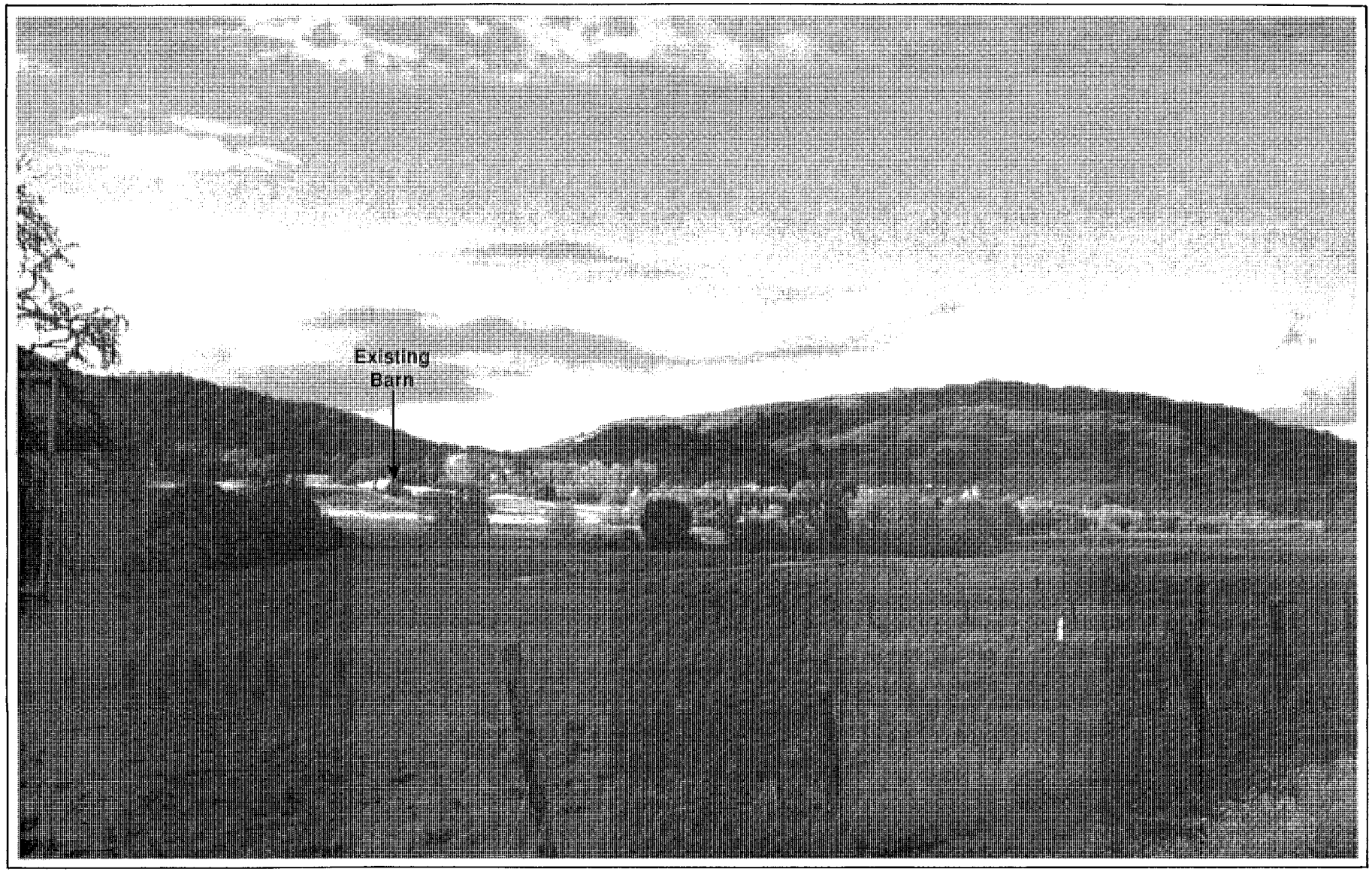

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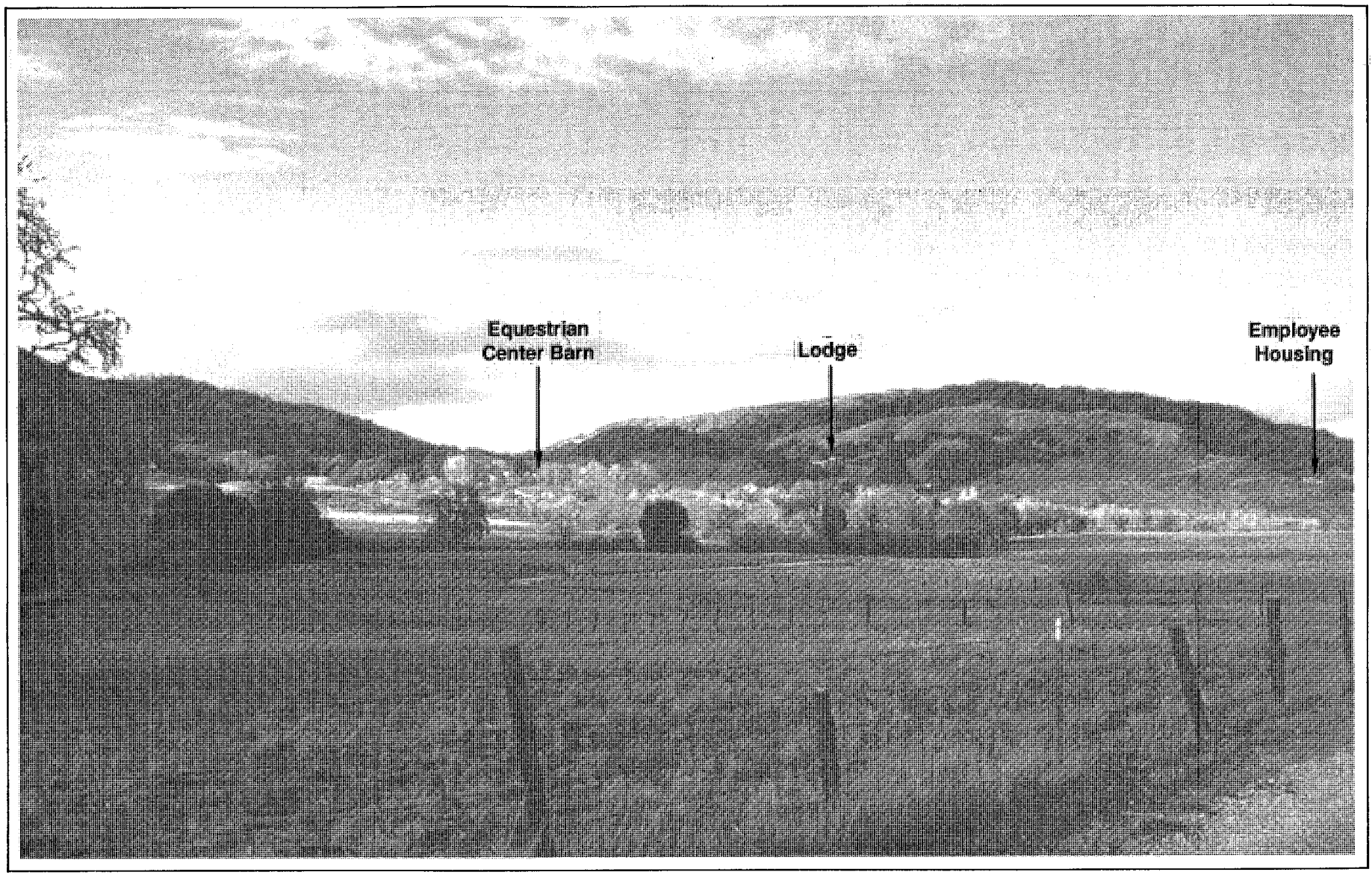
Figure 12-8a
Existing View of San Francisquito Flat at the Project Site from the Southern Portion of Robinson Canyon Road



Note: This computer-generated photo simulation depicts the projected changes in the view.

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Figure 12-8b

Projected Change in the View of San Francisquito Flat from the Southern Portion of Robinson Canyon Road

Unity and intactness of views of grasslands and oaks on hills and low ridges to the west of the scenic road would be slightly reduced by introducing views of the proposed golf course. The manicured green fairways, greens, tees, and paths of the golf course would contrast with the existing vegetation patterns, particularly during the dry summer months when the green fairways would contrast with the yellow annual grasses. Although these changes would be evident, they would not substantially reduce the intactness or unity of existing views to the west.

The proposed development would greatly increase the amount of light in the area; however, glare would not substantially increase because the colors of materials proposed to be used generally would be subdued earth-tone colors with low glare and reflectance characteristics that would not reflect a large amount of light or contrast strongly with their surroundings. Increased light from the development would be mostly apparent at night when few sensitive viewers (i.e., recreationists and people driving for pleasure) would be present to notice the increased light.

Although visual quality of views from Robinson Canyon Road would be slightly reduced by additional built elements and increased light and glare for sensitive viewer groups, this reduction would be less than significant for the reasons described above.

Mitigation Measure: No mitigation measures are required. To maintain the unity and intactness of views of the area from the scenic road, however, the following measure should be implemented:

- Minimize vegetation disturbance and tree removal, locate new *mature* vegetation screening to match existing natural vegetation patterns, and maintain old barbed-wire fences where feasible and design new fences using wood fence posts similar to the existing fences.

- *Provide vegetative screen on the south side of emergency access road/utility easement to Lots 223-226 to minimize view of road cut from Robinson Canyon Road.*

- Use the minimum number of light fixtures necessary for safety and security, orient light fixtures away from Robinson Canyon Road as much as feasible, and use fixtures designed to shield or otherwise minimize fugitive light.

Impact: Changes in Views from Private Residences

Some private residences in the Dormody development have views of some of the project area, including San Francisquito Flat and surrounding hills and portions of other areas where private residences will be developed. The private residences are located about ~~1~~.5-2 miles south of the project site. Portions of the project site in designated sensitive and highly sensitive visual resource areas are generally within middleground and background distance zones and occupy a portion of the overall viewshed for views from the private residences. Views of the proposed project may also be

available from other private parcels of land; however, it is not clear whether there are any existing residences on these parcels that have views of portions of the project site proposed for development.

Because the proposed developed areas are in middleground and background distance zones for views from the private land areas and extensive vegetation screening and subdued earth-tone colors are proposed as part of the project for structures in and around San Francisquito Flat, the visual quality of views from private residences would be only slightly reduced by the proposed development. Also, county policies for visual quality do not specifically address protection of views from private residences. For these reasons, the impact of the proposed project on views from private residences would be less than significant.

Mitigation Measure: No mitigation measures are required.

Impact: Changes in Views of the *Borrow* ~~Quarry~~ Site from Public Viewing Areas

The *borrow* ~~quarry~~ site is located in the northern area of the Santa Lucia Preserve east of Rancho San Carlos Road on the northern side of Chamisal Ridge. A private ranch road runs through the site that stretches along the ridgetop. The Chamisal Ridge area may be partially visible from sensitive viewing areas identified on the viewer sensitive-resource map (Figure 12-1). The ridge and *borrow* ~~quarry~~ may also be visible in the background distance zone from some residences in the San Clemente development about 5 miles to the south of the quarry and from a portion of Robinson Canyon Road about 2 miles to the east. Light-colored *rock (granodiorite)* ~~material~~ visible at the ~~granodiorite quarry~~ site would be exposed as part of the *borrow* ~~quarry~~ operation and rock piles. Potential views of the *site* ~~quarry~~ from Robinson Canyon Road would be screened by native vegetation proposed to be planted as part of the project. If the new vegetation adequately screens views of the *borrow site* ~~quarry~~ from the scenic road by the time the ~~quarry~~ operation begins, the quality of these views would not be reduced. Based on this assumption, this impact would be less than significant.

Mitigation Measure: No mitigation measures are required. To ensure that views of the *borrow site* ~~quarry~~ from Robinson Canyon Road are adequately screened, however, the following measure should be implemented:

- Establish new native vegetation in advance of beginning ~~quarry~~ operations and ensure that views of the ~~quarry~~ operation from Robinson Canyon Road are fully screened during operation of the *borrow site* ~~quarry~~.

Impact: Changes in Views from Public Trails

Two public trails, Sniveley's Ridge Trail and the Vasquez Trail, run just east of the site's northeast property boundary near Peñon Peak in Garland Ranch Regional Park. A portion of the hiking trail has views of sensitive and highly sensitive visual resources, including the area around San

Francisquito Flat. Portions of the trail would have views of proposed development in the valley and on surrounding hills. Views would include some private residences and access roads, the golf course, and development proposed for the valley area. These views would generally be middleground and background views. The public trail is proposed to be extended within a portion of the preserve. From this extended trail portion, areas of proposed development may be more visible. Because the trail is lightly used and views of developed areas would generally be from portions of the trail and for scattered development in middleground distance zones, this impact is considered less than significant.

Mitigation Measure: No mitigation measures are required.

Impact: Potential Impact of the Golf Trail Clubhouse on Ridgeline Development

The golf trail was evaluated in The Golf Trail: A Visual Analysis (*Rancho San Carlos Partnership* ~~Robert Lamb Hart~~ 1994*d*) to determine the visual impacts of the golf trail and assess the consistency with county policy. The golf trail encompasses 336 total acres of which 71 are proposed for irrigated turf. Landscaping would include native oak clusters, riparian features, and grasslands.

No portions of the golf trail would have the potential for creating a silhouette when viewed from a common viewing area; however, some portions of the golf trail may be visible on nonsilhouette ridgelines which are visible from common viewing areas. There are approximately 5.4 miles of Robinson Canyon Road within the boundaries of the project site which, designated as a scenic corridor, fall within the "highly sensitive" or "sensitive" visual resource areas. Small portions of the golf trail landscape would be visible including some of the greens. The clubhouse would be located 1,200 to 1,500 feet from the roadway. An intervening road is covered with mature oaks which would block any potential views of the building. Measures have been built into the golf trail design that would further reduce the visual impacts of the golf trail including minimizing grading, replanting trees, and minimizing the acreage of irrigated turf. ~~In summary, the golf trail would not substantially reduce minimizing the acreage of irrigated turf.~~ In summary, the golf trail would not substantially reduce the intactness, vividness, or unity of views of the area from a public viewing area, and sensitive ridgelines would not be visually impacted.

Mitigation Measure: No mitigation measures are required.

Impact: Changes in Views Caused by Development of Roadways on Slopes in Excess of 30%

Seven roadways or driveways are proposed on slopes in excess of 30% that are within the sensitive visual resource areas (Figure 12-1 and Appendix I). All but one will follow existing alignments of roadways and will not introduce an adverse visual element to the landscape. Four hundred linear feet of Chamisal Pass would cross an existing 40% slope on Lot 135 near the lodge.

Road construction would involve 1,600 cubic yards of fill. This stretch of Chamisal Pass would not be visible from Robinson Canyon Road because of the intervening topography. The visual impacts of roadways on slopes in excess of 30% is considered less than significant because they do not represent a change in the character of the existing landscape or would not be visible from important public viewing areas.

Mitigation Measure: No mitigation measures are required.

Chapter 13. Traffic

INTRODUCTION

This chapter is based on traffic reports prepared by Dowling Associates: the Traffic Report for Rancho San Carlos, dated April 22, 1994; Supplemental Traffic Report for the Santa Lucia Preserve, dated December 13, 1994; Traffic Safety Analysis for the Intersection of Rancho San Carlos Road and Carmel Valley Road, dated December 13, 1994; and Traffic Impact Analysis for the Golf Trail at the Santa Lucia Preserve, dated December 13, 1994. These reports are available for review at the Monterey County Planning and Building Inspection Department.

SETTING

Methodology

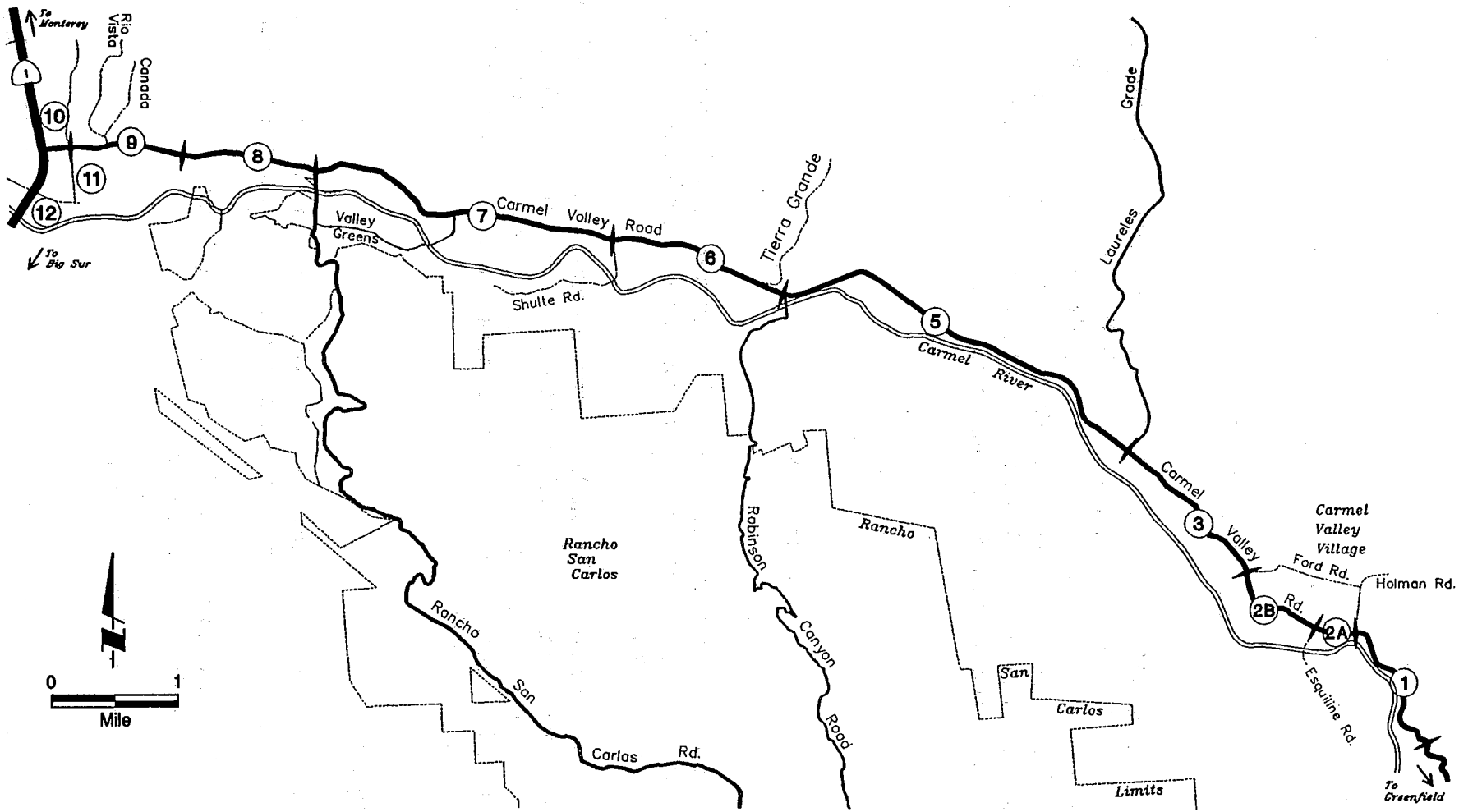
Circulation systems typically are evaluated based on their ability to accommodate traffic (i.e., whether they have sufficient capacity). In this report, both roadway segments and intersections were analyzed for their traffic-carrying capacity.

The quality of traffic service provided by a roadway or an intersection is measured by its level of service (LOS). This method uses a letter rating to describe the peak-period driving conditions for a particular facility. The letters A through F represent the best to worst driving conditions, respectively. Generally, LOS A indicates free-flow operation with little or no delay, and LOS F denotes jammed flow with substantial delay.

Critical Roadway Segments

The project traffic was considered to have potential effects on nine segments of Carmel Valley Road, which were analyzed in this study. These segments are shown on Figure 13-1 and include:

Segment 1 - Holman Road to east Carmel Valley Master Plan (CVMP) boundary
Segment 2A - Esquiline Road to Holman Road
Segment 2B - Ford Road to Esquiline Road
Segment 3 - Laureles Grade Road to Ford Road



Source: Dowling Associates 1994.

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Figure 13-1
Carmel Valley Road Road Segments

Segment 5 - Robinson Canyon Road to Laureles Grade Road
Segment 6 - Schulte Road to Robinson Canyon Road
Segment 7 - Rancho San Carlos Road to Schulte Road
Segment 8 - Rio Road to Rancho San Carlos Road
Segment 9 - Carmel Rancho Boulevard to Rio Road

Segment 10 of Carmel Valley Road, located between Highway 1 and Carmel Rancho Road, is too short to analyze. Traffic conditions on this segment are mainly controlled by the operations of the intersections on the two sides. In addition, traffic conditions on Highway 1 are mainly controlled by the intersections on this highway; therefore, for Highway 1, the traffic analysis concentrated on the intersections. Furthermore, the applicant is proposing to implement measures to minimize project traffic using Robinson Canyon Road. The traffic studies prepared by Dowling Associates indicated that the project effects on this road would be minimal; therefore, this roadway was not considered to be critical.

The critical roadway segments were analyzed using standard analysis methods for two-lane rural roads and multi-lane highways as described in the 1985 Highway Capacity Manual (Transportation Research Board 1985). The characteristics of traffic flow associated with each level of service for these facilities are described in Table 13-1.

Critical Intersections

Six intersections were identified as critical and were analyzed in this study. These intersections were selected based on their existing operating conditions or the potential for the project traffic to affect their operating conditions. These intersections are:

- Rancho San Carlos Road and Carmel Valley Road
- Highway 1 and Carpenter Street
- Highway 1 and Ocean Avenue
- Highway 1 and Carmel Valley Road
- Highway 1 and Rio Road
- Carmel Valley Road and Carmel Rancho Boulevard

Signalized Intersections. Traffic capacity analysis of the signalized intersections was conducted using the operational method of analysis described in the 1985 Highway Capacity Manual. This method uses an average vehicle delay value to characterize the level of service at a signalized intersection. Delay is a complex measure and depends on many variables: the quality of progression, the cycle length, the percentage of the cycle length during which the signal indication is green, and the volume-to-capacity (V/C) ratio for the lane group or approach in question. Table 13-2 shows the relationship between delay and levels of service used in the analysis of signalized intersections.

Unsignalized Intersections. For the unsignalized intersection of Carmel Valley Road and Rancho San Carlos Road, the analysis was conducted using the procedure recommended in the 1985

Table 13-1. Definition of Levels of Service for Two-Lane Rural Roads and Multilane Highways

	Two-Lane Road		Multilane Highway	
Level of Service	Percent Time Delay	Description	Density or Volume/Capacity	Description
A	Less than 30%	Average speed typically greater than 55 mph	Density less than 12 veh/mi/ln or V/C less than 0.33	Completely free-flow conditions; speeds around 60 mph
B	30%-45%	Average speed typically around 55 mph	Density = 13 to 20 or V/C = 0.34 to 0.55	Free flow; speeds around 60 mph
C	45%-60%	Average speed typically between 50 and 55 mph	Density = 21 to 28 or V/C = 0.56 to 0.75	Speeds between 55 and 60 mph
D	60%-75%	Average speed typically around 50 mph	Density = 29 to 34 or V/C = 0.76 to 0.89	Speeds range between 55 and 60 mph
E	75%-100%	Average speed typically between 45 and 50 mph	Density = 35 to 40 or V/C = 0.90 to 1.00	Near capacity; speeds range from 45-60 mph
F	100%	Average speed typically below 45 mph	Density more than 40 or V/C more than 1.00	Forced or breakdown flow; speeds usually less than 30 mph

Notes:

Level of service is measured two different ways for two-lane and multilane rural highways.

Two-lane rural road: Level of service is defined according to the "percent time delay". This is an estimate of the amount of time that drivers are "delayed" because they have to follow a slower vehicle. Percent time delay is difficult to measure in the field so it is often replaced with "percent platooning", which is the percent of vehicles that are following (within 5 seconds) another vehicle.

Multilane highway: Level of service is defined according to the density of vehicles per mile per lane of the facility. A secondary measure of level of service is the volume/capacity ratio.

Source: Transportation Research Board 1985.

Table 13-2. Definition of Levels of Service for Signalized Intersections

Level of Service	Delay Range	Description
A	Less than 5.0 seconds per vehicle	Very low delay. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all.
B	5.1-15.0 seconds per vehicle	This generally occurs with good progress and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.
C	15.1-25.0 seconds per vehicle	These higher delays may result from fair progression and/or longer cycle lengths. Some vehicles may wait for more than one cycle of the signal. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
D	25.1-40.0 seconds per vehicle	The influence of congestion becomes more noticeable. Long delays may result from some combination of unfavorable progression, long cycle lengths, or high volume/capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Many vehicles will wait through more than one cycle of the signal.
E	40.1-60.0 seconds per vehicle	These high delay values generally indicate poor progression, long cycle lengths, and high volume/capacity ratios. Many more vehicles will wait through more than one cycle of the signal.
F	In excess of 60 seconds per vehicle	This condition often occurs with oversaturation, (i.e., when arrival flow rates exceed the capacity of the intersection). Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Note: Level of service for signalized intersections is defined in terms of delay, or waiting time, at a signal. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. Level of service criteria are stated in terms of the average stopped delay per vehicle.

Source: Transportation Research Board 1985.

Highway Capacity Manual. This method assesses the conflicts between turning movements to and from the legs of the intersection with stop signs (minor streets) and those on the legs without stop signs (major streets). The procedure assesses the probability and frequency of gaps occurring in the major street traffic stream that would allow minor street traffic to proceed.

The quantitative measure of LOS at one-way or two-way stop sign-controlled intersections is determined by estimating the remaining "reserve" capacity at the intersection. Reserve capacity represents the extent to which cars on the minor street approaches can proceed through the intersection and generally decreases as the volume of through traffic on the major street increases. A reserve capacity of less than 0 indicates an intersection operating at LOS F. The characteristics of traffic flow associated with each LOS for unsignalized intersections are described in Table 13-3.

Signal Warrant Analysis. A signal warrant analysis was conducted for the unsignalized intersection of Carmel Valley Road and Rancho San Carlos Road. This analysis was based on established guidelines that assist in determining the need for traffic signal control (California Department of Transportation 1985).

The signal warrant guidelines specify 11 criteria that indicate the need for traffic signal installation:

- Warrant 1 - Minimum Vehicular Volume
- Warrant 2 - Interruption of Continuous Traffic
- Warrant 3 - Minimum Pedestrian Volume
- Warrant 4 - School Crossing
- Warrant 5 - Progressive Movement
- Warrant 6 - Accident Experience
- Warrant 7 - Systems
- Warrant 8 - Combination of Warrants
- Warrant 9 - Four-Hour Volumes
- Warrant 10 - Peak-Hour Delay
- Warrant 11 - Peak-Hour Volume

Fulfillment of any one or combination of these criteria may indicate that signal control is needed. The guidelines emphasize that the criteria should be considered only as a guide in determining the need for traffic signal control in conjunction with other project-specific factors. A comprehensive investigation of traffic conditions and physical characteristics of the intersection in question is required to determine the necessity for a signal and to furnish necessary data for the proper design and operation of a signal that is found to be warranted. Such data are listed in the Manual on Uniform Traffic Control Devices for Streets and Highways (U.S. Department of Transportation 1988).

The signal warrant analysis for this study was based on Warrants 1, 2, 6, 8, 9, and 11. Warrants 3, 4, 5, and 7 were not applicable. Warrant 10 was not studied due to lack of information on side street delay.

Table 13-3. Definition of Levels of Service for Unsignalized Intersections

	Two-Way Stop Control
Level of Service	Reserve Capacity (vehicles/hr)
A	Greater than 400
B	300-399
C	200-299
D	100-199
E	0-99
F	less than 0

Note: The reserve capacity for each of movement is measured and several levels of service are calculated for each intersection. Often, only the "worst" of these levels of service is reported, usually for one of the left turns from one of the stop signs. Level of service "E" is not a "warrant" for installing traffic signals.

Source: Transportation Research Board 1985.

Study Conditions

The traffic analysis evaluates the traffic impacts of the Santa Lucia Preserve uses proposed in the GMPAP in the combined development permit application (CDP-GMPAP) and potential buildout of the Santa Lucia Preserve (buildout). The impacts of these two conditions were compared to the no-project conditions. The no-project conditions reflect two future scenarios: (1) completion of all approved projects in the Carmel Valley area and (2) approval and completion of all proposed projects in addition to completion of all approved projects in the Carmel Valley area. Therefore, the impact analysis discusses the traffic conditions for seven scenarios:

- Existing Conditions
- Existing Conditions plus Approved Projects
- Existing Conditions plus Approved Projects plus CDP-GMPAP
- Existing Conditions plus Approved Projects plus Buildout
- Existing Conditions plus Approved and Proposed Projects
- Existing Conditions plus Approved and Proposed Projects plus CDP-GMPAP
- Existing plus Approved and Proposed Projects plus Buildout

Transportation facilities generally operate at their worst operating level during the p.m. peak hour (an hour between 4:00 and 6:00 p.m.). To present the worst-case conditions, this traffic analysis was performed for the p.m. peak hour for all facilities except the intersection of Carmel Valley Road and Rancho San Carlos Road. Because the project affects this intersection more than any other facility, this intersection was also analyzed during the a.m. peak hour (an hour between 7:00 and 9:00 a.m.).

Acceptable Levels of Service

The Transportation Agency for Monterey County objective for optimum driving conditions is LOS C or better. LOS C is considered the acceptable LOS for the intersection of Carmel Valley Road and Rancho San Carlos Road.

The intersections of Highway 1 with Carpenter Street, Ocean Avenue, Carmel Valley Road, and Rio Road, and the intersection of Carmel Valley Road and Carmel Rancho Road are included in the Monterey County Congestion Management Program (CMP). The acceptable LOS for these intersections is considered LOS E, which is their CMP-designated LOS standard.

Based on the CVMP, for those segments of Carmel Valley Road that are operating at LOS A or B, the acceptable LOS is considered LOS B. For those segments that are operating at LOS C or worse, the acceptable LOS is considered that segment's 1986 LOS.

Existing Transportation Conditions

Existing Roadway Network

Figure 13-2 illustrates the roadway network in the project vicinity. Regional access to the Santa Lucia Preserve is provided via Highway 1 and Carmel Valley Road. Primary access to the site is provided via Rancho San Carlos Road, which is a private road. Robinson Canyon Road, which is a county road that is more winding than Rancho San Carlos Road, serves as a secondary and emergency site access.

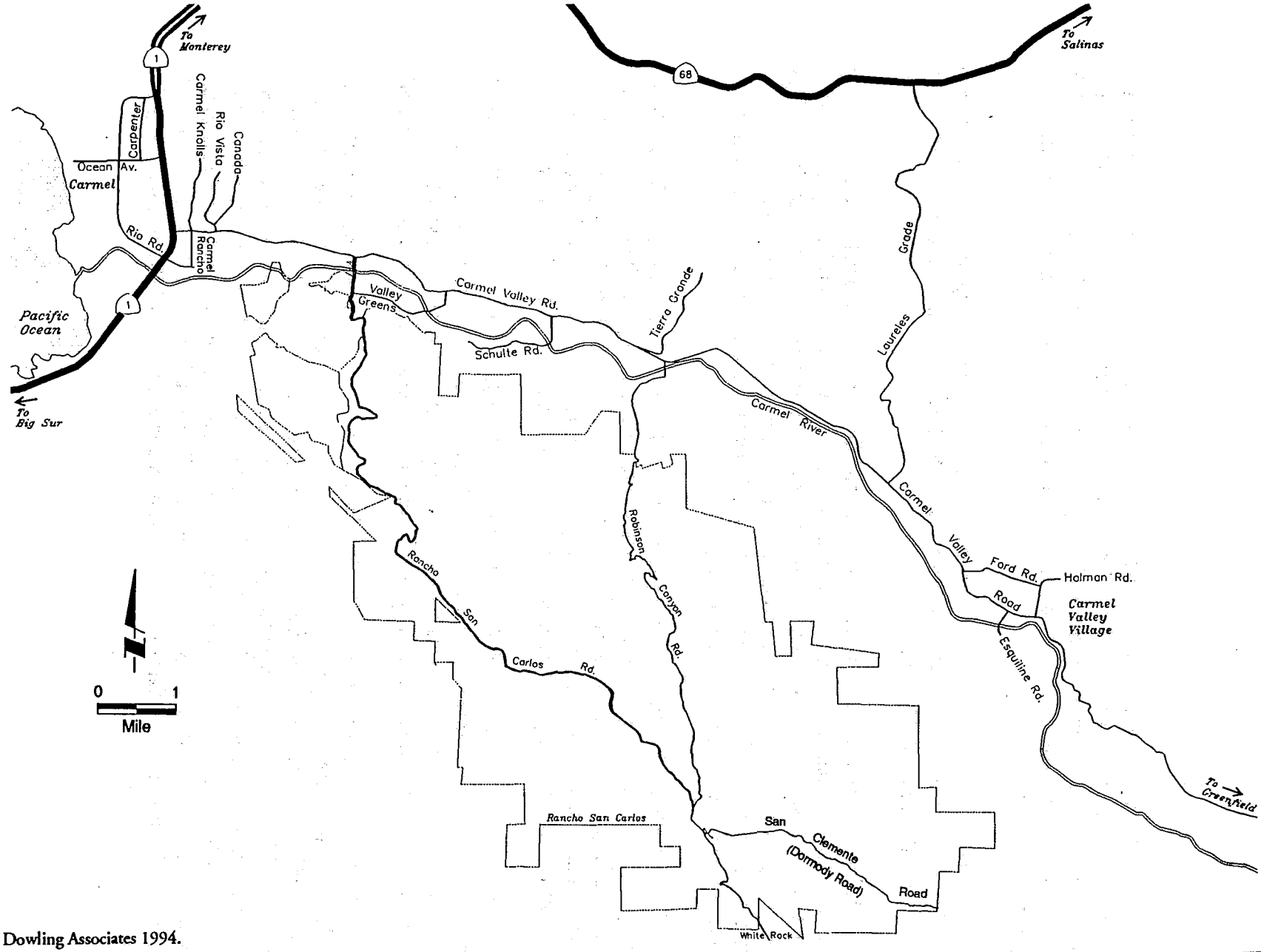
Highway 1. Highway 1 is a major north-south facility, connecting the project site to the Cities of Carmel and Monterey. This highway is two lanes to the south of Ocean Avenue and widens to four lanes to the north of this road.

Existing average daily traffic (ADT) volumes on Highway 1 to the south of Carmel Valley Road are about 21,000 vehicles per day. This highway carries about 69,000 vehicles per day to the north of Carpenter Street. Peak-hour volumes range from 1,130 vehicles per hour to the south of Carmel Valley Road, to 4,850 vehicles per hour to the north of Carpenter Street. California Department of Transportation (Caltrans) reports that Highway 1 in the Carmel area is operating at LOS E or worse approximately 14 hours per day.

The intersections of Highway 1 with Carpenter Street, Ocean Avenue, Carmel Valley Road, and Rio Road are controlled by traffic signals. These intersections are generally the bottlenecks on this portion of Highway 1. Traffic backs up on the two-lane segment of this highway to the south of Ocean Avenue each afternoon. The critical capacity section is the uphill grade between Carmel Valley Road and Ocean Avenue. The queues frequently extend as far south as Rio Road.

Carmel Valley Road. Carmel Valley Road extends from Highway 1 to Arroyo Seco Road. The segment of this road between Carmel Rancho Boulevard and Via Petra Way is a four-lane divided road. The remainder of this road is two lanes with left-turn pockets at a few key intersections. The intersection of Carmel Valley Road and Carmel Rancho Boulevard is signalized.

Daily traffic volumes on Carmel Valley Road increased by 5-6% per year between 1985 and 1991. The increase in traffic stopped in 1992, with no significant change occurring between 1991 and 1992. Traffic volumes dropped by 5% on Carmel Valley Road between 1992 and 1993 *and by 3% between 1992 and 1994. The largest drops in traffic have been on segment 3 (Laureles Grade Road to Ford Road), segment 6 (Schulte Road to Robinson Canyon Road), and segment 7 (Rancho San Carlos Road to Schulte Road)*. This analysis is based on a conservative approach that uses the 1992 volumes on Carmel Valley Road for existing conditions rather than the more recent 1993 counts, thus, allowing the possibility that traffic volumes may return to 1992 levels even in the absence of new development.



Source: Dowling Associates 1994.

Jones & Stokes Associates, Inc.

Figure 13-2
Existing Roadway Network

Rancho San Carlos Road. Rancho San Carlos Road is a paved, private, rural road that extends for about 10 miles south of Carmel Valley Road. This road is about 20-24 feet wide between Carmel Valley Road and Quail Meadows Place, about 18 feet wide between Quail Meadows Place and the Carmel Valley Racquet Club, and 10-12 feet wide south of the racquet club. Rancho San Carlos Road is gated at all entrances to the Santa Lucia Preserve.

Daily traffic counts conducted in June 1993 indicated that Rancho San Carlos Road carries about 1,800 vehicles per day on the segment between Valley Greens Drive and Carmel Valley Road. A more recent traffic count conducted in October 1994 showed the daily traffic volume on this segment to be about 1,900 vehicles. This 5% increase is attributed to the construction and sales activities occurring at Quail Meadows development. The analysis conducted for the intersection of Carmel Valley Road and Rancho San Carlos Road uses the 1993 counts. The traffic generated by the Quail Meadows development was projected as part of the traffic generated by the approved projects.

Rancho San Carlos Road crosses the Carmel River with a 320-foot bridge. This bridge is about 20 feet wide; however, bumpers and railings reduce its clearance to 18 feet wide. The speed limit on the bridge is 15 miles per hour (mph). Pedestrians must currently walk in the vehicle lanes to cross this bridge.

Daily traffic volume on this bridge ranges from 1,500 vehicle per day on weekends to 1,900 vehicles per day on weekdays. Weekday peak-hour volumes currently range between 160 and 190 vehicles per hour. The traffic capacity of this bridge is estimated to be between 1,500 and 1,580 vehicles per hour depending on the directional split of traffic crossing the bridge.

Since June 1990, the bridge has been posted with a 15-ton load limit sign to keep construction vehicles from using this bridge until a structural analysis of the bridge was completed. The recently completed structural analysis indicated that, with a few minor repairs and continued maintenance, the bridge will be able to carry an HS20-44 design load. This exceeds the county and state standards, which require that all new or refurbished bridges leading to or within a state responsibility area be designated for HS15-44 loading, which is equivalent to a vehicle load limit of about 30 tons.

The intersection of Carmel Valley Road and Rancho San Carlos Road is controlled by a stop sign on Rancho San Carlos Road. This intersection was reconstructed in October 1992 to include a westbound left-turn lane, an eastbound right-turn lane, and an eastbound right-turn acceleration lane.

Robinson Canyon Road. Robinson Canyon Road is a public rural roadway that extends for about 9 miles south of Carmel Valley Road. From its southern terminus at White Rock Club to about 0.5 mile south of Carmel River, Robinson Canyon Road varies in width from 16 to 22 feet wide, except where it widens at several blind curves. This road widens to greater than 24 feet from 0.5 mile south of Carmel River to its intersection with Carmel Valley Road.

Four bridges are on Robinson Canyon Road south of the Carmel River. Three of these bridges are 16-18 feet wide. The other bridge, located within the project site, is 9.5 feet wide. Several cattle-guards are also on this road.

About 80-140 vehicles per weekday have been counted on Robinson Canyon Road at the Santa Lucia Preserve's northern boundary. Between 25 and 50 vehicles travel to and from San Clemente Rancho on the private Dormody Road; between 22 and 50 vehicles travel to and from the White Rock Club; and between 15 and 20 vehicles travel to and from the back entrance to the Santa Lucia Preserve. The rest of the trips on this road are made by sight-seers, patrol cars, and other travelers that turn around within 15 minutes after entering the preserve on Robinson Canyon Road.

Public Transit Service

The nearest transit service to the Santa Lucia Preserve is located on Carmel Valley Road, approximately 9 miles north of the center of the preserve. Monterey Salinas Transit (MST) runs Line 24 once each hour on Carmel Valley Road. The nearest bus stop to the project site is located several hundred feet west of Rancho San Carlos Road on Carmel Valley Road. Two additional MST bus lines (Lines 4 and 5) run every half hour from Carmel Rancho Boulevard to downtown Carmel and Monterey. Existing bus service in the area is shown on Figure 13-3.

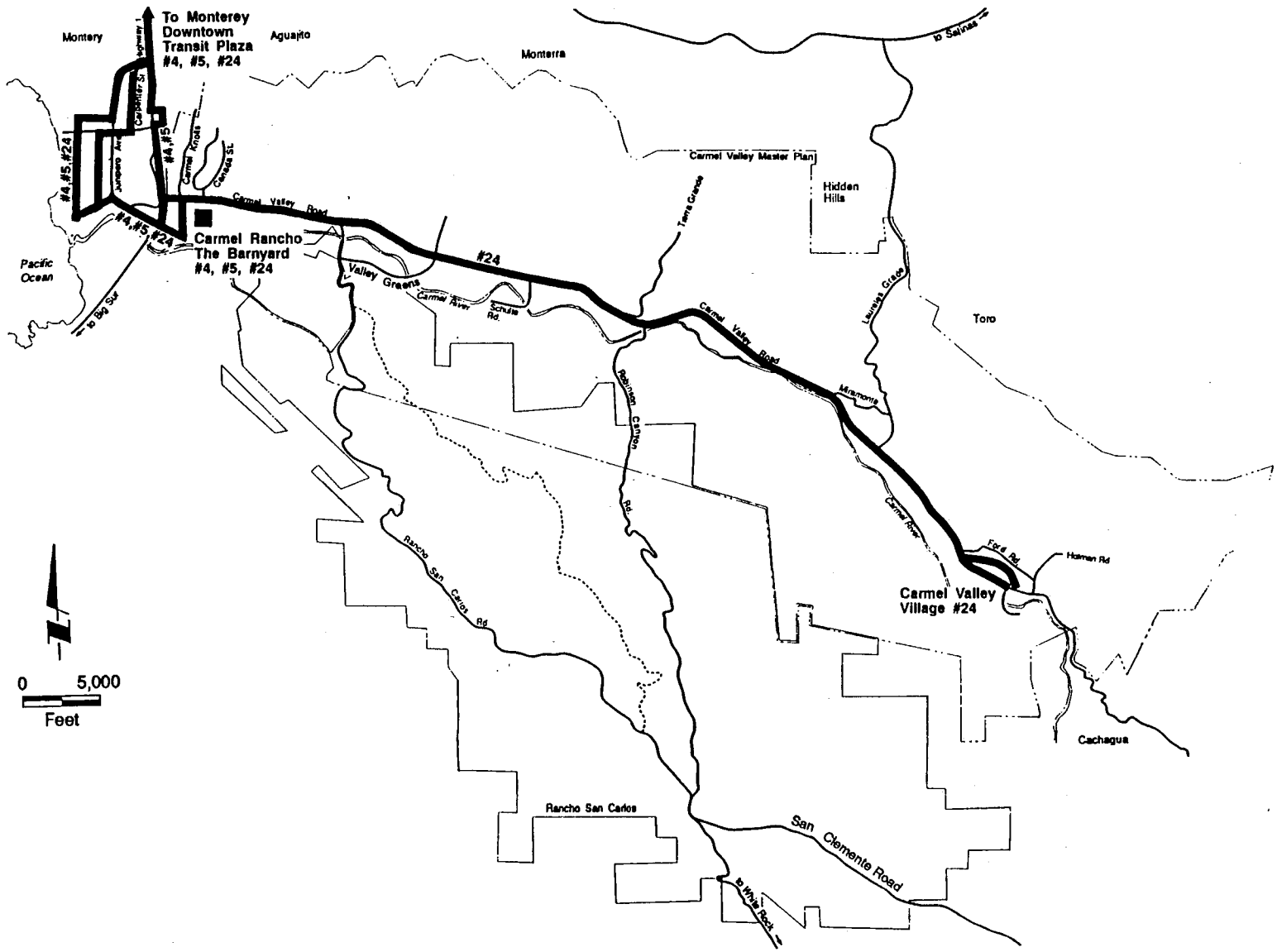
Existing Roadway Operations

Table 13-4 presents the existing (1992) daily traffic volumes on the nine critical segments of Carmel Valley Road. Threshold volumes have been set for each segment of Carmel Valley Road under the CVMP. When a segment reaches its threshold volume, the county must conduct more detailed LOS analyses to determine whether the CVMP's LOS standards have been exceeded. For segments that currently operate at LOS C or worse, the CVMP specifies that the LOS shall not go below the 1986 LOS for that segment.

As indicated on Table 13-4, the 1992 daily traffic on segment 6 of Carmel Valley Road, located between Schulte Road and Robinson Canyon Road exceeded the daily threshold volume for this segment by about 400 vehicles. County measurements indicated that this segment was operating at LOS E in 1992, therefore exceeding the threshold LOS specified in the CVMP (Table 13-5). The threshold LOS for this segment is its operating level in 1986, which was LOS D.

Segment 7, between Rancho San Carlos Road and Schulte Road, carried volumes slightly below its 24-hour threshold volume in 1992. This segment does not exceed its 1986 LOS of E.

~~Construction of passing lanes on segments 6 and 7 would improve their operating conditions.~~ Monterey County Public Works Department is currently studying various options for improving traffic operations and safety on Carmel Valley Road. *Studies conducted by the County indicate that*



Source: Dowling Associates 1994.

Jones & Stokes Associates, Inc.

Figure 13-3
Existing Public Transit Service

Table 13-4. Daily Traffic Volumes on Carmel Valley Road

Segment	Existing (1992)	Existing plus Approved Projects	Existing plus Approved Projects plus CDP-GMPAP [a]	Existing plus Approved Projects plus Buildout [b]	Existing plus Approved and Proposed Projects	Existing plus Approved and Proposed Projects plus CDP-GMPAP	Existing plus Approved and Proposed Projects plus Buildout	CVMP [c] Threshold Volume
1	3,434	3,456	3,469	3,472	3,494	3,507	3,510	8,487
2A	3,656	3,678	3,691	3,694	3,735	3,748	3,751	6,835
2B	8,737	8,852	8,913	8,925	9,090	9,151	9,163	N/A
3	11,359	11,474	11,642	11,678	11,818	11,986	12,022	11,600
5	10,820	11,079	11,321	11,372	11,617	11,859	11,910	12,752
6	15,896	16,714	16,960	17,012	17,715	17,961	18,013	15,499
7	16,014	16,823	17,190	17,268	18,063	18,430	18,508	16,340
8	19,189	20,344	21,709	21,997	21,572	22,937	23,225	48,487
9	24,220	25,902	27,058	27,303	27,063	28,219	28,464	51,401

[a] CDP-GMPAP refers to the Santa Lucia Preserve uses proposed in the Greater Monterey Peninsula Area Plan in the combined development permit application.

[b] Buildout refers to buildout of the Santa Lucia Preserve.

[c] CVMP refers to data from the Carmel Valley Master Plan.

Source: Dowling Associates 1994.

Table 13-5. Levels of Service for Carmel Valley Road Segments during Weekday P.M. Peak Hour at Peak Direction without Road Improvements

Segment (Eastbound)	CVMP[a] 1986 Level	Existing (1992)	Existing plus Approved Projects	Existing plus Approved Projects plus CDP-GMPAP[b]	Existing plus Approved Projects plus Buildout[c]	Existing plus Approved and Proposed Projects	Existing plus Approved and Proposed Projects plus CDP-GMPAP[b]	Existing plus Approved and Proposed Projects plus Buildout[c]
1	C	C	C	C	C	C	C	C
2A	C	C	C	C	C	C	C	C
2B	D	D	D	D	D	D	D	D
3	D	D	D	D	D	D	D	D
5	D	D	D	D	D	D	D	D
6	D	E	E	E	E	E	E	E
7	E	E	E	E	E	E	E	E
8	A	A	A	A	A	A	A	A
9	A	A	A	A	A	A	B	B

[a] CVMP refers to data from the Carmel Valley Master Plan.

[b] CDP-GMPAP refers to the Santa Lucia Preserve uses proposed in the Greater Monterey Peninsula Area Plan in the combined development permit application.

[c] Buildout refers to buildout of the Santa Lucia Preserve.

Source: Dowling Associates 1994.

construction of passing lanes, where appropriate, on segments 6 and 7 would improve their operating conditions.

Existing Intersection Operations

Table 13-6 shows the results of the existing capacity analysis at the critical intersections during the p.m. peak hour. Table 13-7 shows the results of the a.m. peak hour analysis for the intersection of Carmel Valley Road and Rancho San Carlos Road. The results show that the intersection of Carmel Valley Road and Rancho San Carlos Road operates at unacceptable LOS D and E during the a.m. and p.m. peak hours, respectively. These LOS D and E are experienced by the left-turning traffic entering Carmel Valley Road from Rancho San Carlos Road.

In addition, the intersection of Highway 1 and Carmel Valley Road operates at LOS F during the p.m. peak hour. This exceeds the LOS E standard set forth in the CMP for this intersection.

Accident History

Table 13-8 presents the average annual number of accidents for Carmel Valley Road. As shown on this table, between 1990 and 1992, segments 1 and 2A have experienced an increase in the number of accidents compared to the period between 1984 and 1989. The average number of accidents between 1990 and 1992 on Carmel Valley Road, however, by about 15% less than the average number of accidents on this road between 1984 and 1989.

The intersection of Carmel Valley Road and Rancho San Carlos Road had a sharp increase in accidents in the first year following the reconstruction that occurred in October 1992. A total of 11 accidents occurred in the 9-year period before the reconstruction, while 12 accidents occurred from the reconstruction to November 1994. Most of these accidents occurred in the first few months after the intersection was reopened to traffic. The county has installed additional striping and reflectors since that time.

Almost all of the accidents at the intersection of Carmel Valley Road and Rancho San Carlos Road were caused by left-turning drivers pulling out in front of the eastbound traffic on Carmel Valley Road (Figure 13-4). The left-turning drivers either did not see the oncoming traffic, were not looking, or saw the oncoming traffic but underestimated its speed. The left-turning drivers involved in the collisions had a mean age of slightly over 70 years.

A safety analysis conducted at this intersection (Dowling Associates 1994) found no deficiencies in signing, striping, or in the intersection sight distance. The report, however, indicated that the pine trees that were located to the west of Rancho San Carlos Road, cast a shadow on the eastbound approach to the intersection, which may have been a factor for some drivers with impaired vision at certain times of the day and under certain weather conditions. The shadowing was not

Table 13-6. Summary of P.M. Peak-Hour Level of Service Analysis

Intersection	Existing			Existing plus Approved Projects			Existing plus Approved Projects plus CDP-GMPAP [a]			Existing plus Approved Projects plus Buildout [b]			Existing plus Approved and Proposed Projects			Existing plus Approved and Proposed Projects plus CDP-GMPAP			Existing plus Approved and Proposed Projects plus Buildout		
	LOS	Measure[c]	V/C	LOS	Measure[c]	V/C	LOS	Measure[c]	V/C	LOS	Measure[c]	V/C	LOS	Measure[c]	V/C	LOS	Measure[c]	V/C	LOS	Measure[c]	V/C
Carmel Valley Road/Rancho San Carlos Road	E	42	NA	E	2	NA	F	-63	NA	F	-81	NA	F	-18	NA	F	-81	NA	F	-98	NA
Highway 1/ Carpenter Street	E	49.2	1.030	E	52.9	1.048	E	55.6	1.057	E	56.3	1.060	E	56.3	1.060	E	59.5	1.070	F	60.2	1.072
Highway 1/Ocean Avenue	D	32.5	0.943	D	33.7	0.959	D	35.4	0.978	D	36.0	0.983	D	35.2	0.976	D	37.3	0.996	D	37.9	1.001
Highway 1/ Carmel Valley Road	F	--[d]	1.298	F	--[d]	1.334	F	--[d]	1.358	F	--[d]	1.365	F	--[d]	1.362	F	--[d]	1.386	F	--[d]	1.393
Highway 1/ Rio Road [e]	D	37.6	0.867	E	40.1	0.901	E	40.7	0.911	E	40.9	0.915	E	42.2	0.927	E	42.9	0.938	E	43.1	0.941
Carmel Valley Road/Carmel Rancho Road [e]	C	17.6	0.807	C	19.0	0.849	C	20.9	0.894	C	21.5	0.905	C	21.3	0.900	C	24.0	0.942	C	24.8	0.966

NA = not applicable.

[a] CDP-GMPAP refers to the Santa Lucia Preserve uses proposed in the Greater Monterey Peninsula Area Plan in the combined development permit application.

[b] Buildout refers to buildout of the Santa Lucia Preserve.

[c] Represents reserve capacity for the unsignalized intersection of Carmel Valley Road and Rancho San Carlos Road and delay per vehicle in seconds for the remaining signalized intersections.

[d] Delay cannot be accurately calculated when the demand volume is more than 20% greater than the lane capacity.

[e] Level of service at this intersection cannot be accurately calculated due to backups that occur at the intersection of Highway 1 and Carmel Valley Road that frequently extend to this intersection.

Source: Dowling Associates 1994.

Table 13-7. Summary of A.M. Peak-Hour Level of Service Analysis

Intersection	Existing		Existing plus Approved Projects		Existing plus Approved Projects plus CDP-GMPAP [a]		Existing plus Approved Projects plus Buildout [b]		Existing plus Approved and Proposed Projects		Existing plus Approved and Proposed Projects plus CDP-GMPAP		Existing plus Approved and Proposed Projects plus Buildout	
	LOS	Measure[c]	LOS	Measure[c]	LOS	Measure[c]	LOS	Measure[c]	LOS	Measure[c]	LOS	Measure[c]	LOS	Measure[c]
Carmel Valley Road/Rancho San Carlos Road	D	188	D	117	E	40	E	21	E	77	E	2	F	-17

[a] CDP-GMPAP refers to the Santa Lucia Preserve uses proposed in the Greater Monterey Peninsula Area Plan in the combined development permit application.

[b] Buildout refers to buildout of the Santa Lucia Preserve.

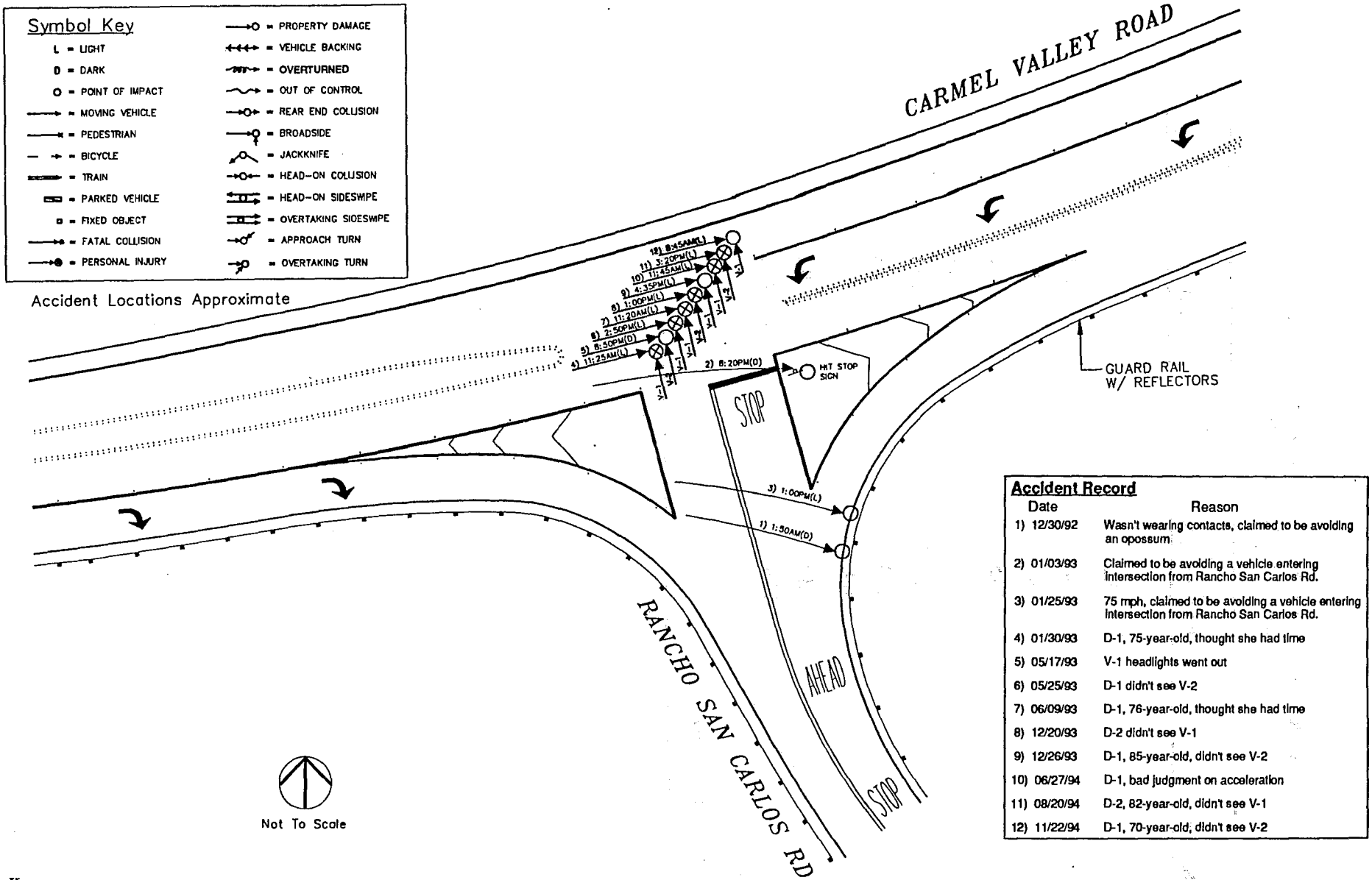
[c] Represents reserve capacity for the unsignalized intersection of Carmel Valley Road and Rancho San Carlos Road and delay per vehicle in seconds for the remaining signalized intersections.

Source: Dowling pers. comm.

Table 13-8. Average Number of Annual Accidents for Carmel Valley Road, 1984-1992

Segment	Between 1984 and 1989	Between 1990 and 1992
1	5.2	9.0
2A	1.2	6.0
2B	8.2	7.3
3	19.5	9.3
5	15.0	7.3
6	14.3	16.3
7	18.3	13.3
8	9.3	7.0
9	8.0	9.3
Total	99.0	84.8

Source: Dowling Associates 1994.



Accident Record

Date	Reason
1) 12/30/92	Wasn't wearing contacts, claimed to be avoiding an opossum
2) 01/03/93	Claimed to be avoiding a vehicle entering intersection from Rancho San Carlos Rd.
3) 01/25/93	75 mph, claimed to be avoiding a vehicle entering intersection from Rancho San Carlos Rd.
4) 01/30/93	D-1, 75-year-old, thought she had time
5) 05/17/93	V-1 headlights went out
6) 05/25/93	D-1 didn't see V-2
7) 06/09/93	D-1, 76-year-old, thought she had time
8) 12/20/93	D-2 didn't see V-1
9) 12/26/93	D-1, 85-year-old, didn't see V-2
10) 06/27/94	D-1, bad judgment on acceleration
11) 08/20/94	D-2, 82-year-old, didn't see V-1
12) 11/22/94	D-1, 70-year-old, didn't see V-2

Source: Kearns pers. comm.

Jones & Stokes Associates, Inc.

Figure 13-4
Collision Diagram for the Intersection of Carmel Valley Road and Rancho San Carlos Road since October 8, 1992

found to be a problem for drivers with healthy eyesight. These pine trees were removed recently by the Monterey County Public Works Department as a result of storm damage.

Monterey County Public Works Department has no record of any reported accidents on Robinson Canyon Road between 0.5 mile south of the Carmel River and the road's terminus at White Rock Road since 1988. Two accidents occurred during the same period on the wider section of Robinson Canyon Road between Carmel Valley Road and Holt Ranch Road.

Planned Improvements

The California Transportation Commission (CTC) has recently approved and funded the following projects on Highway 1:

- adding a second southbound left-turn lane at the intersection of Highway 1 and Carmel Valley Road,
- extending the southbound lane drop on Highway 1 from Ocean Avenue to Mesa Drive, and
- adding a second westbound through lane on Rio Road at its intersection with Highway 1.

The project to add a second westbound through lane at Rio Road is part of the adopted Deficiency Plan for Highway 1 and Carmel Valley Road (dated October 19, 1994) and is listed on page 21 of that document. The board of supervisors recently voted against implementing a parking restriction, which would provide sufficient travelway width to accommodate the additional lane.

However, there are other methods to accomplish this objective and still meet the requirements of the adopted deficiency plan. These include providing additional pavement on either Highway 1 or Rio Road. Depending on the extent of widening required, purchase of additional right-of-way might be required.

Highway 1

The Transportation Agency of Monterey County (TAMC) and Caltrans have recommended the following operational improvements for Highway 1, between Rio Road and Carpenter Street, to CTC for approval. *The Highway 1 improvement project in the vicinity of Carmel has been identified by TAMC and the CMP CIP as the number one priority project in Monterey County. Caltrans is also committed to the implementation of these projects.*

- adding a northbound through lane on Highway 1 between Carmel Valley Road and Morse Drive,

- adding a northbound through lane on Highway 1 from south of Carpenter Street to Highway 68,
- constructing dual westbound right-turn lanes at the intersection of Highway 1 and Carmel Valley Road,
- adding an exclusive eastbound right-turn lane to Ocean Avenue at its intersection with Highway 1,
- extending the length of the eastbound left-turn lane on Carpenter Street at its intersection with Highway 1,
- adding left-turn lanes on Highway 1 at its intersection with Handley Drive, and
- constructing a park-and-ride lot at Ocean *Avenue or Rio Road* ~~Street~~.

Long-term capacity improvements recommended by TAMC and Caltrans include addition of a fourth lane to Highway 1 between Rio Road and Ocean Avenue. In addition, TAMC and the CTC have approved construction of the Hatton Canyon Freeway as the long-range solution for accommodating the future traffic generated by the area buildout. However, construction of this freeway is presently uncertain due to the difficult permitting process and substantial funding requirements of this freeway.

Carmel Valley Road

The CVMP calls for widening the section of Carmel Valley Road between Rancho San Carlos and Robinson Canyon Roads to four lanes to meet its LOS standards. The Monterey County Public Works Department has been investigating passing lane and safety improvement alternatives that may have fewer environmental impacts. Monterey County Public Works Department has initiated preparation of plans and specifications for improvements to segment 6 of Carmel Valley Road.

Monterey County has adopted a fee ordinance, which establishes development fees to fund traffic mitigation measures.

CUMULATIVE CONDITIONS

Approved and Pending Projects

The approved projects consist of those development projects in the Carmel Valley area approved by Monterey County between 1990 and early 1993. Proposed projects are those

development projects in the Carmel Valley area that have applications currently pending with Monterey County.

The Cañada Woods and Veeder Ranch projects that have recently been approved are considered as proposed projects in this study. Table 13-9 lists the approved and proposed projects along with their estimated daily and peak-hour trip generation. Figure 13-5 shows the project locations. Since preparation of the traffic studies for the proposed project, additional projects have been proposed or approved in Carmel Valley. Two projects would have access onto Carmel Valley Road: Wolters is a 10,000 sf commercial use project proposed near Cañada Woods and Mill College is a 3-unit residential project proposed near Schulte Road.

Neither of these projects would affect the conclusions or analysis conducted for the EIR because they are small projects. In addition to these two projects in Carmel Valley, several other pending and approved projects have been identified by the Monterey County Planning and Building Inspection Department in the region (see Chapter 19 of this EIR). Of these regional projects, the largest is the Pebble Beach Lot Program which consists of 316 residential units, 34 P.U.D.s and 53 inclusionary housing units. The Pebble Beach project would generate traffic on Highway 1; however, the incremental addition of traffic would not change the conclusions of the cumulative impact analysis for the Highway 1 intersections that would also be affected by the proposed project: Santa Lucia Preserve project in combination with the approved and pending projects would contribute to a significant impact on Rio Road/Highway 1, Carpenter Street/Highway 1, and Carmel Valley Road/Highway 1 intersections.

Traffic Conditions for Existing plus Approved Projects

Table 13-4 shows the projected daily traffic volumes on Carmel Valley Road under the Existing plus Approved Projects conditions. Table 13-5 shows the p.m. peak-hour LOS for the critical segments of Carmel Valley Road.

Segment 7, between Rancho San Carlos Road and Schulte Road, would exceed its 24-hour threshold volume with the completion and full occupancy of the approved projects. Detailed LOS analysis, however, indicated that this segment would continue to operate at LOS E, which is its CVMP 1986 LOS.

The approved projects would contribute additional traffic to segment 6. This segment exceeded both its threshold volume and its CVMP goal of LOS D in 1992.

The approved projects would increase the traffic volume at the intersections of Carmel Valley Road and Rancho San Carlos Road and Highway 1 and Carmel Valley Road, which are operating at unacceptable LOS under the existing conditions (Table 13-6). In addition, the traffic generated by the approved projects would result in degradation of LOS at the intersection of Highway 1 and Rio Road from LOS D to LOS E.

Table 13-9. Approved and Proposed Projects in the Carmel Valley Area Evaluated in the Traffic Study[a,e]

Project	Dwelling Units	Daily Trips	Peak-Hour Trips
Built			
Pacific Meadows[b]	200	660	66
Approved			
Quail Meadows	105[c]	788	78
Carmel Valley Ranch	89	668	67
Coast Ranch	83[d]	630	76
Proposed			
Cañada Woods	59	960	110
Holt Ranch	83	623	62
Veeder Ranch	30	225	22
Carmel Greens	107	803	80
Total	753	5,357	561

Notes:

[a] See Chapter 19 for a listing of other approved and proposed projects in the region that are considered in the cumulative impacts for other resource areas.

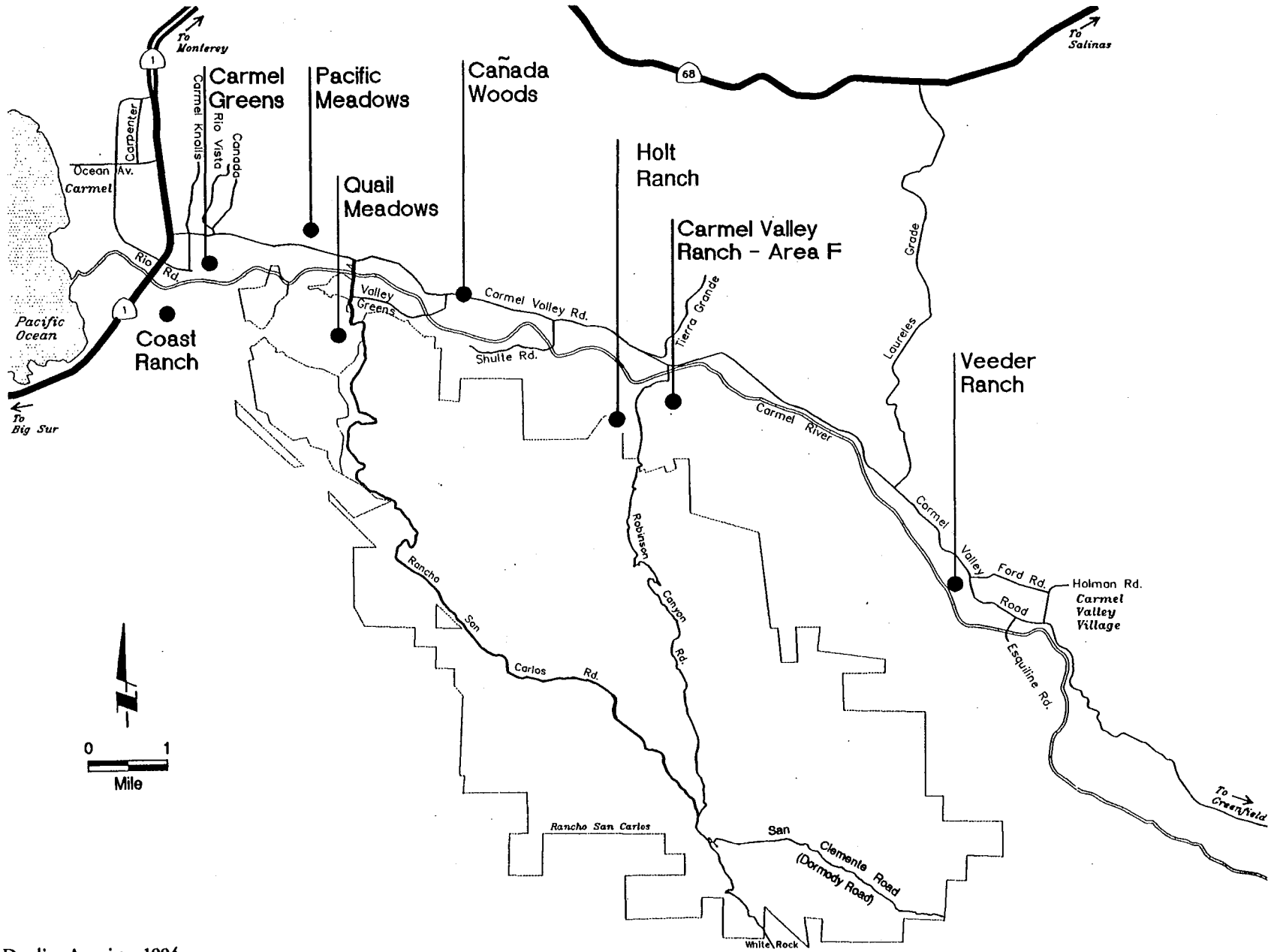
[b] Pacific Meadows was completed by 1992 but was not yet fully occupied. Consequently, the trips generated by this facility have been conservatively added to the Monterey County traffic counts on Carmel Valley Road for 1992.

[c] Includes 40 visitor units. The estimate for Quail Meadows does not include trips generated by the conference center because most of these trips would occur outside the peak hour and many would stay onsite.

[d] Excludes 6 existing units. Note that Coast Ranch may not be built.

[e] Pebble Beach Lot Program which includes 316 residential units, 34 P.U.D.s, and 53 inclusionary housing units would not affect Carmel Valley Road and was not quantitatively evaluated in this traffic analysis.

Source: Dowling Associates 1994.



Source: Dowling Associates 1994.

Jones & Stokes Associates, Inc.

Figure 13-5
Locations of Approved and Proposed Projects

Traffic Conditions for Existing plus Approved and Proposed Projects

Table 13-4 shows the projected daily traffic volumes on Carmel Valley Road under the Existing plus Approved and Proposed Projects conditions. Table 13-5 shows the p.m. peak-hour LOS for the critical segments of Carmel Valley Road.

Segment 3, between Laureles Grade Road and Ford Road, would exceed its 24-hour threshold volume with the completion and full occupancy of the approved and proposed projects. Detailed LOS analysis, however, indicates that this segment would continue to operate at LOS D, which is its CVMP 1986 LOS.

The approved and proposed project would contribute more traffic to segment 6. This segment exceeded its CVMP goal of LOS D and its threshold volume in 1992.

Daily traffic volumes on segment 7 would also be increased as a result of approved and proposed projects; however, there would be no change in LOS for this segment.

The p.m. peak-hour LOS for the critical intersections are shown on Table 13-6. The traffic generated by the approved and proposed projects would degrade the existing LOS at the intersection of Carmel Valley Road and Rancho San Carlos Road from LOS E to LOS F.

The approved and proposed projects would increase the traffic volume at the intersection of Highway 1 and Carmel Valley Road, which is operating at unacceptable LOS F under the existing conditions. In addition, the traffic generated by the approved and proposed projects would result in degradation of existing LOS at the intersection of Highway 1 and Rio Road from LOS D to LOS E.

IMPACTS AND MITIGATION MEASURES

Significance Criteria

According to Appendix G of the State CEQA Guidelines, a project would normally have a significant effect on the environment if it would:

- cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system.

Based on the Monterey County Traffic CMP; the GP; CVMP; discussions with Neal Thompson, Traffic Engineer, Monterey County Department of Public Works; and on professional standards; the proposed project was considered to have a significant effect on the environment if it would:

- result in an intersection operating at LOS A, B, or C to deteriorate to LOS D, E, or F;
- result in an intersection operating at LOS D to deteriorate to LOS E or F;
- increase the V/C by 1% or more at an intersection that is already operating at LOS E;
- increase the traffic volume at an intersection operating at LOS F;
- substantially alter present patterns of vehicle circulation or movement; or
- increase traffic hazards to motor vehicles, bicycles, or pedestrians.

The following significance criteria are applied to Carmel Valley Road to maintain consistency with the CVMP. For Carmel Valley Road, the project is considered to have a significant effect if it would:

- result in a segment operating at LOS A or B to deteriorate to LOS C, D, E, or F;

- result in a change of one LOS worse than the 1986 LOS, if the segment currently operates at LOS C or worse; and

- increase the traffic volume at a segment that is operating at a LOS worse than its 1986 level.

Applicant's Proposed Mitigation Measures

The applicant is proposing to implement the following mitigation measures:

- Pay a traffic impact fee that will be used to fund Carmel Valley Road traffic improvements as required by the county pursuant to Monterey County Board of Supervisors Resolution No. 92-395 or other such resolution as may be adopted by the board.

- Pay a traffic impact fee toward developer-funded Highway 1 traffic improvements.

- Improve the intersection of Carmel Valley Road and Rancho San Carlos Road to include a left-turn refuge lane on Carmel Valley Road for the northbound to westbound left-turning vehicles on Rancho San Carlos Road. This lane would be 1,600 feet long and would transition to a second lane in the westbound direction near Petra Way. The improvement to this intersection would also include extending the eastbound right-turn lane on Carmel Valley Road.

- Upgrade Rancho San Carlos Road to include two 10-foot travel lanes to the south of the Quail Meadows subdivision entrance. At certain locations and for short distances, this road will be narrowed to a minimum of 18 feet to minimize impact on existing trees or other special landscape features.

- Reconstruct and realign Rancho San Carlos Road between Quail Meadows Drive and the main gate to provide adequate corner sight visibility for motorists using the Carmel Valley Racquet Club driveways on Rancho San Carlos Road.

- Upgrade the Rancho San Carlos Road bridge across the Carmel Valley River to conform with ASHTO HS20-44 loading requirements to handle emergency vehicles, with two 10-foot travel lanes ~~in each direction~~. In addition, add a pedestrian footpath to this bridge that will provide a physical separation between vehicles and pedestrians.

- For all new and upgraded roads and driveways, conformance with current county and CDF standards, except where a modification to those standards would significantly reduce disturbance to a resource, and no other feasible alternative is available.

- To provide for emergency access, design roads as loops whenever possible. Existing dirt ranch roads will be maintained to provide alternate escape roads for residents. Fire and emergency response vehicles will be stored in the San Francisquito Flat area, the circulation hub of the preserve.

- Establish a transportation management association (TMA), designate an onsite trip reduction coordinator, and implement a trip reduction program to provide means to reduce both onsite and offsite trip generation. Principal features of the program include:

  - onsite production, stockpiling, and delivery of construction materials;

  - providing employee shuttle bus service when the preserve is built out;

  - the consolidation of deliveries from an offsite location;

  - providing onsite recreation, convenience retail, and concierge services;

  - providing onsite construction, maintenance, landscaping, and gardening services; and

  - implementing a signage, information, and an education program.

- Designate 15% of all housing units at the Santa Lucia Preserve as inclusionary units reserved for employees of the ranch, thereby minimizing employee commutes.

- Minimize the use of Robinson Canyon Road by implementing the following measures:

  - Rancho San Carlos Road will be improved as the primary access, therefore providing a faster and safer link to Carmel Valley Road than Robinson Canyon Road, making it the preferred route.

- No development areas within the preserve are served by access (other than emergency access) from Robinson Canyon Road north of the Peñon gate, the segment having substandard width, gradient, and sight distance.

- Project traffic using Robinson Canyon Road as an east-west link is limited to the segments between the existing Rancho San Carlos Road gate and the areas near the existing San Clemente Road *(Dormody Road)* gate and the Peñon gate. These segments connect these established ranch gates and have adequate width, gradient, and sight distance.

- With the exception of a limited number of intersections for emergency egress, driveways, and east-west linking roads, access rights of landowners whose land abuts the preserve to Robinson Canyon Road will be dedicated to the county.

- The TMA will seek to minimize project traffic on Robinson Canyon Road by implementing an education program, distributing information, and installing appropriate signs.

Project Travel Characteristics

Trip Generation

Table 13-10 provides a summary of the trips expected to be generated by the Santa Lucia Preserve uses proposed in the GMPAP in the combined development permit application (CDP-GMPAP) and by the potential buildout of the Santa Lucia Preserve (buildout). This table shows the average daily traffic volumes and the inbound and outbound volumes during the a.m. and p.m. peak hours.

Standard trip generation rates and distribution assumptions that are normally satisfactory for residential developments do not apply to a community like the Santa Lucia Preserve, where residential units are located a significant distance from other developments, and commercial and recreational uses are provided for the residents. The center of the project is approximately 9 miles south of Carmel Valley. This distance will have a significant influence on the travel habits of residents, employees, and guests at the preserve. Trip generation of the proposed project was estimated by conducting trip generation surveys at similar developments in the area. Results of these surveys are presented below.

Market Rate Units. A 7-day trip generation survey was conducted at Via Los Tulares, a residential development 1.1 miles east of Carmel Valley Village. This development consists of rural single-family homes with residents of the type most likely to occupy homes at the Santa Lucia Preserve.

Table 13-10. Summary of Trip Generation Analysis

Land Uses	Factors for Calculating Trip Generation	Daily Rate	% Off-Ranch	Daily Trips Off-Ranch	% A.M. Peak Hour	% P.M. Peak Hour	A.M. Peak-Hour Trips In	A.M. Peak-Hour Trips Out	A.M. Peak-Hour Trips Total	P.M. Peak-Hour Trips In	P.M. Peak-Hour Trips Out	P.M. Peak-Hour Trips Total
Project Application (CDP-GMPAP)												
Market rate homes	239 d.u.[a]	6.7	70	1,121	7	10	21	56	77	77	35	112
Inclusionary/employee units	44 d.u.	5.0	28	58	8	10	1	4	5	4	2	6
Visitor accommodations	150 rooms	5.8	80	696	7	7	25	24	49	25	24	49
Golf course/clubhouse	374 rounds/weekday	2.4	39	35	15	15	6	6	12	3	2	5
Neighborhood commercial	20 employees	1.7	50	17	25	25	2	2	4	2	2	4
Recreational facilities	10 employees	1.7	50	9	25	25	1	1	2	1	1	2
Service/operations	5 employees	1.7	50	4	25	25	0	1	1	1	0	1
Subtotal CDP-GMPAP Project Application				1,944			56	94	150	113	66	179
Buildout Uses												
In Carmel Valley Master Plan area												
Market rate homes	53 d.u.	6.7	80	284	7	10	5	15	20	19	9	28
Inclusionary multifamily	9 d.u.	5.0	32	14	8	10	0	1	1	0	1	1
In Carmel area Coastal Zone area												
Market rate homes	5 d.u.	6.7	75	25	7	10	0	1	1	2	1	3
Total Ranch Buildout (excludes existing uses)				2,267			61	111	172	134	77	211

[a] d.u. = dwelling units.

The average weekday trip generation rate at Via Los Tulares was found to be 6.7 vehicle trips per dwelling unit. Even though the project is located in a more rural setting than Via Los Tulares and therefore should have a lower trip generation rate, the 6.7 daily trips per unit was used in this analysis.

The Via Los Tulares survey also found that 50% of the trips generated by the homes at Via Los Tulares stopped at Carmel Valley Village. The commercial uses proposed as part of the project would not be as extensive as those in Carmel Valley Village; however, the project will have more extensive onsite recreational facilities. Consequently, the commercial and recreational facilities of the project were conservatively estimated to retain approximately 30% of the residential trips on the ranch.

Inclusionary/Employee Units. The dwelling units designated for the employees would have a trip generation rate of approximately 75% of the market rate homes, generating an average of 5.0 daily vehicle trip ends per unit.

Visitor Accommodations. Because of the unique location and character of the proposed visitor accommodations, comparable trip generation rates were not available. The San Diego Princess Resort, located on an island in Mission Bay in San Diego, was the most similar use that was found in literature. This resort, located in an urban area, is substantially larger than the visitor accommodation facilities proposed for the project and has extensive casual visitor facilities. Therefore, the trip generation rate of 7.8 daily vehicle trips per room for the San Diego Princess Resort was reduced to 5.8 trips per room for the proposed project to eliminate the casual visitor trips typical of resorts in urban areas. The trip rate represents trips made by employees, service vehicles, and guests.

Golf Trail. It is anticipated that the golf club would have about 300 members, with total play averaging about 15,000 rounds per year. The resident members would account for 50% of the play, nonresident members would account for 25% of the play, and guests would account for the remaining 25%.

To estimate the golf course trip generation rate, a survey was conducted at the Cypress Point Golf Course in Del Monte Forest. The scale and location of the Cypress Point Golf Course are comparable to the proposed Santa Lucia Preserve golf course. Survey results indicated that the Cypress Point Golf Course has a weekday trip generation rate of 2.45 daily trips per round.

Although the location and scale are different from the proposed golf course, the Chardonnay Golf Course in Napa Valley that was recently surveyed provided additional trip generation data in support of the trip rates from the Cypress Point survey. The Chardonnay Golf Course was found to have a weekday trip generation rate of 2.4 daily vehicle trips per round.

Based on the results of the Cypress Point and Chardonnay Golf Courses trip generation studies, a trip rate of 2.4 trips per round per day was used for the proposed golf course. About 15% of the daily traffic was estimated to occur during the afternoon peak period.

Club members residing within the Santa Lucia Preserve would generate only internal trips between their residences and the golf course. None of these trips would affect roads outside the preserve.

Nonresidents will be composed of people living in the Monterey area, the San Francisco Bay Area, and the rest of the United States. Some of the nonresident members and guests would either stay at the lodge or at a residence on the preserve. Therefore, some nonresident members and guests would generate internal trips within the Santa Lucia Preserve, while others would generate external trips while traveling to and from the golf course.

Table 13-11 shows how the percentage splits between overnight guests and residents versus members and guests not living within the preserve are applied, to determine the overall percentage of the internal and external trips for the golf course. This table shows that approximately 39% of the total trips would be generated by players coming from locations other than the Santa Lucia Preserve, while 61% of the trips generated by the golf course will stay entirely within the preserve.

Other Residential-Serving Uses. Other uses proposed for the site consist of a post office and general store at the ranch center, the Conservancy, the recreational facilities such as the sport club and the equestrian center, and the service/operations. It was assumed that these uses employ approximately 70 employees and that 50% of the employees would live on the preserve.

The only external trips generated by these uses would be generated by employees and service vehicle trips related to the operations of these facilities. It was assumed that the employees would generate an average of 1.7 daily vehicle trips (2.0 daily commute trips divided by an average of 1.2 employees per vehicle). One-half of these trips would be made in the morning and one-half in the afternoon. Approximately one-half of the afternoon trips home would be made during the p.m. peak hour.

Trip Distribution and Assignment

The distribution pattern for the offsite traffic generated by the proposed project was predicted by the Carmel Valley model originally developed for the Carmel Valley Road Improvement Plan EIR. The split in offsite traffic between Rancho San Carlos Road and Robinson Canyon Road was based on the relative travel time and distances from the center of the preserve to Carmel Valley Road via each of these roads. Caltrans diversion curves were then applied to determine the percentage split in traffic between Rancho San Carlos Road and Robinson Canyon Road. This method resulted in an estimate of 9.3% of offsite traffic using Robinson Canyon Road, taking into account the internal circulation system features designated to encourage use of Rancho San Carlos Road.

Table 13-12 shows the trip distribution used for the Santa Lucia Preserve uses proposed in the GMPAP in the combined development permit application (CDP-GMPAP) and for the buildout conditions.

Table 13-11. Computation of the Average Percentage of Golf Trail Trips Staying Entirely within the Santa Lucia Preserve

Player Group	Percent of Players	Percent of Each Group Living or Staying	
		Within the Preserve	Outside the Preserve
Resident members	50	100	0
Nonresident members			
Monterey area	13	0	100
San Francisco Bay area	8	25	75
Rest of United States	4	75	25
Guests	25	25	75
Percent of total	100	61	39

Table 13-12. Trip Distribution for Trips Entering or Leaving the Santa Lucia Preserve

Segment	Percent External Trips	CDP-GMPAP[a] P.M. Peak Hour Inbound	CDP-GMPAP[a] P.M. Peak Hour Outbound	CDP-GMPAP[a] P.M. Peak Hour Total	CDP-GMPAP[a] Daily Trips	Buildout[b] P.M. Peak Hour Inbound	Buildout[b] P.M. Peak Hour Outbound	Buildout[b] P.M. Peak Hour Total	Buildout[b] Daily Trips
Carmel Valley Road		113	66	179	1,944	134	77	211	2,267
1. East of Holman Road	0.70	1	0	1	14	1	1	2	16
2A. Holman Road to Esquiline Road	0.70	1	0	1	14	1	1	2	16
2B. Esquiline Road to Ford Road	3.17	3	3	6	62	4	3	7	72
3. Ford Road to Laureles Grade Road	8.80	10	5	15	171	12	7	19	199
5. Laureles Grade Road to Robinson Canyon Road	12.68	14	8	22	246	17	10	27	287
6. Robinson Canyon Road to Schulte Road	12.88	15	8	23	250	17	10	27	292
7. Schulte Road to Rancho San Carlos Road	19.22	22	12	34	374	26	15	41	436
8. Rancho San Carlos Road to Rio Road	71.48	81	42	128	1,390	96	55	151	1,620
9. Rio Road to Carmel Rancho Boulevard	60.56	68	40	108	1,177	81	47	128	1,373
10. Carmel Rancho Boulevard to Highway 1	55.99	63	37	100	1,088	75	43	118	1,269
Highway 1									
South of Rio Road	2.06	3	1	4	48	3	2	5	56
Rio Road to Carmel Valley Road	10.21	11	7	18	198	14	8	22	231
Carmel Valley Road to Ocean Avenue	45.77	52	30	82	890	61	36	97	1,038
Ocean Avenue to Carpenter Street	41.55	47	27	74	808	56	32	88	942
North of Carpenter Street	39.79	45	26	71	774	53	31	84	902

[a] CDP-GMPAP refers to the Santa Lucia Preserve uses proposed in the Greater Monterey Peninsula Area Plan in the combined development permit application.

[b] Buildout refers to buildout of the Santa Lucia Preserve.

Source: Dowling Associates 1994.

Impacts of Existing plus Approved Projects plus CDP-GMPAP

The CDP-GMPAP phase of the project would contribute additional traffic volume to segment 6 of Carmel Valley Road. This segment, which is operating at the unacceptable LOS E under the Existing plus Approved Projects condition, would continue to operate at this level with the addition of the CDP-GMPAP phase traffic.

Segment 3 would exceed its 24-hour threshold volume with the addition of the CDP-GMPAP phase; however, there would be no change in its LOS. The project would also increase traffic volumes on segment 7, which is operating at LOS E; however, this addition is less than 5%, and there would be no change in the segment's LOS.

The CDP-GMPAP phase would result in degradation of LOS at the intersection of Carmel Valley Road and Rancho San Carlos Road. In addition, the project would result in additional traffic to the intersection of Highway 1 and Carmel Valley Road, which operates at an unacceptable LOS F under the Existing plus Approved Projects condition. The project would increase the V/C by more than 1% at the intersection of Highway 1 and Rio Road, which operates at LOS E under the Existing plus Approved Projects condition.

Impact: Increased Traffic Volume on Segment 6 of Carmel Valley Road, Which Is Operating at a LOS Worse than the 1986 Level

Implementation of the CDP-GMPAP phase would contribute additional traffic to segment 6 of Carmel Valley Road. This segment is operating at LOS E, which is worse than its 1986 operating level of LOS D. This is considered a significant impact. Implementation of the following mitigation measure would reduce the project impact on Carmel Valley Road to a less-than-significant level.

Applicant's Proposed Mitigation Measure *38*: Contribute to the Traffic Mitigation Fund for Carmel Valley Road. Monterey County has been studying plans for safety improvements along Carmel Valley Road and for passing lanes on Carmel Valley Road between Rancho San Carlos Road and Robinson Canyon Road. The county has also adopted a fee ordinance, which establishes development fees to fund traffic mitigation measures. The county has initiated preparation of plans and specifications for improvements to segment 6 of Carmel Valley Road. The project applicant is proposing to contribute its fair share assessed by Monterey County toward the traffic mitigation fund used to improve Carmel Valley Road.

Impact: Degradation of Level of Service at the Intersection of Carmel Valley Road and Rancho San Carlos Road from LOS D to LOS E during the A.M. Peak Hour, and from LOS E to LOS F during the P.M. Peak Hour

The traffic generated by the CDP-GMPAP phase would result in degradation of the a.m. peak hour LOS at the intersection of Carmel Valley Road and Rancho San Carlos Road from LOS D to LOS E under Existing plus Approved Projects condition. The CDP-GMPAP phase would also result in degradation of the p.m. peak hour LOS at this intersection from LOS E to LOS F. This is considered a significant impact.

The intersection of Carmel Valley Road and Rancho San Carlos meets the traffic signal warrants under the existing and future with-project conditions (Table 13-13). In addition, several accidents have occurred in the past 3 years involving vehicles traveling eastbound on Carmel Valley Road and vehicles turning left from Rancho San Carlos Road onto Carmel Valley Road. To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Applicant's Proposed Mitigation Measure *39*: Add a Left-Turn Acceleration Lane on Carmel Valley Road for the Northbound to Westbound Left-Turning Vehicles and Extend the Eastbound Right-Turn Lane. The applicant is proposing to improve this intersection to include a left-turn acceleration lane on Carmel Valley Road for the northbound to westbound left-turning vehicles on Rancho San Carlos Road and also to extend the eastbound right-turn lane. These improvements may result in a reduction of the number of accidents at this location. In addition, the a.m. peak hour LOS at this intersection would improve to LOS B with a reserve capacity of 383 vehicles per hour. The p.m. peak hour LOS at this intersection would improve to LOS E with a reserve capacity of 42 vehicles per hour, which is the same LOS as the existing operating conditions at this intersection. Even though the applicant's proposed mitigation measure would not improve the LOS at this intersection to an acceptable level, it does improve conditions to the existing levels, therefore mitigating project impacts. *The Monterey County Department of Public Works questions the effectiveness of this proposed mitigation measure because of the hesitancy that some drivers using the acceleration lane may have unless traffic is clear in both directions. The following mitigation measure is considered to be an acceptable alternative.*

Alternative Mitigation Measure 40: Contribute to a Fund for Signalizing the Intersection of Carmel Valley Road and Rancho San Carlos Road or Constructing an Underpass for the Northbound Left-Turn Movement. *This intersection meets the signal warrants under existing and future with-project conditions. Signalization of this intersection would improve the a.m. peak-hour LOS at this intersection to LOS A, and improve the p.m. peak-hour LOS at this intersection to LOS B under the Existing plus Approved Projects plus Buildout conditions. In addition, the traffic signal would reduce the number of right-angle accidents at this intersection. Signalization of this intersection would reduce the project impacts at the intersection of Carmel Valley Road and Rancho San Carlos Road to a less-than-significant level. Installation of traffic signals, however, may increase certain types of accidents, such as rear-end collisions. In addition, signalization of intersections on Carmel Valley Road is inconsistent with the policies of the CVMP to retain the rural character of the valley.*

Table 13-13. Summary of Traffic Signal Warrants Evaluation at Carmel Valley Road/Rancho San Carlos Road Intersection

Condition	Signal Warrants										
	1	2	3	4	5	6	7	8	9	10	11
Existing (1993) traffic	No	Yes	--	--	--	No	--	No	Yes	--	Yes
Existing plus approved and proposed projects plus buildout	No	Yes	--	--	--	No	--	No	Yes	--	Yes

Note: Warrants 3, 4, 5, and 7 were not applicable; warrant 10 was not computed.

As an alternative to signalizing this intersection, the applicant could contribute to a fund for constructing an underpass for the northbound left-turn lane. This underpass would improve the LOS and reduce the number of right-angle accidents at this intersection. The LOS at this intersection would improve to LOS A during the a.m. peak hour and to LOS D during the p.m. peak hour with the underpass. This underpass would require widening of Carmel Valley Road to the west of Rancho San Carlos Road to accommodate a lane for the merging traffic. Depending on the final alignment, this improvement may require substantial excavation of the steep embankment on the north side of Carmel Valley Road that may result in geotechnical, biological, and visual impacts. This underpass is consistent with the CVMP policy, which encourages the county to consider constructing minor interchanges as an alternative to signalizing the Carmel Valley intersections; however, it is not consistent with the policies that recommend minimizing hillside scarring caused by cutting, grading, and vegetation removal

Impact: Addition of Traffic Volume to the Intersection of Highway 1 and Carmel Valley Road, Which Is Operating at LOS F

The traffic generated by the project would increase the traffic volume at the intersection of Highway 1 and Carmel Valley Road, which is operating at LOS F under the Existing and the Existing plus Approved Projects conditions. This is considered a significant impact. Implementation of this mitigation measure would reduce the project impact on Highway 1 and its intersections to a less-than-significant level.

Applicant's Proposed Mitigation Measure *41*: Contribute *to the Traffic Mitigation Fund for Highway 1.* ~~**Its Fair Share toward Improving Highway 1.**~~ Several improvements are being considered for Highway 1. These improvements are listed above under "Planned Improvements". At present, there is no established development impact fee program for Highway 1. The project applicant is proposing to either contribute its fair share based on trip generation assessed by Monterey County or pay its fair share of impact fees to the traffic mitigation fund to improve Highway 1 if and when the county establishes such a program.

Impact: Increase in V/C by More than 1% at the Intersection of Highway 1 and Rio Road, Which Is Operating at LOS E

The traffic generated by the project would increase the V/C by more than 1% at the intersection of Highway 1 and Rio Road. This intersection would be operating at LOS E under the Existing plus Approved Projects condition. This is considered a significant impact. To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Applicant's Proposed Mitigation Measure *41*: Contribute to the Traffic Mitigation Fund for Highway 1. This mitigation measure is described above under the mitigation measure for the intersection of Highway 1 and Carmel Valley Road. *Implementation of this measure at Rio Road*

will require additional travelway width on either Highway 1 or Rio Road. Depending on the extent of widening required, purchase of additional right-of-way might be required.

Impact: Increased Traffic Volume on Robinson Canyon Road

Implementation of the proposed project would increase the traffic volumes on Robinson Canyon Road. This road is a winding road that is narrow at several sections. The Board of Supervisors Resolution 93-115 has required that the design and improvement for the Santa Lucia Community Preserve minimize the amount of traffic using Robinson Canyon Road. The Board resolution identified several methods to achieve this result, including improvements of interior roads and alternative access that deter and discourage the use of Robinson Canyon Road. The applicant proposes to widen and realign Rancho San Carlos Road. Also internal road circulation of the golf trail is designed to feed traffic from east of Robinson Canyon Road onto Rancho San Carlos Road. The increase in traffic on Robinson Canyon Road, however, would be minimal because of the applicant's proposed measures listed under the section "Applicant's Proposed Mitigation Measures". This impact is *therefore* considered less than significant.

On July 27, 1995, the county Public Works and Planning Departments staff met with representatives of the applicant to discuss the internal circulation patterns of the preserve in the vicinity of Robinson Canyon Road and issues relative to Board Resolution No. 93-115 to minimize project-related traffic on Robinson Canyon Road. Overcrossing options were discussed. The complete grade separation of all driveways on the preserve leading to Robinson Canyon Road was ruled out as unnecessary because measures incorporated into the project are expected to limit project-related traffic on Robinson Canyon Road to a maximum of 20 vehicles per hour.

Construction of overcrossings at roadways is one potential method for reducing project-related traffic on Robinson Canyon Road. Construction of overcrossings would have environmental impacts similar to those identified for other ground-disturbing activities associated with the project. There is also the potential for visual impacts. Measures used to mitigate other ground-disturbing activities could be used to mitigate ground-disturbing impacts associated with new overcrossings and landscaping and screening measures similar to those used for other visual impacts could be used to mitigate visual impacts. The Public Works Department concluded that measures incorporated into the project to reduce traffic on Robinson Canyon Road are adequate and that it will not require an overcrossing as a needed condition of approval or mitigation to reduce traffic impacts.

Mitigation Measure: No mitigation measures are required.

Impact: Increased Traffic Hazards Resulting from Addition of Construction Trucks to Rancho San Carlos Road

During the construction phase of the project, construction trucks and material-hauling trucks would be traveling to and from the quarries on Rancho San Carlos Road. This road is a winding, narrow road, and addition of trucks to this road may result in increased traffic hazards to motor vehicles, bicycles, and pedestrians. This is considered a significant impact. To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Applicant's Proposed Mitigation Measure *43*: Develop and Implement a Traffic Control Plan for the Construction Site. The applicant should develop and implement a traffic control plan to minimize the effects of construction activities on the roadway system. This plan should be prepared by a qualified professional engineer before construction activities begin and it should comply with Monterey County guidelines. Elements of this plan should include but not be limited to:

- identifying detour routes if road closures are necessary;
- specifying types and locations of warning signs, lights, and other traffic control devices;
- notifying and consulting with the emergency service providers and maintaining measures to provide an adequate level of access to allow delivery of emergency services;
- providing parking locations for construction employees that would have the least effect on the existing roadway operations or parking supply; and
- maintaining access to private driveways to the greatest extent feasible.

Impact: Increased Traffic Hazards Resulting from Additional Traffic Volumes on Rancho San Carlos Road

The proposed project would result in additional traffic volumes on Rancho San Carlos Road. This road is a winding road and, even after the applicant's proposed improvements, would include numerous blind curves. Addition of traffic volumes to this road may result in increased traffic hazards to motor vehicles, bicycles, and pedestrians. This is considered a significant impact. To reduce this impact to a less-than-significant level, the following mitigation measures should be implemented.

Applicant's Proposed Mitigation Measure *44*: Improve Rancho San Carlos Road and Existing Bridge across Carmel Valley River, to Conform with the County and CDF Standards. The applicant is proposing to widen Rancho San Carlos Road to include two 10-foot travel lanes south of the Quail Meadows subdivision entrance, except where for short distances, this road will be narrowed to a minimum of 18 feet to minimize impact on existing trees or other special landscape features. In addition, the applicant is proposing to reconstruct and realign Rancho San Carlos Road between Quail Meadows Drive and the main gate to provide adequate corner sight visibility for

motorists using the Carmel Valley Racquet Club driveways on Rancho San Carlos Road. Furthermore, the applicant is proposing to upgrade the allowable weight limit on the Rancho San Carlos bridge across the Carmel Valley River, widen this bridge, and add a pedestrian footpath. The applicant is also proposing to conform with current county and CDF standards for all new and upgraded roads and driveways, except where a modification to those standards would significantly reduce disturbance to a resource, and no other feasible alternative is available.

Additional Mitigation Measure *45*: Provide Adequate Sight Distance, and Install Appropriate Traffic Control Devices. In addition to implementing the applicant's proposed improvements, the following mitigation measures are recommended:

- Provide adequate sight distance for all driveways and intersections within the project. The design for the internal roads shall be approved by the Monterey County Department of Public Works.

- Install appropriate traffic control devices on Rancho San Carlos Road to regulate, warn, and guide traffic.

Impacts of Existing plus Approved Projects plus Buildout

Buildout would contribute additional traffic volumes to segment 6 of Carmel Valley Road, which is operating at the unacceptable LOS E under the Existing plus Approved Projects condition.

Buildout would also result in degradation of LOS at the intersection of Carmel Valley Road and Rancho San Carlos Road from LOS E to LOS F during the p.m. peak hour. In addition, buildout would result in additional traffic to the intersection of Highway 1 and Carmel Valley Road, which operates at an unacceptable LOS F under the Existing plus Approved Projects condition. The proposed project would also increase the V/C by more than 1% at the intersections of Highway 1 with Carpenter Street and Rio Road, which operate at LOS E under the Existing plus Approved Projects condition.

Impact: Increased Traffic Volume on Segment 6 of Carmel Valley Road, Which Is Operating at a LOS Worse than Its 1986 Level

Buildout would contribute additional traffic to segment 6 of Carmel Valley Road. This segment is operating at LOS E, which is worse than its 1986 operating level of LOS D. This is considered a significant impact. To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Applicant's Proposed Mitigation Measure *38*: Contribute to the Traffic Mitigation Fund for Carmel Valley Road. This mitigation measure is described above under the mitigation measure for "Impacts of Existing plus Approved Projects plus CDP-GMPAP" for this segment.

Impact: Degradation of Level of Service at the Intersection of Carmel Valley Road and Rancho San Carlos Road from LOS D to LOS E during the A.M. Peak Hour and from LOS E to LOS F during the P.M. Peak Hour

The traffic generated by buildout would result in degradation of the a.m. peak hour LOS at the intersection of Carmel Valley Road and Rancho San Carlos Road from LOS D under Existing plus Approved Projects condition to LOS E. The buildout would also result in degradation of the p.m. peak-hour LOS at this intersection from LOS E to LOS F. This is considered a significant impact. Implementation of one of the following measures would reduce the project impact on the intersection of Carmel Valley Road and Rancho San Carlos Road to a less-than-significant level.

Applicant's Proposed Mitigation Measure *39*: Add a Left-Turn Acceleration Lane on Carmel Valley Road for the Northbound to Westbound Left-Turning Vehicles and Extend the Eastbound Right-Turn Lane. The applicant is proposing to improve this intersection to include a left-turn acceleration lane on Carmel Valley Road for the northbound to westbound left-turning vehicles on Rancho San Carlos Road and also to extend the eastbound right-turn lane. The a.m. peak-hour LOS at this intersection would improve to LOS B with a reserve capacity of 363 vehicles per hour. The p.m. peak-hour LOS at this intersection would improve to LOS E with a reserve capacity of 18 vehicles per hour, which is less than the existing reserve capacity at this intersection. Because this intersection would be operating at an unacceptable LOS under this condition and the applicant's mitigation measure would not result in an operating condition equal to at least without-project levels, ~~additional~~ *alternative* mitigation measures would be needed for this intersection.

Alternative **~~Additional~~ Mitigation Measure *40*: Contribute to a Fund for Signalizing the Intersection of Carmel Valley Road and Rancho San Carlos Road or Constructing an Underpass for the Northbound Left-Turn Movement.** This intersection meets the signal warrants under existing and future with-project conditions. Signalization of this intersection would improve the a.m. peak-hour LOS at this intersection to LOS A, and improve the p.m. peak-hour LOS at this intersection to LOS B under the Existing plus Approved Projects plus Buildout conditions. In addition, the traffic signal would reduce the number of right-angle accidents at this intersection. Signalization of this intersection would reduce the project impacts at the intersection of Carmel Valley Road and Rancho San Carlos Road to a less-than-significant level. Installation of traffic signals, however, may increase certain types of accidents, such as rear-end collisions. In addition, signalization of intersections on Carmel Valley Road is inconsistent with the policies of the CVMP to retain the rural character of the valley.

As an alternative to signalizing this intersection, the applicant could contribute to a fund for constructing an underpass for the northbound left-turn lane. This underpass would improve the LOS and reduce the number of right-angle accidents at this intersection. The LOS at this intersection would improve to LOS A during the a.m. peak hour and to LOS D during the p.m. peak hour with the underpass. This underpass would require widening of Carmel Valley Road to the west of Rancho San Carlos Road to accommodate a lane for the merging traffic. Depending on the final alignment, this improvement may require substantial excavation of the steep embankment on the north side of Carmel Valley Road that may result in geotechnical, biological, and visual impacts. This underpass is consistent with the CVMP policy, which encourages the county to consider constructing minor interchanges as an alternative to signalizing the Carmel Valley intersections; however, it is not consistent with the policies that recommend minimizing hillside scarring caused by cutting, grading, and vegetation removal.

Impact: Addition of Traffic Volume to the Intersection of Highway 1 and Carmel Valley Road, Which Is Operating at LOS F

The traffic generated by buildout would increase the traffic volume at the intersection of Highway 1 and Carmel Valley Road, which is operating at LOS F under the Existing and the Existing plus Approved Projects condition. This is considered a significant impact. ~~To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.~~

Applicant's Proposed Mitigation Measure *41*: Contribute *to the Traffic Mitigation Fund for Highway I.* ~~**Its Fair Share toward Improving Highway 1.**~~ This mitigation measure is described above under the mitigation measure in the section "Impacts of Existing plus Approved Projects plus CDP-GMPAP" for this intersection.

Impact: Increase in V/C by More than 1% at the Intersections of Highway 1 with Carpenter Street and Rio Road, Which Are Operating at LOS E

The traffic generated by Buildout would increase the V/C by more than 1% at the intersections of Highway 1 with Carpenter Street and Rio Road. These intersections would be operating at LOS E under the Existing plus Approved Projects condition. This is considered a significant impact. To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Applicant's Proposed Mitigation Measure *41*: Contribute *to the Traffic Mitigation Fund for Highway 1.* ~~**Its Fair Share toward Improving Highway 1.**~~ This mitigation measure is described above under the mitigation measure in the section "Impacts of Existing plus Approved Projects plus CDP-GMPAP" for the intersection of Highway 1 and Carmel Valley Road.

Impact: Increased Traffic Volume on Robinson Canyon Road

Implementation of the proposed project would increase the traffic volumes on Robinson Canyon Road. This road is a winding road that is narrow at several sections. The increase in traffic on Robinson Canyon Road, however, would be minimal because of the applicant's proposed measures listed under the section "Applicant's Proposed Mitigation Measures". This impact is considered less than significant.

Mitigation Measure: No mitigation measures are required.

Impact: Increased Traffic Hazards Resulting from Addition of Construction Trucks to Rancho San Carlos Road

During the construction phase of the project, construction trucks and material-hauling trucks would be traveling to and from the quarries on Rancho San Carlos Road. This road is a winding, narrow road, and addition of trucks to this road may result in increased traffic hazards to motor vehicles, bicycles, and pedestrians. This is considered a significant impact. To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Applicant's Mitigation Measure *43*: Develop and Implement a Traffic Control Plan for the Construction Site. This mitigation measure is described above under the mitigation measure in the "Impacts of Existing plus Approved Projects plus CDP-GMPAP" for this impact.

Impact: Increased Traffic Hazards Resulting from Additional Traffic Volumes on Rancho San Carlos Road

Buildout would result in additional traffic volumes on Rancho San Carlos Road. This road is a winding road and, even after implementation of the applicant's proposed improvements, would include numerous blind curves. Addition of traffic volumes to this road may result in increased traffic hazards to motor vehicles, bicycles, and pedestrians. This is considered a significant impact. To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Additional Mitigation Measure *45*: Provide Adequate Sight Distance, and Install Appropriate Traffic Control Devices. This mitigation measure is described above under the mitigation measure in the "Impacts of Existing plus Approved Projects plus CDP-GMPAP" for this impact.

Impacts of Existing plus Approved and Proposed Projects plus CDP-GMPAP

The CDP-GMPAP phase would contribute additional traffic volumes to segment 6 of Carmel Valley Road, which is operating at the unacceptable LOS E under the Existing plus Approved and Proposed Project conditions.

The project would result in additional traffic to the intersections of Carmel Valley Road and Rancho San Carlos Road and Highway 1 and Carmel Valley Road, which operate at an unacceptable LOS F during the p.m. peak hour under the Existing plus Approved and Proposed Projects condition. The proposed project would also increase the V/C by more than 1% at the intersection of Highway 1 and Rio Road, which operates at LOS E under the Existing plus Approved and Proposed Projects condition.

Impact: Increased Traffic Volume on Segment 6 of Carmel Valley Road, Which Is Operating at a LOS Worse than Its 1986 Level

The CDP-GMPAP phase contributes additional traffic to segment 6 of Carmel Valley Road. This segment is operating at LOS E, which is worse than its 1986 operating level of LOS D. This is considered a significant impact. To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Applicant's Proposed Mitigation Measure *38*: Contribute to the Traffic Mitigation Fund for Carmel Valley Road. This mitigation measure is described above under the mitigation measure for this segment in the section "Impacts of Existing plus Approved Projects plus CDP-GMPAP".

Impact: Addition of Traffic Volume to the Intersection of Carmel Valley Road and Rancho San Carlos Road, Which Is Operating at LOS F during the P.M. Peak Hour

The traffic generated by the CDP-GMPAP phase would increase the traffic volume at the intersection of Carmel Valley Road and Rancho San Carlos Road, which is operating at LOS F during the p.m. peak hour under the Existing plus Approved and Proposed Projects condition. This is considered a significant impact. To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Applicant's Proposed Mitigation Measure *39*: Add a Left-Turn Acceleration Lane on Carmel Valley Road for the Northbound to Westbound Left-Turning Vehicles and Extend the Eastbound Right-Turn Lane. This mitigation measure is described above under the mitigation measure for the section "Impacts of Existing plus Approved Projects plus Buildout" for this

intersection. The p.m. peak-hour LOS at this intersection would improve to LOS E with a reserve capacity of 15 vehicles per hour, which is less than the existing reserve capacity at this intersection.

Alternative **~~Additional~~ Mitigation Measure *40*: Contribute to a Fund for Signalizing the Intersection of Carmel Valley Road and Rancho San Carlos Road or Constructing an Underpass for the Northbound Left-Turn Movement.** This mitigation measure is described above under the mitigation measure for the section "Impacts of Existing plus Approved Projects plus Buildout" for this intersection.

Impact: Addition of Traffic Volume to the Intersection of Highway 1 and Carmel Valley Road, Which Is Operating at LOS F

The traffic generated by the proposed project would increase the traffic volume at the intersection of Highway 1 and Carmel Valley Road, which is operating at LOS F under Existing and Existing plus Approved and Proposed Projects condition. This is considered a significant impact. To reduce this impact to a less-than significant level, the following mitigation measure should be implemented.

Applicant's Proposed Mitigation Measure *41*: Contribute *to the Traffic Mitigation Fund for Highway 1.* ~~Its Fair Share toward Improving Highway 1.~~ This mitigation measure is described above under the mitigation measure for this intersection for the section "Impacts of Existing plus Approved Projects plus CDP-GMPAP".

Impact: Increase in V/C by More than 1% at the Intersection of Highway 1 and Rio Road, Which Is Operating at LOS E

The traffic generated by the proposed project would increase the V/C by more than 1% at the intersection of Highway 1 and Rio Road. This intersection would be operating at LOS E under the Existing plus Approved and Proposed Projects condition. This is considered a significant impact. To reduce this impact to a less-than significant level, the following mitigation measure should be implemented.

Applicant's Proposed Mitigation Measure *42*: Contribute *to the Traffic Mitigation Fund for Highway 1.* ~~Its Fair Share toward Improving Highway 1.~~ This mitigation measure is described above under the mitigation measure for the intersection of Highway 1 and Carmel Valley Road for the section "Impacts of Existing plus Approved Projects plus CDP-GMPAP".

Impact: Increased Traffic Volume on Robinson Canyon Road

Implementation of the proposed project would increase the traffic volumes on Robinson Canyon Road. This road is a winding road that is narrow at several sections. The increase in traffic

on Robinson Canyon Road, however, would be minimal because of the applicant's proposed measures listed under the section "Applicant's Proposed Mitigation Measures". This impact is considered less than significant.

Mitigation Measure: No mitigation measures are required.

Impact: Increased Traffic Hazards Resulting from Addition of Construction Trucks to Rancho San Carlos Road

During the construction phase of the project, construction trucks and material-hauling trucks would be traveling to and from the quarries on Rancho San Carlos Road. This road is a winding, narrow road, and addition of trucks to this road may result in increased traffic hazards to motor vehicles, bicycles, and pedestrians. This is considered a significant impact. To reduce this impact to a less-than significant level, the following mitigation measure should be implemented.

Applicant's Proposed Mitigation Measure *43*: Develop and Implement a Traffic Control Plan for the Construction Site. This mitigation measure is described above under the mitigation measure for this impact in the section "Impacts of Existing plus Approved Projects plus CDP-GMPAP".

Impact: Increased Traffic Hazards Resulting from Additional Traffic Volumes on Rancho San Carlos Road

The proposed project would result in additional traffic volumes on Rancho San Carlos Road. This road is a winding road and, even after implementation of the applicant's proposed improvements, would include numerous blind curves. Addition of traffic volumes to this road may result in increased traffic hazards to motor vehicles, bicycles, and pedestrians. This is considered a significant impact. To reduce this impact to a less-than significant level, the following mitigation measure should be implemented.

Additional Mitigation Measure *45*: Provide Adequate Sight Distance, and Install Appropriate Traffic Control Devices. This mitigation measure is described above under the mitigation measure for this impact in the section "Impacts of Existing plus Approved Projects plus CDP-GMPAP".

Impacts of Existing plus Approved and Proposed Projects plus Buildout

Buildout would contribute additional traffic volumes to segment 6 of Carmel Valley Road, which is operating at the unacceptable LOS E under the Existing plus Approved and Proposed Projects condition.

Buildout would result in additional traffic to the intersections of Carmel Valley Road and Rancho San Carlos Road and Highway 1 and Carmel Valley Road, which operate at an unacceptable LOS F during the p.m. peak hour under the Existing plus Approved and Proposed Projects condition. Buildout would also result in degradation of LOS at the intersection of Highway 1 and Carpenter Street from LOS E to LOS F. In addition, the project would increase the V/C by more than 1% at the intersection of Highway 1 and Rio Road, which operates at LOS E under the Existing plus Approved and Proposed Projects condition.

Impact: Increased Traffic Volume on Segment 6 of Carmel Valley Road, Which Is Operating at a LOS Worse than Its 1986 Level

Buildout contributes additional traffic to segment 6 of Carmel Valley Road. This segment is operating at LOS E, which is worse than its 1986 operating level of LOS D. This is considered a significant impact. To reduce this impact to a less-than significant level, the following mitigation measure should be implemented.

Applicant's Proposed Mitigation Measure *38*: Contribute to the Traffic Mitigation Fund for Carmel Valley Road. This mitigation measure is described above under the mitigation measure for this segment for the section "Impacts of Existing plus Approved Projects plus CDP-GMPAP".

Impact: Degradation of A.M. Peak-Hour LOS at the Intersection of Carmel Valley Road and Rancho San Carlos Road from LOS E to LOS F and Addition of Traffic Volume to the Intersection, Which Is Operating at LOS F during the P.M. Peak Hour

The traffic generated by buildout would result in degradation of the a.m. peak hour LOS at the intersection of Carmel Valley Road and Rancho San Carlos Road from LOS E under Existing plus Approved and Proposed Projects condition to LOS F. In addition, buildout would increase the traffic volume at this intersection, which is operating at LOS F during the p.m. peak hour. This is considered a significant impact. Implementation of one of the following measures would reduce the project impact on the intersection of Carmel Valley Road and Rancho San Carlos Road to a less-than-significant level.

Applicant's Proposed Mitigation Measure *39*: Add a Left-Turn Acceleration Lane on Carmel Valley Road for the Northbound to Westbound Left-Turning Vehicles, Extend the Eastbound Right-Turn Lane, and Operate an Employee Shuttle Service. As described above under the mitigation measure for the section "Impacts of Existing plus Approved Projects plus Buildout for this intersection, the applicant is proposing to add a left-turn acceleration lane on Carmel Valley Road for the northbound to westbound left-turning vehicles on Rancho San Carlos Road and also to extend the eastbound right-turn lane. For buildout, the applicant is also proposing to operate a shuttle service for the employees. The shuttle service would operate from 7 a.m. to 6 p.m., running every one-half hour during commute hours, and every hour during the rest of the day.

Buildout is expected to result in 34 employee trips during the p.m. peak hour with two-thirds or 23 of these trips being outbound. Assuming that about 50% of the employees would use the shuttle service during the p.m. peak hour, this service would be expected to reduce the outbound trips during this period by 11 trips (Dowling pers. comm.).

With construction of the left-turn acceleration lane and operation of the employee shuttle service, the a.m. peak-hour LOS at this intersection would improve to LOS B with a reserve capacity of 322 vehicles per hour. The p.m. peak-hour LOS at this intersection would improve to LOS E with a reserve capacity of three vehicles per hour, which is less than the existing reserve capacity at this intersection. Because this intersection would be operating at an unacceptable LOS under this condition, and the applicant's mitigation measure would not result in an operating condition equal to at least without-project levels, *alternative* ~~*additional*~~ mitigation measures would be needed for this intersection.

Alternative **~~Additional~~ Mitigation Measure *40*: Contribute to a Fund for Signalizing the Intersection of Carmel Valley Road and Rancho San Carlos Road or Constructing an Underpass for the Northbound Left-Turn Movement.** This mitigation measure is described above under the mitigation measure for the section "Impacts of Existing plus Approved Projects plus buildout for this intersection.

Impact: Degradation of LOS at the Intersection of Highway 1 and Carpenter Street

The traffic generated by buildout would result in degradation of the p.m. peak-hour LOS at the intersection of Highway 1 and Carpenter Street from LOS E under Existing plus Approved and Proposed Projects to LOS F. This is considered a significant impact. To reduce this impact to a less-than significant level, the following mitigation measure should be implemented.

Applicant's Proposed Mitigation Measure *41*: Contribute *to the Traffic Mitigation Fund for Highway 1.* ~~Its Fair Share toward Improving Highway 1.~~ This mitigation measure is described above under the mitigation measure for the intersection of Highway 1 and Carmel Valley Road for the section "Impacts of Existing plus Approved Projects plus CDP-GMPAP".

Impact: Addition of Traffic Volume to the Intersection of Highway 1 and Carmel Valley Road, Which Is Operating at LOS F

The traffic generated by buildout would increase the traffic volume at the intersection of Highway 1 and Carmel Valley Road, which is operating at LOS F under the Existing plus Approved and Proposed Projects condition. This is considered a significant impact. To reduce this impact to a less-than significant level, the following mitigation measure should be implemented.

Applicant's Proposed Mitigation Measure *41*: Contribute to the Traffic Mitigation Fund for Highway 1. This mitigation measure is described above under the mitigation measure for this intersection for the section "Impacts of Existing plus Approved Projects plus CDP-GMPAP".

Impact: Increase in V/C by More than 1% at the Intersection of Highway 1 and Rio Road, Which Is Operating at LOS E

The traffic generated by buildout would increase the V/C by more than 1% at the intersection of Highway 1 and Rio Road. This intersection would be operating at LOS E under the Existing plus Approved and Proposed Projects condition. This is considered a significant impact. To reduce this impact to a less-than significant level, the following mitigation measure should be implemented.

Applicant's Proposed Mitigation Measure *41*: Contribute *to the Traffic Mitigation Fund for Highway 1.* ~~**Its Fair Share toward Improving Highway 1.**~~ This mitigation measure is described above under the mitigation measure for the intersection of Highway 1 and Carmel Valley Road for the section "Impacts of Existing plus Approved Projects plus CDP-GMPAP".

Impact: Increased Traffic Volume on Robinson Canyon Road

Implementation of the proposed project would increase the traffic volumes on Robinson Canyon Road. This road is a winding road that is narrow at several sections. The increase in traffic on Robinson Canyon Road, however, would be minimal because of the applicant's proposed measures listed under the section "Applicant's Proposed Mitigation Measures". This impact is considered less than significant.

Mitigation Measure: No mitigation measures are required.

Impact: Increased Traffic Hazards Resulting from Addition of Construction Trucks to Rancho San Carlos Road

During the construction phase of the project, construction trucks and material-hauling trucks would be traveling to and from the quarries on Rancho San Carlos Road. This road is a winding, narrow road, and addition of trucks to this road may result in increased traffic hazards to motor vehicles, bicycles, and pedestrians. This is considered a significant impact. To reduce this impact to a less-than significant level, the following mitigation measure should be implemented.

Applicant's Proposed Mitigation Measure *43*: Develop and Implement a Traffic Control Plan for the Construction Site. This mitigation measure is described above under the mitigation measure for this impact in the section "Existing plus Approved Projects plus CDP-GMPAP".

Impact: Increased Traffic Hazards Resulting from Additional Traffic Volumes on Rancho San Carlos Road

The project buildout would result in additional traffic volumes on Rancho San Carlos Road. This road is a winding road and, even after the applicant's proposed improvements, would include numerous blind curves. Addition of traffic volumes to this road may result in increased traffic hazards to motor vehicles, bicycles, and pedestrians. This is considered a significant impact. To reduce this impact to a less-than significant level, the following mitigation measure should be implemented.

Additional Mitigation Measure *45*: Provide Adequate Sight Distance, and Install Appropriate Traffic Control Devices. This mitigation measure is described above under the mitigation measure for this impact in the section "Impacts of Existing plus Approved Projects plus CDP-GMPAP".

Table 13-14 presents the mitigated p.m. peak-hour LOS for the analyzed intersections.

Table 13-14. Summary of P.M. Peak-Hour Level of Service Analysis - Mitigated

Intersection	Existing plus Approved and Proposed Projects plus Buildout - Mitigated		
	LOS	Measure [a]	V/C
Carmel Valley Road/Rancho San Carlos Road with left-turn acceleration lane and the shuttle service	E	3.0	--
Carmel Valley Road/Rancho San Carlos Road with traffic signal	B	12.7	0.80
Carmel Valley Road/Rancho San Carlos Road with left-turn lane grade-separation[b]	D	122	NA
Highway 1/Carpenter Street[c]	E	42.7	1.02
Highway 1/Ocean Avenue[d]	D	31.9	0.96
Highway 1/Carmel Valley Road[e]	D	25.6	0.95
Highway 1/Rio Road[f]	D	39.7	0.91
Carmel Valley Road/Carmel Rancho Boulevard	C	24.8	0.97

[a] Represents reserve capacity for unsignalized intersections and delay per vehicle in seconds for the signalized intersections.

[b] *The 122-vehicle-per-hour reserve capacity shown in this table is for the westbound left turn, which becomes the critical movement at this intersection if a left-turn grade separation is built.*

[c] *The mitigated level of service shown in this table is for the addition of a third northbound through lane on the approach to this intersection. Other mitigation measures are possible (for example, the proposed shuttle service by the Santa Lucia Preserve, which was not included in this particular analysis of mitigation measures).*

[d] *The level of service shown in this table assumes no changes at this intersection and assumes no shuttle service by the Santa Lucia Preserve.*

[e] *The mitigated level of service shown in this table is for a second southbound left-turn lane and a second westbound right-turn lane at this intersection. The proposed Santa Lucia Preserve shuttle service was not included in this analysis.*

[f] *The mitigated level of service shown in this table is for a second westbound through lane at this intersection. The proposed Santa Lucia Preserve shuttle service was not included in this analysis.*

NA = not applicable.

Chapter 14. Climate and Air Quality

INTRODUCTION

This chapter describes the project area's physical and regulatory air quality environment, as well as the air quality impacts of developing the Santa Lucia Preserve. Appropriate mitigation measures are suggested where impacts are determined to be significant. Information regarding the project area's physical and regulatory air quality environment was taken from a variety of sources, including the Monterey Bay Unified Air Pollution Control District (MBUAPCD) and the California Air Resources Board (ARB). Some information used in this analysis was taken from the document Air Quality Impact Analysis of Rancho San Carlos, Monterey County (Ballanti 1994).

SETTING

Existing Meteorological and Climatic Conditions

The project site is located in northwestern Monterey County approximately 2-10 miles south of Carmel Valley and 5 miles east of the Pacific Ocean in the North Central Coast Air Basin (NCCAB) of California. The NCCAB consists of Monterey, Santa Cruz, and San Benito Counties. The semipermanent high-pressure cell in the eastern Pacific is the basic controlling factor in the climate of the NCCAB. In the summer, the high-pressure cell is dominant and causes persistent west and northwest winds over the entire California coast. Although these winds are most persistent during the spring and summer, they blow from these directions all year round. Air descends in the Pacific High, forming a stable temperature inversion of hot air over a cool coastal layer of air. The onshore air currents pass over cool ocean waters to bring fog and relatively cool air into the coastal valleys. The warmer air aloft acts as a lid and inhibits vertical air movement. This restriction of movement limits the vertical mixing of pollutants, increasing potential for pollution (Monterey Bay Unified Air Pollution Control District 1991).

Ambient Air Quality Standards

Pollutants of concern in the project area are carbon monoxide (CO), ozone, and particulate matter smaller than 10 microns in diameter (PM10). Health risks associated with these pollutants are discussed below. State and federal air quality standards for these pollutants are shown in Table 14-1. Areas that do not meet these standards are designated "nonattainment areas". Areas that comply with ambient air quality standards are designated "attainment" areas. Areas for which monitoring data are lacking are formally designated "unclassified" areas but are generally treated as attainment areas.

Carbon Monoxide

CO is a public health concern because it combines readily with hemoglobin, which reduces the amount of oxygen transported in the bloodstream. Both the cardiovascular system and the central nervous system can be affected when 2.5-4.0% of the hemoglobin in the bloodstream is bound to CO rather than to oxygen. State and federal ambient air quality standards have been set at levels to keep CO from combining with more than 1.5% of the blood's hemoglobin (U.S. Environmental Protection Agency 1979, California Air Resources Board 1982). CO is of concern primarily during winter when vehicle-related emissions are greatest and atmospheric stability allows the buildup of high concentrations.

Ozone

Ozone is a public health concern because it is a respiratory irritant that increases human susceptibility to respiratory infections. Ozone can cause significant damage to leaf tissues of crops and natural vegetation and can damage many materials by acting as a chemical oxidizing agent. Ozone is of concern primarily during summer when high temperatures, the presence of sunlight, and an atmospheric inversion layer induce photochemical reactions. Photochemical reactions convert ozone precursor emissions, reactive organic gases and nitrogen oxides (ROG and NO_x), into ozone. Because ozone is not emitted directly but is created through conversion of ROG and NO_x in a photochemical reaction, it is emission of ROG and NO_x that is assessed in relation to the project.

PM10

Health concerns associated with suspended particles focus on those particles small enough to reach the lungs when inhaled. Few particles larger than 10 microns in diameter reach the lungs. Consequently, both the federal and state air quality standards for particulate matter have been revised to apply only to these small particles, generally designated as PM10. The inhalation of particles small enough to reach the lungs can interfere with the functioning of the lungs and may result in respiratory illness.

Table 14-1. Ambient Air Quality Standards Applicable in California

Pollutant	Symbol	Averaging Time	Standard, as parts per million		Standard, as $\mu g/m^3$		Violation Criteria	
			California	National	California	National	California	National
Ozone	O_3	1 hour	0.09	0.12	180	235	If exceeded	If exceeded on more than 3 days in 3 years
Carbon monoxide	CO	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year
		1 hour	20	35	23,000	40,000		
(Lake Tahoe only)		8 hours	6	--	7,000	--		
Nitrogen dioxide	NO_2	Annual average	--	0.053	--	100	If exceeded	If exceeded
		1 hour	0.25	--	470	--		
Sulfur dioxide	SO_2	Annual average	--	0.03	--	80	If exceeded	If exceeded
		24 hours	0.05	0.14	131	365		If exceeded on more than 1 day per year
		1 hour	0.25	--	655	--		
Hydrogen sulfide	H_2S	1 hour	0.03	--	42	--	If equaled or exceeded	
Vinyl chloride	C_2H_3Cl	24 hours	0.010	--	26	--	If equaled or exceeded	
Particulate matter, 10 microns or less	PM10	Annual geometric mean	--	--	30	--	If exceeded	
		Annual arithmetic mean	--	--	--	50		If exceeded
		24 hours	--	--	50	150		If exceeded on more than 1 day per year
Sulfate particles	SO_4	24 hours	--	--	25	--	If equaled or exceeded	
Lead particles	Pb	Calendar quarter	--	--	--	1.5	If equaled or exceeded	If exceeded on more than 1 day per year
		30 days	--	--	1.5	--		

Notes: All standards are based on measurements at 25° C and 1 atmosphere pressure.
National standards shown are the primary (health effects) standards.
The California 24-hour standard for SO_2 applies only when state 1-hour O_3 or 24-hour PM10 standards are being violated concurrently.

Existing Air Quality Conditions

The Monterey County portion of the NCCAB is an attainment area for the state CO standards and an unclassified/attainment area for the federal CO standards. The entire NCCAB is a moderate nonattainment area for the federal and state ozone standards. The entire NCCAB is a nonattainment area for the state PM10 standards and an unclassified area for the federal PM10 standards (Kim pers. comm.). Ozone and PM10 monitoring data taken at stations in the project area over the last 5 years are shown in Table 14-2. Because the project area is not a CO nonattainment area, CO monitoring data are unavailable. The Carmel Valley and Monterey stations are located nearest to the project site. As shown in Table 14-2, more data were available for the Carmel Valley station, which is located closest to the project site.

Ozone

Table 14-2 shows that peak ozone levels in the project area have fluctuated over the last 5 years. During each year from 1990 through 1993, there were either one or zero days with ozone levels above the state 1-hour standard of 0.09 parts per million (ppm), and zero days with ozone levels above the federal 1-hour standard of 0.12 ppm. In 1989, however, there were 3 days with ozone levels above the state standard and 1 day with ozone levels above the federal standard.

PM10

PM10 monitoring data for the project vicinity were available only for the years 1992 and 1993. As shown in Table 14-2, no violation of the state or federal PM10 standards occurred in the project vicinity during these years.

Regulatory Environment

State and Federal Air Quality Management

Air quality management planning programs developed during the past decade have generally been in response to requirements established by the federal Clean Air Act; however, the enactment of the California Clean Air Act of 1988 has produced additional changes in the structure and administration of air quality management programs in California. The federal Clean Air Act mandated the establishment of ambient air quality standards and required areas that violate these standards to prepare and implement plans to achieve them. These plans are called State Implementation Plans, or SIPs. A separate SIP must be prepared for each nonattainment pollutant.

Table 14-2. CO, Ozone, and PM10 Monitoring Data for the Project Area

Station and Year	Ozone			PM10		
	Peak 1 Hour (ppm)	Days Above State Standard	Days Above Federal Standard	Peak 24 Hour ($\mu g/m^3$)	Annual Geometric Mean ($\mu g/m^3$)	Annual Arithmetic Mean ($\mu g/m^3$)
Carmel Valley						
1989	0.13	3	1	N/A	N/A	N/A
1990	0.09	0	0	N/A	N/A	N/A
1991	0.10	1	0	N/A	N/A	N/A
1992	0.08	0	0	37	19.1	20.5
1993	0.11	1	0	46	14.2	15.8
Monterey						
1989	N/A	N/A	N/A	N/A	N/A	N/A
1990	N/A	N/A	N/A	N/A	N/A	N/A
1991	N/A	N/A	N/A	N/A	N/A	N/A
1992	0.09	0	0	24	12.5	13.9
1993	0.11	1	0	35	9.9	11.4

Notes: State 1-hour ozone standard is 0.09 ppm.
Federal 1-hour ozone standard is 0.12 ppm.
State 24-hour PM10 standard is 50 $\mu g/m^3$.
Federal 24-hour PM10 standard is 150 $\mu g/m^3$.
N/A means data not available.

Source: California Air Resources Board 1993.

The California Clean Air Act establishes an air quality management process that generally parallels the federal process. The California Clean Air Act, however, focuses on attainment of the state ambient air quality standards that, for certain pollutants and averaging periods, are more stringent than the comparable federal standards. The California Clean Air Act requires that air districts prepare an air quality attainment plan if the district violates state air quality standards for CO, sulfur dioxide (SO_2), nitrogen dioxide (NO_2), or ozone. The California Clean Air Act requires that the state air quality standards be met as soon as is practical, but does not set precise attainment deadlines.

Local Air Quality Management

The MBUAPCD has developed the 1994 Air Quality Management Plan (AQMP) for the Monterey Region (Monterey Bay Unified Air Pollution Control District *1994* ~~1991~~). *The 1994 AQMP is an update of the 1991 AQMP.* The 1994 *AQMP* ~~Air Quality Management Plan~~ addresses attainment of California ozone standards within the NCCAB. The plan contains no specific planning requirements to address attainment of the PM10 standard. PM10 planning will be considered by the MBUAPCD Board in 1995.

The 1994 AQMP indicates no additional control resources beyond those listed in the 1991 AQMP. The *1991* ~~1994~~ AQMP recommends adoption of 20 measures to control stationary source ROG emissions, five measures to control stationary source NO_x emissions, and seven transportation control measures. In addition, the MBUAPCD has prepared an ozone SIP that is currently undergoing U.S. Environmental Protection Agency (EPA) review.

Rule 216 of the MBUADCD's "Rules and Regulations" includes permit requirements for wastewater treatment facilities. The project applicant would need to obtain a permit in accordance with Rule 216 before constructing and operating the proposed wastewater treatment plant.

IMPACTS AND MITIGATION MEASURES

Approach and Methodology

Two main categories of impacts were assessed in this chapter: construction-related impacts and operations-related impacts. Construction-related impacts include emission increases generated by construction equipment and construction worker commute trips, odors and emission increases generated by the asphalt batch plant that may be used, and emissions of air toxics. Operations-related impacts include emission increases generated by residences and project-related traffic, as well as odors generated by the proposed equestrian center and wastewater treatment plant.

For purposes of this analysis, the scenario that includes all approved plus pending projects, excluding the proposed project, is referred to as the future no-project condition. The scenario that includes all approved plus pending projects, including the Santa Lucia Preserve uses proposed in the GMPAP in the combined development permit application, is referred to as the future with-GMPAP condition. The scenario that includes all approved plus pending projects, including buildout of the Santa Lucia Preserve, is referred to as the future with-buildout condition. (See Chapter 19, "Cumulative Impacts", for a list of pending and approved projects considered in this analysis.)

Construction-Related Impacts

A summary of the methodology used to estimate construction-related pollutant emissions is provided below. See Appendix E, "Background Information for Air Quality Analysis", for a more detailed description of the assumptions used.

Construction Equipment Emissions. Exhaust emissions generated by the operation of construction equipment were estimated by multiplying the number of hours of operation of each type of equipment expected to be used by an emission rate for each pollutant. Emission rates for the various types of construction equipment were taken from the document Compilation of Air Pollutant Emission Factors (U.S. Environmental Protection Agency 1985). This document contains emission rates for a broad range of pollutant-producing equipment and activities.

Dust emissions generated by operation of construction equipment in unpaved areas were estimated by multiplying the maximum number of acres of land expected to be disturbed in a single day during the construction period by a fugitive dust emission rate taken from the EPA document described above.

Construction Worker Commute Emissions. Emissions of ROG, NO_x, and PM10 generated by construction workers commuting to the project site were estimated by multiplying the number of trips expected to be made per day times the average trip length and an emission rate for each pollutant. Emission rates were generated using EMFAC7F, version 1.1, a program created by the ARB to estimate vehicle emission rates.

Asphalt Plant Emissions and Odors. Emissions generated by the portable asphalt plant proposed for use during construction were estimated by multiplying the maximum quantity of asphalt expected to be produced in a single day times an emission rate for the plant. Pollutant emission rates for the plant were taken from the EPA document Compilation of Air Pollutant Emission Factors (U.S. Environmental Protection Agency 1985). Odors related to operation of the asphalt plant are assessed qualitatively in this chapter.

Air Toxics. Two potential sources of air toxics associated with construction of the proposed project are evaporative emissions from the application of architectural coatings and emissions produced by the proposed portable asphalt batch plant. These are considered to be extremely minor sources of air toxics that would be produced during a small percentage of the total construction period. Consequently, emission of air toxics is not expected to be of concern and is not discussed further in this chapter.

Operations-Related Impacts

Residential Emissions. Residential emissions are generated by a wide range of sources including wood-burning stoves, fireplaces, space and water heaters, architectural coatings, accidental domestic fires, use of volatile consumer products, lawn mowers, and other domestic fuel-burning engines. Emission rates for residences were taken from the BAAQMD document Air Quality and Urban Development Guidelines for Assessing Impacts of Projects and Plans (Bay Area Air Quality Management District 1985). These rates were multiplied by the number of proposed residences to estimate daily residential emissions.

Project-Related Traffic Emissions. ROG, NO_x, and PM10 emissions generated by traffic under future no-project, future with-GMPAP, and future with-buildout conditions were calculated by multiplying the total number of vehicle miles traveled (VMT) under each of these conditions by an emission rate for each pollutant. Traffic volume estimates for each condition were taken from the traffic report prepared for the project (Dowling Associates 1994). Emission rates were generated using EMFAC7F, version 1.1, and the assumption that buildout of the project is expected to occur in 2016 (Franklin pers. comm.). It was also assumed that 40 mph would be the average speed of project-related trips.

No attempt was made to estimate the total net increase in CO emissions caused by the project. Instead, ambient CO concentrations were modeled in accordance with MBUAPCD criteria, which state that CO concentrations should be estimated ~~when~~:

- *for signalized intersections, when* the peak-hour intersection level of service (LOS) would be reduced from A, B, C, or D under future without-project conditions to E or F at any project area intersection under future with-project conditions; ~~or~~

- *a project causes an increase in the V/C ratio of 0.05 or more at a signalized intersection currently operating at LOS E or F; or*

- *for unsignalized intersections, when the* future without-project peak-hour intersection LOS is already E or F and the project would cause a decrease in the reserve capacity of 50 vehicles or more (Kim pers. comm.).

Only the Carmel Valley Road/Rancho San Carlos Road intersection under future with-GMPAP conditions met these criteria. CO modeling was performed for this intersection under this

condition as well as under future no-project conditions for purposes of comparison. This intersection does not meet these criteria under future with-buildout conditions because it is assumed that a left-turn refuge would be constructed on Carmel Valley Road at this intersection by the time buildout would occur (Dowling Associates 1994).

The CALINE4 model was used to estimate CO concentrations generated by traffic occurring in the project area under each condition. A detailed description of the CALINE4 model, including the assumptions used to run that model, are included in Appendix E.

Odors. Operations-related odor sources associated with the proposed project include the wastewater treatment plant and equestrian center. Odors related to operation of these facilities are assessed qualitatively in this chapter.

Significance Criteria

According to the State CEQA Guidelines (Section 15064[e]), a project will normally have a significant adverse air quality impact if it will "violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations."

The proposed project would have a significant impact if it would:

- emit more than 82 ppd of PM10 during construction;
- emit more than 137 ppd of ROG, 137 ppd of NO_x, or 82 ppd of PM10 during operation;
- create exceedances of state or federal ambient CO standards at receptors in the project area that do not have exceedances under existing conditions;
- increase the level of exceedance at receptors in the project area that currently experience exceedances of state or federal ambient CO standards;
- result in the construction or expansion of any odor-generating facility within a 0.25-mile radius of any sensitive odor receptor; or
- conflict with the 1994 AQMP.

Pollutant thresholds above were supplied by the MBUAPCD (Kim pers. comm.).

Applicant's Proposed Mitigation Measures

The applicant is proposing the following mitigation measures to control construction-related emissions:

- Use watering trucks to control dust emissions from haul roads, construction sites, borrow pit operations, and the asphalt batch plant area.
- Limit construction vehicle road speeds to 10 mph on unpaved surfaces.
- Apply a chemical dust stabilizer to unpaved haul roads and other heavily traveled areas, in strict accordance with the manufacturer's directions for application. The suppressant chosen should be nontoxic and suitable for use near waterways.

The applicant is proposing the following mitigation measures to control operations-related emissions:

- Use electrically powered, rather than gasoline- or diesel fuel-powered, construction equipment, when feasible.
- Use a fleet of electric vehicles for administration and maintenance-related onsite trips.
- Require outdoor electrical outlets at residences to allow use of electrically powered landscape maintenance equipment.
- Restrict the number of fireplaces installed in residences or require residential use of EPA-certified woodstoves or fireplace inserts. The use of pellet, natural gas, or liquefied petroleum gas-fired fireplaces instead of wood-burning fireplaces would be encouraged.
- Require use of low-NO_x water heaters in all buildings requiring water heating.

The following features included in the project would also serve to further reduce operations-related emissions:

- provision of onsite housing for employees to reduce trips to and ranch,
- employee van pooling,
- consolidation of deliveries from offsite locations, and
- provision of onsite commercial services.

Construction-Related Impacts

Impact: Potential Increase in PM10 Emissions during Project Construction

A portable asphalt batch plant would be used at the project site during construction if it is determined that material found at the onsite borrow pits is appropriate for use in paving applications (Duffy pers. comm.). Use of an onsite asphalt plant would eliminate the need to truck asphalt in, thus reducing construction-related emissions. The site proposed for the plant would be along Rancho San Carlos Road in the northern portion of the project area. Total worst-case construction-related emissions for all construction activities, including the asphalt plant, are shown in Table 14-3. The MBUAPCD is primarily concerned with the emission of PM10 during construction because construction projects that temporarily emit ozone precursors are accommodated in the emission inventories of state and federally required air plans and would not have a significant impact on the attainment of regional ozone standards (Ballanti pers. comm.). Approximately 456 ppd of PM10 would be emitted during construction if the portable asphalt plant is used. This exceeds the MBUAPCD threshold for PM10, which is 82 ppd.

If the portable asphalt plant is not used, asphalt would be trucked in from nearby plants ~~in Monterey or Marina (Ballanti 1994)~~. Table 14-4 shows total construction-related emissions for all construction activities, including emissions from trucks used to haul asphalt to the project site. Worst-case construction-related PM10 emissions without the onsite asphalt plant would be approximately 460 ppd of PM10. This exceeds the MBUAPCD PM10 threshold of 82 ppd.

Estimates for both these cases are conservative, as it is unlikely that each of the activities included in Tables 14-3 and 14-4 would all be happening at peak levels simultaneously. However, this level of worst-case analysis was required because no specific construction scheduling information was available for this project.

This impact is considered significant. To reduce this impact to a less-than-significant level, the following mitigation measures described below should be implemented.

Applicant's Proposed/Additional Mitigation Measure *46*: Implement PM10-Reducing Construction Practices. The construction contractor shall implement the following PM10-reducing practices at all construction sites throughout the entire construction period to reduce pollutant emissions generated during construction activities. Some of these measures have been proposed by the applicant.

- Use watering trucks to control dust emissions from haul roads, construction sites, borrow pit operations, and the asphalt batch plant area. Sprinkle exposed areas, including soil piles left for more than two days, with water to sufficiently control windblown dust and dirt. Watering shall be conducted once during the morning work hours and once during

Table 14-3. Construction-Related Emissions with Portable Asphalt Plant
(in pounds per day)

Source	CO	ROG	NO_x	PM10
Construction worker traffic	480	16	23	0
Construction equipment operation	128	21	339	378
Rock crusher operation	N/A	N/A	N/A	54
Asphalt production	42	28	40	24
Total	650	65	402	456

Source: U.S. Environmental Protection Agency 1985.

Table 14-4. Construction-Related Emissions without Portable Asphalt Plant (in pounds per day)

Source	CO	ROG	NO_x	PM10
Construction worker traffic	480	16	23	0
Construction equipment operation	128	21	339	378
Rock crusher operation	N/A	N/A	N/A	54
Asphalt production	42	28	40	24
Asphalt trucking traffic	47	5	31	4
Total	697	70	433	460

Source: U.S. Environmental Protection Agency 1985.

afternoon work hours. The frequency of watering shall be increased to control dust if wind speeds exceed 15 mph.

- Limit construction vehicle speeds to 10 mph on unpaved surfaces.
- Apply a chemical dust stabilizer to unpaved haul roads and other heavily-traveled areas, in strict accordance with the manufacturer's directions for application. The suppressant chosen should be nontoxic and suitable for use near waterways.
- Cover or water all soil transported offsite, if any, to prevent excessive dust release.
- Sweep streets adjacent to the project at least daily to remove silt accumulated from construction activities.
- Periodically and properly maintain all construction equipment, including exhaust systems, mufflers, cooling fans, engines, and transmissions, according to the manufacturer's recommendations.

Additional Mitigation Measure *47*: Phase Construction so That Estimated Construction-Related PM10 Emissions Fall below MBUAPCD Daily Threshold. The project applicant shall phase construction activities in such a way that the estimated amount of PM10 generated is less than 82 ppd. This phasing may be organized in any feasible manner that ensures that daily PM10 levels do not exceed the MBUAPCD threshold described above. A construction schedule that meets these requirements shall be devised by the project applicant before construction begins. *The construction schedule should be reviewed and approved by the Monterey County Planning and Building Inspection Department before the start of construction.*

Impact: Generation of Odors Due to Operation of the Portable Asphalt Batch Plant

A portable asphalt batch plant may be used during construction of the proposed project, if deemed feasible by the project applicant. Operation of this plant could result in odor impacts if it would be used within 0.25 mile of an occupied sensitive odor receptor. In general, land uses located within 0.25 mile of an odor source are considered to be sensitive odor receptors, with land uses within 0.5 mile considered to be potentially sensitive. Land uses of concern include residences, hospitals, schools, places of worship, and offices. Because occupied sensitive odor receptors could be located within a 0.25-mile radius of the plant, this impact is considered significant. Implementation of the mitigation measure described below would reduce this impact to a less-than-significant level.

Additional Mitigation Measure *48*: Avoid Operation of Portable Asphalt Batch Plant within 0.25 Mile of an Occupied Sensitive Odor Receptor. The construction contractor shall avoid operating the asphalt plant within 0.25 mile of any occupied sensitive odor receptor during the period of construction.

Operations-Related Impacts

Impact: Increase in CO Concentrations during Project Operation

As described in the "Approach and Methodology" section, CO modeling was performed for the intersection of Carmel Valley Road and Rancho San Carlos Road for future no-project conditions and future with-GMPAP conditions. The highest 1-hour CO concentration estimated for a receptor adjacent to this intersection under future with-GMPAP conditions was 5.2 ppm, with a corresponding 8-hour concentration of 3.6 ppm. Under future no-project conditions, the 1-hour CO concentration at this receptor would be 4.5 ppm, with a corresponding 8-hour concentration of 3.2 ppm. This receptor does not undergo an exceedance of either the state or federal 1-hour or 8-hour standards under future no-project or future with-GMPAP conditions. Therefore, this impact is considered less than significant.

Mitigation Measure: No mitigation measures are required. Although this impact is considered less than significant, implementation of the applicant's proposed operations-related emission control measures is recommended (listed under "Applicant's Proposed Mitigation Measures" above).

Impact: Increase in ROG, NO_x, and PM10 Emissions during Project Operation under Future with-GMPAP Conditions

As shown in Table 14-5, under future with-GMPAP conditions, the project would result in the emission of 46 ppd of ROG, 65 ppd of NO_x, and 6 ppd of PM10. All of these quantities are below the threshold values described above in the "Significance Criteria" section. Therefore, this impact is considered less than significant.

Mitigation Measure: No mitigation measures are required. Although this impact is considered less than significant, implementation of the applicant's proposed operations-related emission control measures is recommended (listed under "Applicant's Proposed Mitigation Measures" above).

Impact: Increase in ROG, NO_x, and PM10 Emissions during Project Operation under Future with-Buildout Conditions

As shown in Table 14-5, under future with-buildout conditions, the project would contribute 55 ppd of ROG, 74 ppd of NO_x, and 7 ppd of PM10. All of these quantities are below the threshold values described above in the "Significance Criteria" section. Therefore, this impact is considered less than significant.

Table 14-5. Operations-Related Emissions Associated with the Proposed Project (in pounds per day)

Pollutant	Future No-Project Conditions	Future with GMPAP[a] Conditions	Future with Buildout[b] Conditions	Future with GMPAP[a] Minus Future No Project	Future with Buildout[b] Minus Future No Project
ROG	208	254	263	46	55
NO_x	190	255	264	65	74
PM10	22	28	29	6	7

[a] GMPAP refers to the Santa Lucia Preserve uses proposed in the Greater Monterey Peninsula Area Plan in the combined development permit application.

[b] Buildout refers to buildout of the Santa Lucia Preserve.

Source: Dowling Associates 1994, Bay Area Air Quality Management District 1985.

Mitigation Measure: No mitigation measures are required. Although this impact is considered less than significant, implementation of the applicant's proposed operation-related emission control measures is recommended (listed under "Applicant's Proposed Mitigation Measures" above).

Impact: Odor Generation Due to Operation of the Proposed Equestrian Center and Wastewater Treatment Plant

Both the equestrian center and wastewater treatment plant have the potential to emit odors in the project area. These facilities would be situated adjacent to one another in the southern central portion of the project site, approximately 0.5-mile north of the intersection of Rancho San Carlos Road and Robinson Canyon Road. The proposed wastewater treatment plant would serve only a portion of the project and would be small. The proposed treatment plant is enclosed within a building that would have odor controls installed within the ventilation system. A backup electrical system would provide continuous power to the treatment plant and odor control system in case of loss of primary power. No sludge would be drying onsite, or the sludge would be bagged and transported offsite. In addition, similar wastewater treatment plants have operated successfully within a 0.25 mile of residences at Laguna Seca Ranch, Las Palmas Ranch, and Gainey Ranch with no reported odor problems (Finegan pers. comm.). Therefore, odor from the proposed wastewater treatment plant is considered less than significant.

The equestrian center has been operating at its present location within a 0.25 mile of existing residences for many decades with no odor problems. However, it is possible that once it is expanded, odor problems could occur. Therefore, odor from the proposed expanded equestrian center is considered potentially significant. To reduce this impact to a less-than-significant level, the following mitigation measure described below should be implemented.

Additional Mitigation Measure *49*: Employ Odor-Reducing Design and Implement Odor-Reducing Maintenance Practices for the Expanded Equestrian Center. The following steps should be taken to ensure that odors generated by the expanded equestrian center are minimized:

- The facility should be designed so that horse manure cannot be retained in corners, cracks, or other irregularities. All floors should be easily cleanable.
- The facility's drainage and wastewater handling systems should be designed so that no standing water can collect.
- Stable areas should be cleaned at least once a day.
- Horse manure should not be stored in quantities that produce objectionable odors detectable outside the stable areas.

Impact: Potential Conflict with the MBUAPCD 1994 AQMP

The proposed project would be consistent with the MBUAPCD 1994 AQMP because the expected population increase generated by the proposed project would not cause an exceedance of population projections for the project area. Therefore, this impact is considered less than significant. *The proposed project's wastewater treatment facility is also consistent with the 1994 AQMP* (Williams pers. comm.).

Mitigation Measure: No mitigation measures are required.

Chapter 15. Noise

INTRODUCTION

The discussion of potential noise impacts associated with the proposed project is based on the results of the report Rancho San Carlos Noise Assessment Study (Charles M. Salter Associates 1994).

SETTING

Regulatory Setting

Background Information on Environmental Acoustics and State and Federal Noise Guidelines

Background information on environmental acoustics and state and federal noise regulations is provided in Appendix F. Acoustical notation throughout this report follows American National Standard ANSI/ASME Y10.11-1984, "Letter Symbols and Abbreviations for Quantities Used in Acoustics". Accordingly, the conventions in the following table apply.

Quantity	Abbreviation	Quantity Symbol	Unit Symbol
Slow A-weighted sound level	SA	L_{AS}	dB
Equivalent steady sound level	QL	L_{eq}	dB
Day-night average sound level	DNL	L_{dn}	dB
Community noise equivalent level	CNEL	L_{den}	dB

Local Guidelines and Regulations

In California, cities and counties are required to adopt a noise element as part of their general plan. Cities and counties can also adopt noise control requirements within their zoning ordinances or as a separate noise ordinance.

General Plan Noise Element Policies. The Monterey County General Plan Noise Element states that major sources of noise in the county consist of transportation facilities, industrial plants,

mining operations, and a power plant. The noise element also suggests that noise conflicts can be minimized or avoided by isolating noise-producing land uses from noise-sensitive land uses. The three main noise issues raised in the noise element are:

- Existing noise levels near airports, major highways, and rail lines exceed the county's desired residential land use compatibility criteria.
- Future development near airports could result in extreme noise conflicts.
- Increased noise levels resulting from urban growth could adversely affect existing quiet areas.

Policies designed to maintain desirable noise levels in Monterey County that are relevant to this project include the following:

- The county shall require new development to conform to the noise parameters established in Land Use Compatibility for Exterior Community Noise Environments (Table 15-1).
- The county shall require the appropriate standards of sound-proofing construction in all multiple-residential structures as specified in the Building Code.
- The county shall require environmental review of all proposed new development, expansion of industrial facilities, and quarry excavation and processing activities that may increase the noise level in surrounding areas or generate noise levels greater than those specified in Table 15-1.
- The county, in accordance with Table 15-1, should require ambient noise levels to be lower at night (10 p.m. to 7 a.m.) than during the day.
- The county shall make available to the public methods and existing noise data that can be employed to reduce unwanted noise from the environment.

Monterey County Noise Ordinance. Monterey County has a noise ordinance stating that no person shall operate any device that produces a noise level exceeding 85 decibels (dB) measured at 50 feet from said device. This prohibition does not apply to aircraft or any device operated more than 2,500 feet from any occupied dwelling unit (Monterey County Board of Supervisors 1978).

Table 15-1. Land Use Compatibility for Exterior Community Noise

Land Use Category	Noise Ranges (DNL or CNEL) dB			
	I	II	III	IV
Passively used open spaces	50	50-55	55-70	70+
Auditoriums, concert halls, amphitheaters	45-50	50-65	65-70	70+
Residential - low-density single family, duplex, mobile homes	50-55	55-70	70-75	75+
Residential - multifamily	50-60	60-70	70-75	75+
Transient lodging - motels, hotels	50-60	60-70	70-80	80+
Schools, libraries, churches, hospitals, nursing homes	50-60	60-70	70-80	80+
Actively used open spaces - playgrounds, neighborhood parks	50-67	--	67-73	73+
Golf courses, riding stables, water recreation, cemeteries	50-70	--	70-80	80+
Office buildings, business commercial, and professional	50-67	67-75	75+	--
Industrial, manufacturing, utilities, agriculture	50-70	70-75	75+	--

Noise Range I - Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Noise Range II - Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Noise Range III - Normally Unacceptable: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design.

Noise Range IV - Clearly Unacceptable: New construction or development should generally not be undertaken.

Source: Monterey County Planning and Building Inspection Department 1982.

Land Uses and Sensitive Receptors in the Project Vicinity

Land uses around the project area are identified in Figure 3-2 in Chapter 3, "Land Use". Noise-sensitive areas around the project area include:

- the private preschool and child-care facility in the Carmel Valley Racquet Club on the east side of Rancho San Carlos Road north of the project area,
- Garland Ranch Regional Park northeast of the project area,
- the Quail Meadows subdivision directly north of the project area,
- approximately 100 second homes located in the White Rock Club directly south of the project area,
- approximately 100 second homes located in San Clemente Rancho southeast of the project area,
- neighborhoods near the Carmel Valley Golf and Country Club, and
- residences in Carmel Valley Ranch northeast of the project site near Robinson Canyon Road, and
- residences in Hacienda Carmel north of Quail Meadows.

Existing Noise Conditions

The noise environment at Rancho San Carlos is generally quiet and is controlled in most areas by distant traffic, wind over terrain, and sound associated with ranch operations such as operation of farm equipment, cattle grazing, farm transport vehicles, and associated human activity. Vehicles traveling on Carmel Valley Road and Rancho San Carlos Road are the most significant sources of noise in the area. These roadways carry the most traffic in the area. The noise environment is often punctuated by overflights from general aviation aircraft, likely from Monterey Peninsula Airport, 5 miles north of the project site. *The San Clemente Airfield, a small private air strip located at the southeast end of the project site is also occasionally used by small aircraft.*

The Carmel Associated Sportsmen's, Inc., operates the only existing gun club in the area, which is located near the northern property line of the project site at Robinson Canyon Road. When the gun club is in use, noise from gunfire dominates the surrounding noise environment during daylight hours and occurs most often on weekends when more members use the club. *The Sportsmen's Club, San Clemente Rancho, and White Rock Club have target ranges that are used occasionally.*

Noise Monitoring. An extensive noise-monitoring survey was conducted throughout the project site and at potentially affected outlying areas to document the existing noise environment. Continuous 24-hour measurements were taken at three locations and shorter duration measurements were taken at other locations. Measurement locations are depicted in Figure 15-1 and described in Table 15-2. These particular measurement locations were selected to:

- document the noise environment throughout the project site,
- measure noise at receptors potentially affected by the project,
- characterize existing traffic noise along associated transportation routes, and
- measure the existing quiet rural noise environment typical of much of the project site.

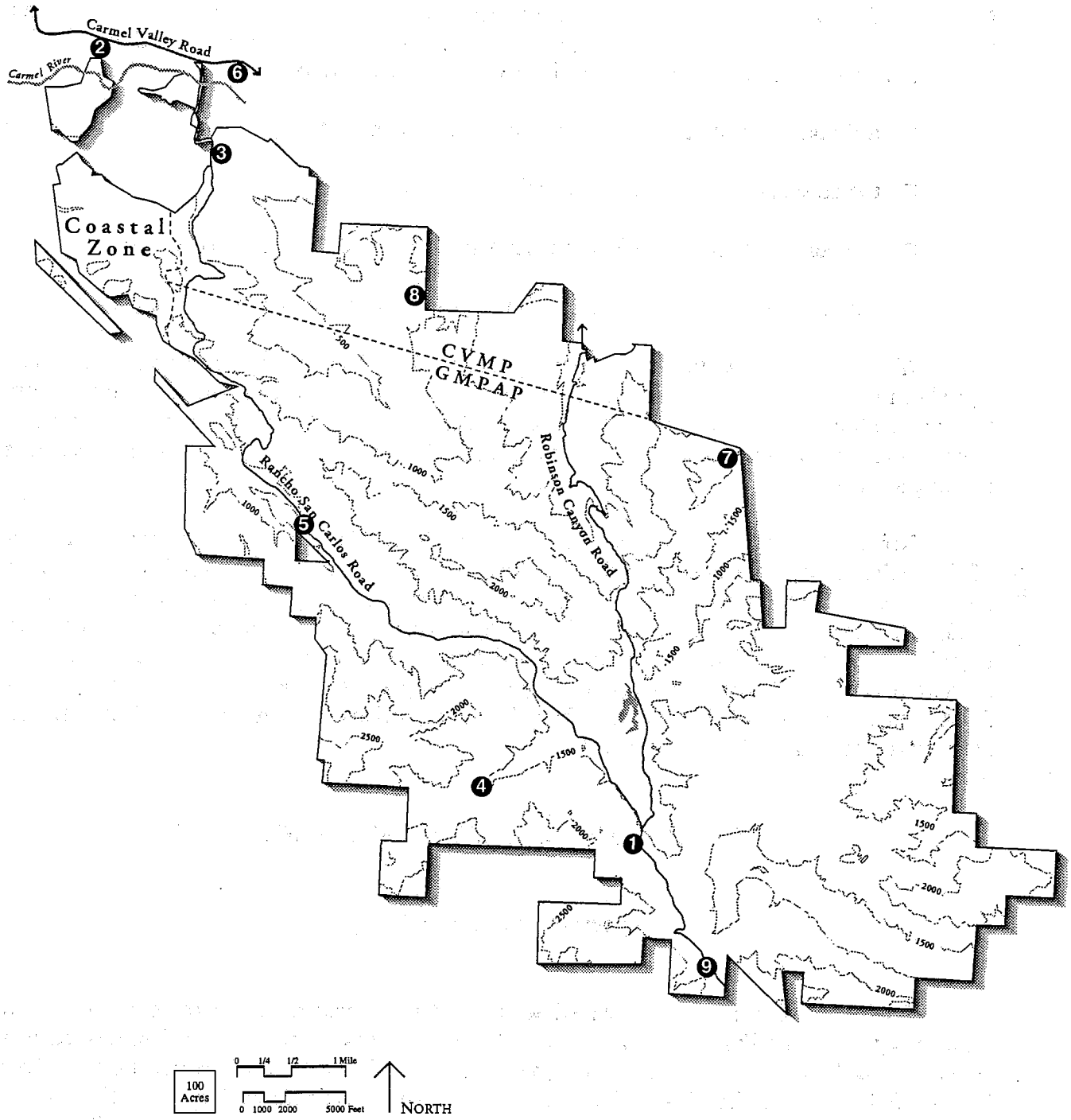
All noise measurements were made using Larson-Davis Model 720 programmable precision digital sound-level meters. The meters log the A-weighted sound every one-half second and store this information. This information is then downloaded to a computer for subsequent analysis and presentation. These Type 1 meters were field-calibrated immediately before use in accordance with industry standards.

Noise monitoring results are summarized in Table 15-2. These results are expressed in terms of the equivalent noise level (L_{eq}), which is the average noise level reflecting total noise exposure throughout the measurement period. Three percentile values quantifying the sound level exceeded 10%, 50%, and 90% of the time are given along with the day-night average sound level (L_{dn} or DNL). L_{dn} values were directly calculated at Sites 1, 2, and 3 where 24-hour measurements were taken. All results are considered to represent typical conditions, although the quietest area with L_{dn} values below 35 A-weighted decibels (dB) may often have higher L_{dn} values on days when wind over terrain increases or when aircraft flyovers occur.

IMPACTS AND MITIGATION MEASURES

Approach and Methodology

Potential noise impacts associated with the development of a mix of market-rate and inclusionary multifamily/duplex homes, a ranch center, conservancy, recreation facilities, services and operations, and a community preserve have been evaluated. Two stages of the development have been studied. Under the first phase, called the Comprehensive Development Plan within the Greater Monterey Peninsula Area Plan (CDP-GMPAP), about 80% of the total proposed dwelling units would be built along with visitor accommodations, commercial/recreation facilities, and a golf course/golf club facility. Under buildout of the project, the remaining dwelling units would be constructed.



Source: Adapted from Rancho San Carlos Partnership 1994b, Charles M. Salter Associates 1994.

Jones & Stokes Associates, Inc.

Figure 15-1
Noise Measurement Locations

Table 15-2. Summary of Noise Measurements

Site	Location	Date and Time	A-Weighted Noise Levels (dB)				
			L_{eq}	L_{10}	L_{50}	L_{90}	L_{dn}
1	50 feet west of Robinson Canyon Road near lane centerline north of San Clemente Road 10 feet above roadway elevation	Thursday and Friday January 13 and 14, 1994 10:00 a.m.	44	33	24	22	40
2	45 feet south of Carmel Valley Road near lane centerline 5 feet above roadway elevation 50 feet west of Via Mallorca	Thursday and Friday January 13 and 14, 1994 10:00 a.m.	73	78	68	33	75
3	60 feet east of Rancho San Carlos Road near lane centerline 5 feet above roadway elevation parking lot of private preschool	Thursday and Friday January 13 and 14, 1994 10:00 a.m.	46	45	36	24	44
4	1 mile southwest of the main house along unpaved road 5.5 feet above grade	Thursday January 13, 1994 5:05-5:20 p.m.	36	40	35	34	–
5	100 feet southwest of Rancho San Carlos Road 5 feet below roadway elevation 5.5 feet above Miller residence driveway elevation	Thursday January 13, 1994 5:05-5:20 p.m.	36	36	27	24	–
6	50 feet south of Carmel Valley Road near centerline 5.5 feet above roadway elevation 20 feet west of Canada Way	Thursday January 13, 1994 5:45-6:00 p.m.	70	74	69	55	–
7	300 feet north of Perion Peak 5.5 feet above site elevation South of Garland Ranch Regional Park	Friday January 14, 1994 10:30-11:45 a.m.	35	36	27	25	–
8	Northern property line of project north of Potrero Canyon 5.5 feet above site elevation	Friday January 14, 1994 10:30-11:45 a.m.	48 [a]	39	29	28	–
9	40 feet south of Robinson Canyon Road roadway centerline north of White Rock Club entrance 5.5 feet above roadway elevation	Friday January 14, 1994 10:30-11:45 a.m.	30	30	25	23	–

[a] L_{eq} would have been between 30 dB and 35 dB were it not for the one airplane flyover, directly overhead, during the measurement.

Source: Charles M. Salter Associates 1994, Table B.

When the noise assessment study was prepared, construction of the golf course was part of the second development phase. Accordingly, all traffic noise modeling results reported herein are based on the assumption that the golf course is part of the second phase. That the golf course is now part of the first phase does not change any of the conclusions in the study because of the relatively small number of vehicle trips generated by the course. As will be seen, there is virtually no difference in projected noise levels for the two phases of development.

The traffic study for the project evaluated traffic conditions under no project, CDP-GMPAP conditions, and buildout conditions under two background development scenarios. The first background scenario is for 1992 plus approved projects. This is the scenario analyzed in the noise report to evaluate the direct effects of the project on traffic noise. The second scenario is for 1992 plus approved projects plus proposed projects. Noise effects under this scenario, which includes all currently foreseeable development in the area, are discussed in Chapter 19, "Cumulative Impacts".

The approach to assessing project-related noise impacts was to compare anticipated project-related noise to the significance criteria discussed below. The primary sources of project-related noise are construction and increased traffic.

Significance Criteria

According to State CEQA Guidelines, a project will normally have a significant effect on the environment if it will:

- substantially increase the ambient noise levels for adjoining areas or
- expose people to severe noise levels.

In practice, more specific professional standards have been developed to implement the intent of the State CEQA Guidelines. These standards state that a noise impact is considered significant if it would:

- generate noise that would conflict with local planning criteria or ordinances,
- substantially increase noise levels at noise-sensitive land uses, or
- propose land uses that are incompatible with existing baseline noise levels.

For this project, the significance of anticipated noise effects is based on a comparison between predicted noise levels and noise criteria defined in the Monterey County Draft General Plan Noise Element (Table 15-1). The potential reaction of the public to a change in noise conditions resulting from the project is also a factor used in determining significance. Research into the human perception of changes in sound level indicates the following (Bies and Hansen 1988):

- A 3-dB change is just perceptible.

- A 5-dB change is clearly perceptible.
- A 10-dB change is perceived as being twice or half as loud.

These and other factors relating to the duration and frequency of project-related noise events are considered when the significance of changes in sound levels are evaluated.

Applicant's Proposed Mitigation Measures

The applicant is proposing the following mitigation measures to minimize construction-related noise impacts:

- During construction, all contractors shall comply with all county and local sound control and noise-level regulations and ordinances. All construction equipment shall be equipped and maintained with effective muffler exhaust systems.

- Borrow pit operations should be laid out to minimize noise exposure to surrounding land uses. Stockpiles should be strategically located to help minimize noise by acting as sound barriers. Removal operations should be limited to daylight hours.

- Truck traffic and transportation activities should be coordinated with borrow pit operation hours to eliminate "staging" of vehicles.

- Batch plant operations shall be designed to minimize noise by strategically designing stockpiles in berms to muffle noise. Regeneration of stockpiles would occur on a continual basis. Best available noise control technology would be required for batch plant operations.

Additionally, the following characteristics of the project will minimize potential noise impacts:

- A limited number of residential and visitor-serving units will be developed.

- No development that would have the potential to create noise impacts is sited near the boundaries of inhabited neighboring properties.

- All surrounding properties are separated from developed portions of the project site by conservation easements.

- No adjacent active recreational or residential development uses are on surrounding properties (except the gun club) that would create potential noise-impacts on proposed noise-sensitive land uses.

Construction Noise

Impact: Exposure of Existing Residents to Noise from Aggregate Mining Operations

Base rock for roads and driveways will be obtained from an onsite borrow pit. An asphaltic batch plant will be located at the site to produce material suitable for paving. The site proposed for the borrow pit is depicted in Figure 6-4 in Chapter 6, "Geology and Minerals", and located at least 1 mile from the closest project area boundary.

Quiet undeveloped areas around the borrow pit may be temporarily disrupted by stationary and mobile diesel-powered equipment, and also possibly by pneumatic equipment, conveyors, and batch plant operations. Because the borrow pit site is well isolated from surrounding inhabited areas, however, no existing residents will be affected. The noise impact from mining operations is therefore considered less than significant.

Trucks and other vehicles entering the borrow pit site will also be a source of noise. Because only a few vehicles will enter the site daily, however, and because vehicles will be restricted to roads within the project boundaries, the noise impact associated with these vehicles is considered less than significant.

Mitigation Measure: No mitigation measures are required. Although this impact is considered less than significant, the following measures are recommended to minimize the potential for noise impacts from mining operations.

- Lay out borrow pit and batch operations to minimize potential noise exposure to surrounding land uses.
- Locate stockpiles to serve as sound barriers between noisy operations and surrounding land uses. Regeneration of stockpiles should occur on a continual basis.
- Employ the best available technology to control noise at the batch plant.
- Limit mining, batch plant, and trucking operations to daylight hours on weekdays and nonholiday periods.

Impact: Exposure of New Residents to Noise from Aggregate Mining Operations

New home sites 12, 13, 14, 15, 184, 185, and 186 will be located within 2,000-4,000 feet of the borrow pit site and may be adversely affected by noise from mining and batch plant operations. Noise monitoring conducted at a similar plant indicates that this type of facility can produce an hourly L_{eq} of about 60 dB measured at a distance of 700 feet (Brown-Buntin Associates 1993). Assuming constant operation between 7 a.m. and 7 p.m., this corresponds to a DNL of 66 dB measured at 700

feet. If point-source attenuation is used, a distance of at least 1,000 feet from the site would be needed before the DNL would drop to 60 dB, the county's standard of residential uses. At the closest home site, the DNL could be as high as about 53 dB. The effects of intervening terrain will probably reduce this further.

This impact is considered less than significant because new residents would not be exposed to sound levels in excess of county land use compatibility standards.

Mitigation Measure: No mitigation measures are required. Although this impact is considered less than significant, the following measure is recommended to minimize the potential for noise impacts from mining operations on new residents.

- Construction of homes within 1 mile of the borrow pit site should be delayed until use of the borrow pit site is almost complete. This will minimize the duration of potential exposure of new residents to audible noise. An alternative would be to allow property owners within this distance to construct homes earlier as long as they are notified of the presence of the mining operations and that noise from the operations may be audible.

Impact: Exposure of Wildlife to Noise from Aggregate Mining Operations

Although the borrow pit site will be isolated from surrounding inhabited areas, noise from base rock mining and asphalt production could affect wildlife. Studies on the effects of noise on wildlife show that most animals habituate readily to the presence of noise (U.S. Forest Service 1993). It is likely that animals indigenous to the project area will avoid the immediate area of borrow pit as a result of the physical threat associated with the presence of humans. At distances to which they are likely to retreat, the sound level from mining operation will not be loud enough to cause physiological changes to the animals' hearing mechanisms or to significantly interfere with communication. This impact is considered less than significant because wildlife will likely habituate to the noise from mining operations with little likelihood for long-term adverse effects related directly to noise.

Mitigation Measure: No mitigation measures are required. Although this impact is considered less than significant, the same measures identified above for the "Exposure of Existing Residents to Noise from Aggregate Mining Operations" impact, are recommended to minimize the potential for noise impacts from mining operations on wildlife.

Impact: Exposure of Residents to Noise from Construction Activities

Construction activities will generally be localized at home sites and central facilities as they are constructed over a period of up to 1 year each. This localized construction noise will be from sawing, hammering, welding, and other operations requiring stationary diesel-powered equipment. Because of the large distance between proposed construction sites and existing residences and because of the high degree of separation between adjacent home sites, the exposure of existing and

new residents to construction will be minimal. This impact is therefore considered less than significant.

Transportation of construction personnel, materials and equipment will increase traffic on Carmel Valley Road and other local roadways. Because the number of facilities and residences to be constructed is relatively small, however, and because construction will be spread out over several years, the transportation of personnel, materials, and equipment will not result in a noticeable change in traffic noise. This impact is therefore considered less than significant.

Mitigation Measure: No mitigation measures are required. Although this impact is considered less than significant, the following noise-reducing construction practices should be incorporated with construciton contract specifications to minimize the potential for noise impacts from construction operations.

- During construction, all contractors shall comply with all county and local sound control and noise-level regulations and ordinances, including the Monterey County noise ordinance.

- All construction equipment shall be equipped and maintained with effective muffler exhaust systems no less effective than those provided on the original equipment.

- As directed by county staff, the contractor shall implement appropriate additional noise mitigation measures including, but not limited to, changing the location of stationary construction equipment, shutting off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, or installing acoustical barriers around stationary construction noise sources.

Traffic Noise

Impact: Exposure of Existing Noise-Sensitive Land Uses to Increased Traffic Noise

Transportation-related noise impacts have been assessed based on traffic information from the project traffic report (Dowling Associates 1994). This report contains detailed information on existing traffic counts and future traffic volume predictions under the two project scenarios described above: the CDP-GMPAP and buildout of the project site.

Noise exposure, in terms of the L_{dn} metric, was predicted for the existing conditions, the CDP-GMPAP conditions, and the buildout condition for each of the nine measurement locations identified in Figure 15-1. The results of these noise exposure predictions in terms of DNL are given in Table 15-3.

Predictions were developed for the no-project condition by using the long-term measurements for Locations 1, 2, and 3 (which directly measured DNL), and extrapolating values for the other six locations using the shorter period monitoring results for specific time periods of the day. Noise predictions for the two project development scenarios were developed by computing the increase in noise exposure level from the increase in traffic volumes using Caltrans and FHWA prediction techniques.

Although considerable congestion exists for several traffic conditions during peak hours, the relatively small percentage of traffic created by the project does not sufficiently alter traffic speeds or levels of service at any location to affect the noise modeling results. Accordingly, the changes in noise exposure (i.e., L_{dn} values) are solely tied to changes in traffic volumes. Where noise exposure will increase with the project, the increase will occur gradually over the buildout period after initial road construction. Generally, noise increases are proportional to the increase in the number of residences.

For both directions of Carmel Valley Road, the proposed project will change the peak-hour and the average daily traffic by only a few percentage points. As can be seen by the noise modeling results for Locations 2 and 6, these changes will have a negligible effect on noise exposure for all areas along Carmel Valley Road. This impact is therefore considered less than significant for residences along Carmel Valley Road.

The same is true for other roadways associated with the project except for Rancho San Carlos Road, where traffic volumes are predicted to increase significantly (by about a factor of 3). As shown in Table 15-3, corresponding traffic noise increases in the range of 4-5 dB will occur along this road. This impact is considered less than significant for sensitive receptors near Rancho San Carlos Road because:

- the resulting DNL traffic noise is below 50 dB and therefore well below the county's DNL compatibility standard of 60 dB,
- the project-related noise increases are relatively small (in the range of 4-5 dB [i.e., just perceptible to clearly perceptible]) and would occur over an extended period of time, and
- the only people affected by traffic noise on Rancho San Carlos Road will be those generating the traffic noise by traveling to their residences.

Mitigation Measure: No mitigation measures are required.

Table 15-3. Noise Modeling Results (DNL)

Location	Condition		
	No Project	Santa Lucia Preserve (CDP-GMPAP)	Santa Lucia Preserve Buildout
1	40 dB	40 dB	40 dB
2	75 dB	75 dB	75 dB
3	44 dB	48 dB	48 dB
4	34 dB	39 dB	40 dB
5	39 dB	43 dB	44 dB
6	68 dB	68 dB	68 dB
7	31 dB	31 dB	31 dB
8	33 dB	33 dB	33 dB
9	27 dB	27 dB	27 dB

Source: Charles M. Salter Associates 1994.

Operational Noise

Impact: Exposure of Surrounding Land Uses to Noise from New Residences and Other Facilities

Normal activities associated with neighborhoods, the golf course, and other facilities will generate noise that did not exist when the site was undeveloped. The primary sources of noise for this type of development are landscape maintenance activities (e.g., lawn mowers, sprinklers). Barking dogs, children, and other neighborhood activities can also be occasional sources of noise.

These direct sources of noise are generally temporary and restricted to the immediate inhabited areas with limited, if any, effect on surrounding land uses. The high degree of separation between proposed home sites will further reduce the potential for adverse noise effects on adjacent home sites or other surrounding offsite land uses.

The noise from neighborhoods will have little, if any, effect on wildlife. Animals indigenous to the project area probably will avoid the immediate area of the home site or other facility as a result of the physical threat associated with the presence of humans. At distances to which they are likely to retreat, the sound level from occupant activities will not be loud enough to cause physiological changes to the animals' hearing mechanisms or to significantly interfere with communication. For these reasons, this impact is considered less than significant.

Mitigation Measure: No mitigation measures are required.

Other Noise Sources

Impact: Exposure of New Residents to Noise from the Gun Club

Lots 223, 224, 225, and 226 are located near Robinson Canyon Road along the border of the CVMP area and the GMPAP area. The Carmel Associated Sportsmen's, Inc., operates a gun club on a parcel just north of the project boundaries, east of Robinson Canyon Road. The noise report prepared for this project (Charles M. Salter Associates 1994) states that noise from firing of guns dominates the noise environment during daylight hours (when the club is in use) and occurs most frequently on weekends.

Although noise from the gun club may be audible to the nearby residences identified above, gunfire will not result in noise that exceeds the county's compatibility standard of 60 dB-L_{dn} because:

- The gun club is operated only during daylight hours.

- The club is located more than 2,000 feet from the closest proposed residential site.
- Intervening topography will provide noise-reducing shielding.

This impact is considered less than significant because the county's compatibility standard will not be exceeded.

Mitigation Measure: No mitigation measures are required. However, audible gunfire may be annoying to new residents, particularly if they were uninformed about the presence of the gun club when they purchased their property. The following measure is recommended to reduce the potential for this to occur.

- The project applicant shall notify potential buyers of Lots 223, 224, 225,and 226 that the Carmel Associated Sportsmen's, Inc., operates a gun club within 2,000-3,000 feet of these lots and that gunfire may be audible. The presence of the gun club and potentially audible noise from gunfire should also be acknowledged in property deeds for these parcels.

Chapter 16. Public Services and Utilities

INTRODUCTION

This chapter describes the public services agencies having jurisdiction over the proposed project and existing conditions of the public services in the project vicinity. Information for this chapter was compiled from the comprehensive development plan for the Santa Lucia Preserve, the combined development permit application for the Santa Lucia Preserve, various documents from Monterey County, and various technical documents prepared for the Santa Lucia Preserve.

SETTING

Wastewater Treatment and Disposal

Septic tanks currently provide wastewater treatment for the developed ranch area. The total existing wastewater flow is estimated to be 4,555 gallons per day (gpd) and includes flows from the main house, guest house, gate house, corporation yard, employee residences, a mobile home, and offsite residences (Camp Dresser & McKee, Bestor Engineers et al. 1994a).

Water Supply

Water development at Rancho San Carlos includes several wells, Moore's Lake at San Francisquito Flat, and several small stock ponds located throughout the ranch. Two wells provide domestic water for the ranch. Moore's Lake provides water for irrigation of the grounds of the existing ranch house and was formerly used to irrigate a polo field and pasture located in San Francisquito Flat. Current water use is not well documented because most of the existing domestic and agricultural water uses for the ranch are not measured (Camp Dresser & McKee, *Balance Hydrologics et al* 1994*a*).

Actual use at three existing employee residences on Rancho San Carlos was metered during 1994. Water use for December 1993 to December 1994 ranged from 0.17 acre-feet (af) for a 3-bedroom home with a single occupant and minimal landscaping to 0.59 af for a 3-bedroom home occupied by a family and significant landscaping.

Solid Waste

Solid waste is collected by the Carmel Valley Disposal Service and delivered to the Marina Sanitary Landfill, which is owned by the Monterey Regional Waste Management District (MRWMD) (Rancho San Carlos Partnership 1994a). Approximately 220,000 tons of solid waste are disposed of in the landfill each year. The landfill has a capacity to dispose of solid waste for another 90 years (Shedden pers. comm.). MRWMD also provides recycling facilities in response to Assembly Bill (AB) 939. AB 939 requires landfill solid waste disposal to be reduced by 25% in 1995 and by 50% in 2000. Residents and employees of Rancho San Carlos currently recycle newspaper, plastic, glass, and cans.

Schools

Public Schools

The Santa Lucia Preserve lies within the Carmel Unified School District (CUSD). Children residing at Rancho San Carlos can attend River School Elementary, Carmel Middle School, and Carmel High School (Baldwin pers. comm.). Carmelo School, which is closed due to reduced enrollment, is located adjacent to Rancho San Carlos and is currently *operated* ~~leased out~~ by the CUSD as a *preschool/childcare program* ~~day care center~~. Approximately 97 children attend the Child Development Center (Avery pers. comm.).

Table 16-1. Carmel Unified School District Enrollment, 1994

School	Enrollment	Capacity
River School Elementary	486	Site impacted
Carmel Middle School	559	919
Carmel High School	656	1,046

Sources: Mayer pers. comm. (enrollment), Baldwin pers. comm. (capacity).

Districtwide enrollment is approximately 2,379 students. During the last 4 years, enrollment has increased 2.5%-3% annually. Projected enrollment by the CUSD is 2,640 students by 2013 (Baldwin pers. comm.).

River School Elementary is "site impacted". This means that the size of the school and playgrounds and available rest rooms and ancillary space are at capacity (Planning Analysis & Development 1992). Increased enrollment at the elementary school is accommodated by using one portable classroom. Recently, the school district had substantial growth in grades K-5 (Baldwin pers. comm.).

Private Schools

Two private elementary school (grades K-8) are located near Rancho San Carlos. All Saints Episcopal School is located on Carmel Valley Road, west of the intersection of Schulte Road and Carmel Valley Road. The current enrollment is 208 students, which is considered capacity (Harlow pers. comm). Robert Louis Stevenson Lower and Middle School (grades K-8) is located on Dolores Street in Carmel. The current enrollment is 210 students, and the school has a capacity for 220 students (Ryan pers. comm.).

Junipero Serra is an elementary school (grades K-8) located in the City of Carmel-by-the-Sea, at 2992 Lausen Drive. The current enrollment is 263 students, and the school has a capacity for 270 students (Munic pers. comm.).

York School is a private high school (grades 8-12) and is located at 9501 Salinas Highway in Monterey. The current enrollment is 208 students, which is considered capacity (Mitchell pers. comm.).

Santa Catalina is a private high school (grades pre-K - 12) and is located on Mark Thomas Drive in Monterey. The current enrollment is 550 students and includes day co-ed students (grades pre-K - 12) and a girls boarding school (grades 9-12). This school is currently at capacity. As students graduate, however, capacity for additional students will become available (Bloch pers. comm.).

Robert Louis Stevenson Upper School (grades 9-12) is located on Forest Lake Road in Pebble Beach Currently, the student enrollment is 530 students and the school is at capacity (Bjork pers. comm.).

Law Enforcement

The Monterey County Sheriff's Department provides police service to Rancho San Carlos. Rancho San Carlos is within Beat 8, which also includes a large portion of the Carmel Valley. Beat 8 is patrolled by one deputy during the day and two at night. The closest sheriff's station is located at the Monterey County Courthouse Annex, in Monterey. Personnel includes 17 deputies, four sergeants, and one captain. The estimated response time to Rancho San Carlos varies, depending on

the type of emergency and the availability of staff. Response time for emergency calls is estimated at 5-7 minutes to the entrance of Rancho San Carlos. Crimes within Beat 8 include commercial and residential burglaries, petty thefts, vandalism, and thefts from vehicles. Most of the crimes within this Beat are commercial burglaries (Wilson pers. comm.).

Fire Protection

The California Division of Forestry and Fire Protection (CDF) provides wildland fire protection for Rancho San Carlos. CDF has two fire stations that respond to fires at the ranch. The Carmel Hill Station is located approximately 6 miles from Rancho San Carlos Road. The response time from this station to Rancho San Carlos Road is approximately 10 minutes. This station has a minimum of six firefighters during the summer and two fire engines. The Tularcito Station would respond to Rancho San Carlos from Robinson Canyon Road. The distance from the fire station to the intersection of Carmel Valley Road and Robinson Canyon Road is 9 miles, which would require a 15-minute response time. *An additional 15-minute response time would be necessary for the responding aparatus to proceed to the ranch house.* This station has a minimum of three firefighters during the summer and one fire engine. For wildland fires, bulldozers and a helicopter would respond. The minimum amount of water a helicopter would carry is 280 gallons of water (Scoggins pers. comm.).

Company 70 is the volunteer firefighter program at Rancho San Carlos. Volunteers are trained in wildland and structural firefighting and carry beepers that are dispatched from the CDF system. The volunteers receive additional training monthly by CDF staff on various topics ranging from radio dispatch to different firefighting techniques (Scoggins pers. comm.).

The "Valley Floor" of Carmel Valley, is designated as a "local responsibility area" and is protected by the Cypress Fire Protection District (CFPD) and by the Mid-Carmel Valley Fire District (MCVFPD) (Roy A. Perkins 1994). All fire districts in Monterey County, including CFPD and MCVFPD, provide fire protection pursuant to a Mutual Aid Master Plan with CDF (Perkins pers. comm.).

Employees at CFPD include 19 paid employees (one chief, six captains, six engineers, and six firefighters). Additionally, 15 paid on-call firefighters are available when necessary for firefighting. The CFPD has three fire engines, each staffed with two to three firefighters. Response time to the intersection of Carmel Valley Road and Rancho San Carlos is 5-7 3 minutes plus an additional 2.5 minutes for each mile on the ranch to the required destination. The insurance service office (ISO) rating for CFPD is 4 on a scale of 1-10 (Mazza pers. comm.). The ISO rating schedule indicates an area's level of fire risk, which is used for fire insurance underwriting. The rating schedule contains guidelines for provision of manning stations, apparatus, equipment, and engine and ladder companies for various land uses (ABAG Training Institute 1988).

MCVFPD provides fire protection for Rancho San Carlos only in special instances when CDF needs assistance (Perkins pers. comm.). Staff and equipment include 35 firefighters, one brush engine, two structure engines, a water tender, and rescue apparatus. MCVFPD's minimum response time is 5-22 minutes depending on the location of the fire on the ranch. MCVFPD's ISO rating is 4 (Carmichael pers. comm.).

Emergency Medical Response

Carmel Regional Ambulance (CRA) provides ambulance service for Rancho San Carlos. The ambulances are equipped for Advanced Life Support (ALS) and include paramedics who are able to administer drugs. Response time to the main house at Rancho San Carlos is approximately 25 minutes. Ambulances may be dispatched from the following fire districts: Mid-Valley, Carmel Valley, Big Sur, and the City of Carmel. The closest hospital to Rancho San Carlos is the Community Hospital of the Monterey Peninsula. The return time to this hospital is the initial response time plus 10 minutes. CRA also has access to a helicopter when head injuries are sustained or when medical response is required for back country emergencies (Smith pers. comm.).

Health Services

Community Hospital of the Monterey Peninsula provides medical services to residents at Rancho San Carlos. This facility is a general acute care community hospital and is staffed by 240 doctors. Hospital equipment includes 174 beds, a computerized tomography (CT) scanner, magnetic resonance imaging, outpatient surgery, and radiation therapy (Blaushild pers. comm.).

Gas and Electricity

Pacific Gas and Electric Company provides electricity to the structures located at Rancho San Carlos. Aboveground electrical lines that serve Rancho San Carlos run from the intersection of Rancho San Carlos Road across to Robinson Canyon Road near the White Rock Club property. Two of the electrical distribution lines run from a substation near the City of Carmel-by-the-Sea: one along Robinson Canyon Road and the other along Potrero Canyon Road. The capacity of each of these lines is 12,000 volts (Planning Analysis & Development 1992).

Natural gas is not distributed on the property and is not an element of the proposed project. Therefore, natural gas will not be discussed further in this document.

Telephone Service

Pacific Bell provides telephone service to Rancho San Carlos. An underground telephone cable runs through the site vicinity from Rancho San Carlos Road at the entrance to the White Rock Club. The 200-pair screened cable is electronically designed to multiply service so that additional service can be extended (Planning Analysis & Development 1992).

Cable Television

Several cable television providers provide Carmel with cable television services. Monterey Peninsula T.V. Cable Company provides cable television service to adjacent areas of the proposed project area (Walton pers. comm.).

IMPACTS AND MITIGATION MEASURES

Approach and Methodology

Impacts of the proposed project were assessed based on available technical information from the Comprehensive Wastewater Disposal Plan, Comprehensive Hydrological Study, Fire Safety Management Plan, Monterey County General Plan, Comprehensive Development Plan, combined development permit application, Monterey County Board Resolutions, and personal communications with public service representatives.

Significance Criteria

The following criteria were used to evaluate the significance of public services and utilities impacts. The criteria were developed based upon Appendices G and I of the State CEQA Guidelines and from professional standards. Impacts of the proposed project on public services and utilities were considered significant if the project would:

- encourage activities requiring large amounts of fuel, water, or energy;
- interfere with emergency response plans or emergency evacuation;

- require additional law enforcement staff and equipment to maintain acceptable ratios;
- require additional fire protection staff or equipment to maintain an acceptable level of service;
- produce solid waste in excess of available landfill capacity;
- breach published standards relating to solid waste or litter control; or
- increase demand for services that exceeds the capacity of existing facilities and planned improvements.

County Service Area

Impact: Increased Demand for County Services

The proposed project will result in the increased demand for county services, including law enforcement, fire protection, and utilities. To facilitate the delivery of public services to the proposed residential and commercial areas, Rancho San Carlos proposes to form a County Services Area (CSA). On December 14, 1993, a conceptual CSA sphere of influence for the proposed Rancho San Carlos project was adopted by Monterey County's Local Agency Formation Commission (LAFCO). LAFCO is responsible for approving the formation of local governmental agencies. The CSA established for the Santa Lucia Preserve pursuant to Government Code Section 56000 et seq., will be the local agency responsible for providing essential public services for development at the Santa Lucia Preserve. It is proposed that the CSA will contract with the Stewardship Company to provide services. For an explanation of LAFCO's previous actions before December 14, 1993, refer to Chapter 2, "Project Description".

As proposed, the Conservancy will be the entity ultimately responsible for the protection and management of the Santa Lucia Preserve. The Conservancy will be financially supported by a number of sources, including donations, charitable grants, and an endowment funded by the Rancho San Carlos Partnership from a portion of the sale price for each lot (Rancho San Carlos Partnership 1994a).

The Stewardship Company will be a separate but wholly owned subsidiary of the Conservancy and will be responsible for carrying out the mission of the Conservancy. The company's operation will be financially supported by the Conservancy, the CSA contracts for services, and funds from non-exempt revenue sources such as fees for goods and services rendered to residents of the Santa Lucia Preserve.

The Stewardship Company will be responsible for implementing all resource management, scientific and educational objectives of the Conservancy, including coordination for distribution of additional telephone, electricity, and cable services (contracting with the appropriate private entities). Additionally, the company will conduct commercial, recreational, and community-serving business functions. The company's responsibilities include fire protection and security services, operation and maintenance of the water and wastewater facilities and roads under contract to the ranch CSA, landscape maintenance services for homeowners, and a native plant material nursery.

The formation of a CSA, resulting from the increased demand for public services, is considered a beneficial impact because the CSA is consistent with LAFCO's goals and objectives, it is consistent with Monterey County Board Resolutions, and will facilitate protection and management of the Santa Lucia Preserve.

Mitigation Measure: No mitigation measures are required.

Impact: Consistency with LAFCO Groundwater Standards

LAFCO defines groundwater standards that must be analyzed for each proposed CSA. The following groundwater information must be provided to LAFCO before approval of the CSA for the Santa Lucia Preserve.

a) The projected water demand of the proposed project based on guidelines provided by the appropriate water resources agency.

b) The existing water use and historical water use over the past 5 years.

c) A description of the existing water system including system capacity serving the site.

d) A description of proposed water system improvements.

e) A description of water conservation or reclamation improvements that are incorporated into the project.

f) An analysis of the impact that proposed water usage will have on the groundwater basin with respect to water quantity and quality, including cumulative impacts.

g) Evidence of consultation with the appropriate water agency. The agency shall be consulted at the earliest stage of the process, so that applicable recommendations can be included in the environmental document.

h) A description of water conservation measures currently in use and planned for use on the site such as drought tolerant landscaping, water-saving irrigation systems, installation of low-flow plumbing fixtures, retrofitting of plumbing fixtures with low-flow devices, and compliance with local ordinances.

i) A description of how the proposed project complies with adopted water allocation plans.

j) A description of those proposals where the agency has achieved water savings or new water sources have been developed that will off-set increases in water use on the project site that would be caused by the proposal.

k) A description of how the proposal would contribute to any cumulative adverse impact on the groundwater basin.

l) A description of those boundary change proposals that, when considered individually and after taking into account all mitigation measures to be implemented with the project, still cause a significant adverse impact on the groundwater basin.

Historical, existing, and projected water use; proposed water system improvements; and existing and proposed water conservation and reclamation methods are examined in the Rancho San Carlos Comprehensive Hydrological Study (Camp Dresser & McKee and Balance Hydrologics et al. 1994a). Chapter 8, "Groundwater Hydrology, Stream Base Flow, and Water Supply and Demand", of this EIR includes an analysis of the potential impacts that proposed water usage will have on water quantity and quality in the groundwater basin. This analysis includes cumulative impacts and a description of those projects where the agency has achieved water savings or where new water sources have been developed that will offset increases in water use on the project site that would be caused by the project. The Monterey County Water Resources Agency has participated in the formulation of study guidelines for the hydrological study for Rancho San Carlos, thus fulfilling the requirement for evidence of consultation with the appropriate water agency. Impacts on groundwater resulting from the boundary change proposal are discussed in Chapter 8, "Groundwater Hydrology, Stream Base Flow, and Water Supply and Demand".

The proposed project's consistency with the groundwater standards developed by LAFCO is a beneficial impact.

Mitigation Measure: No mitigation measures are required.

Impact: Consistency with Other LAFCO Standards for the Evaluation of Proposals

LAFCO defines standards for the evaluation of proposals to identify issues and requirements associated with boundary change proposals to promote achievement of LAFCO goals and objectives. The standards relevant to the proposed project, which LAFCO uses to evaluate proposals, are as follows: duplication of authority to perform similar functions, conformance with City or County general and specific plans, spheres of influence, environmental impact assessment, economics, service delivery and development patterns, phasing, open space and agricultural land; and groundwater standards that are previously analyzed.

On December 14, 1993, a conceptual CSA sphere of influence for the proposed project was adopted by LAFCO. Additionally, this EIR includes analysis of conformity with the GMPAP and Amendments, CVMP, Carmel Area Land Use Local Coastal Program, and the Monterey County Coastal Implementation Plan; environmental impacts; economics; groundwater availability and impacts; and public services and utilities. The proposed project also includes land to be set aside for open space and phased development. The proposed project's consistency with LAFCO standards for the evaluation of proposals is a beneficial impact.

Mitigation Measure: No mitigation measures are required.

Wastewater Treatment

Impact: Increased Wastewater Generation

The proposed project will require additional methods for wastewater treatment. These methods are detailed in the Comprehensive Wastewater Disposal Plan prepared by Camp Dresser & McKee, Bestor Engineers et al. (1994) for this project. For the project, this plan identifies methods to accommodate the increase in wastewater generation and complies with Board Resolution No. 93-115 policy (h) and County Subdivision Ordinance Section 19.05.040 (k) (Rancho San Carlos Partnership 1994b). Wastewater treatment will be accomplished using a wastewater treatment plant and collection system and residential septic tank and leach field systems.

A small package treatment plant will provide tertiary wastewater treatment for the following project elements: the ranch center, Conservancy, lodge, hacienda, sporting center, equestrian center, ranch operations center, employee recreation center, the golf trail clubhouse, and approximately 91 single-family home sites, 58 single-family and multifamily housing units, and eight existing homes. Estimated sewage flow to the wastewater treatment plant is estimated to be 68,300 gpd, with a budget treatment plant capacity of 70,300 gpd (including infiltration and inflow) based on average daily sewage flow (Bestor Engineers 1994b). The treatment facility and treated water storage pond will be located near the equestrian center. The treatment system will contain a fully automated triple-pass trickling filter system with rapid sand filters, chlorination, backup capability, odor control, and

standby power, all contained within a 2,400-square-foot wood frame building. The treatment facility will be constructed during the first phase of construction that is served by the facility (within the first five phases of construction) (Duffy pers. comm.). The wastewater treatment facility fulfills Board Resolution No. 93-115 policy (h.7), which specifies that wastewater be reclaimed to the maximum extent feasible. The treatment plant will comply with the setback requirements set forth in the 1992 Monterey County General Plan.

Individual septic tanks and onsite underground leach fields designed in accordance with Division of Environmental Health standards will provide wastewater treatment for individual building sites that are not connected to the wastewater treatment facility. A total of 160 market-rate residential lots are proposed to be served by septic systems in the combined development permit application. Projected residential wastewater flow to be treated by septic tanks is approximately 43,000 gpd under the combined development permit. Additionally, 17,000 gpd of wastewater flow from an additional 58 market-rate lots, and nine inclusionary units are proposed to be served by septic systems in the Comprehensive Development Plan for the ranch at buildout for a total of 60,000 gpd. The septic tank and leach field systems will be designed based on Monterey County standards. These standards consider the size of dwelling and expected sewage flow, and the percolation test results to determine the size of the leach field system. Leach field systems will consist of conventional trenches, or perhaps deep pits at a few locations, and will be designed to include a second leach field area for backup. Several building sites may require an engineered system designed to transport sewage effluent to the leach field.

The ranch CSA will be responsible for the operation and maintenance of the treatment plant. Additionally, the CSA will provide systemic monitoring and maintenance of the individual septic tank and leachfield systems. This management organization satisfies the requirements of Board Resolution No. 93-115 policy (h.6) that collection and treatment shall be privately owned and operated or fall within a CSA (Rancho San Carlos Partnership 1994a).

The applicant is proposing to include backup capabilities and emergency power in the design of the wastewater treatment facility as required to eliminate the potential for public health hazards, and to design the wastewater system to meet the standards as set forth in Title 22 of the California Code of Regulations and as contained in the Residential Subdivision Water Supply Standards.

The increased generation of wastewater is considered a less-than-significant impact because the applicant would provide the necessary wastewater treatment to serve the development, including a wastewater treatment facility and additional septic tanks and leach fields.

Mitigation Measure: No mitigation measures are required.

Impact: Increased Generation of Sludge

The wastewater treatment plant of the proposed project will generate approximately 40-45 bags of sludge per week and require 10-11 dumpster loads per year for disposal. The applicant is proposing to dispose of the sludge at the Marina Landfill. Additionally, bagged sludge creates no odor problems in the vicinity of the plant (Clifford pers. comm.). The increased generation of sludge is considered a less-than-significant impact because the Marina Landfill is a Class III facility and can accept sludge.

Mitigation Measure: No mitigation measures are required.

Wastewater Disposal

Impact: Increased Amount of Wastewater for Disposal

The proposed wastewater treatment plant will produce reclaimed water suitable for spray irrigation of landscape and pasture or for use at the proposed golf course. At project buildout, the plant capacity will be approximately 80 acre-feet of reclaimed water per year. The amount of reclaimed water will not be sufficient, however, to meet the entire irrigation demand at project buildout. At buildout, all of the reclaimed water that is produced daily will be applied directly to irrigation for at least two-thirds of the year (Camp Dresser & McKee, *Bestor Engineers et al.* 1994*a*). The remainder of water for irrigation will be provided by groundwater. For a discussion on water availability and wastewater disposal impacts on groundwater, refer to Chapter 8, "Groundwater Hydrology, Stream Base Flow, and Water Supply and Demand" and Chapter 9, "Runoff, Flooding, and Water Quality".

The increased amount of wastewater for disposal is a beneficial impact because water will be reclaimed and used for irrigation.

Mitigation Measure: No mitigation measures are required.

Water Supply Infrastructure

Impact: Increased Demand for Water Service

The proposed project will result in the need for increased water supply. One option for providing water to the Santa Lucia Preserve is through a water purveyor, such as California American Water Company (Cal-Am) or another water district within the Monterey Peninsula Water Management District (MPWMD). However, water would need to be available and the Santa Lucia

Preserve would need to annex to the MPWMD (Oliver pers. comm.). MPWMD has recently acquired new water sources; however, the water from these sources has already been allocated. On May 17, 1993, MPWMD adopted Peralta Well. All of the water from this well has been accounted for, and some of the jurisdictions receiving water from this well are almost out of water. MPWMD is also pursuing the new Los Padres project, which is a proposed 24,000-acre-foot reservoir. However, the Santa Lucia Preserve could not receive water from this source because all of the water has been allocated. Because the Santa Lucia Preserve has decided not to annex to MPWMD and Cal-Am does not have surplus water for the proposed project, groundwater is the proposed water source for the project.

Domestic and fire flow water supply will be provided by a community water system coordinated and managed on a ranchwide basis by a CSA or other public entity through a system of deep wells and storage and distribution facilities constructed by the developer. The applicant has proposed a water supply plan that includes a series of interconnected wells, delivery infrastructure, and pump stations. The water supply system will be designed to meet standards as set forth in Title 15 of the Monterey County Code, or in Title 22 of the California Administrative Code as contained in the Residential Subdivision Water Supply Standards. Infrastructure for water delivery will be developed by using utility easements. Pump stations will be located between pressure zones to pump water uphill if necessary. Individual wells would not be pumped for more than 12 hours during the day at peak demand. For a discussion on the availability of water, refer to Chapter 8, "Groundwater Hydrology, Stream Base Flow and Water Supply and Demand".

The increased demand for water supply infrastructure is a less-than-significant impact because the applicant will provide all necessary improvements onsite and no existing service provider would be affected by the proposed project.

Mitigation Measure: No mitigation measures are required.

Solid Waste

Impact: Increased Generation of Solid Waste

The proposed project is expected to generate a population of approximately 637-977 persons at buildout resulting in an increased generation of solid waste. Marina Sanitary Landfill estimates that 7.2 pounds of solid waste is generated per person per day (Shedden pers. comm.). Therefore, the proposed project would result in the additional generation of approximately 4,586-7,034 tons of solid waste per year at project buildout. AB 939 requires a reduction in solid waste disposal in landfills (25% in 1995 and 50% in 2000), the actual amount of solid waste generation taken to the landfill would actually be less than 4,586-7,034 tons per year. A recycling program is currently in use and will continue to be used at the proposed project area. Additionally, recycling facilities will be located throughout the Santa Lucia Preserve. Curbside recycling at the preserve will also aid in reducing the

amount of solid waste taken to the Marina Sanitary Landfill. These generation numbers would also be high for the proposed project because they are based on full-time occupancy of the residents. Many of the homes at the Santa Lucia Preserve will be used for second homes or occupied by retired individuals. Also, the 7.2 pounds of solid waste generated per person per day is an average amount that includes commercial and residential waste.

The Marina Landfill has a 90-year site life and is permitted to dispose of 1,500 tons/day (463,500 tons/year). An additional 7,000 tons/year will not substantially affect landfill longevity (Sheddon pers. comm.). Therefore, this impact is considered less than significant.

Mitigation Measure: No mitigation measures are required.

Schools

Impact: Potential for Increased Demand for Schools

The proposed project has the potential to increase student enrollment at schools within CUSD and area private schools. It is anticipated, however, that many of the residents at the preserve will consist of retired individuals without school-age children or that residences will be used as second homes. Additionally, the inconvenience of traveling long distances from the proposed project area to the schools and other facilities might discourage families with school-age children from residing on the ranch (Planning Analysis & Development 1992). The CUSD does not have a student generation rate; therefore, it is not possible to quantify the number of additional students the proposed project may generate.

Elementary schools in the CUSD are site impacted; however, some capacity is available at nearby private schools. The presence of additional children at the elementary schools would change school conditions, resulting in higher student-teacher ratios, less equipment, and so forth. The middle school and high school currently have available capacity; however, as the elementary school-age children are promoted to the next grade, the available capacity will be reduced. The increased demand for schools is a significant impact because the addition of any students at the public elementary school could degrade school conditions and result in the need for additional school facilities. To reduce this impact to a less-than-significant level, the following mitigation measures should be implemented.

Additional Mitigation Measure *50*: Implement School Impact Fees. To finance the building of new schools or portable classrooms, school impact fees, in accordance with Policy 47.2.1 of the Monterey County General Plan, should be implemented. The maximum impact fee under state law that can be levied for school facilities is $1.50 per square foot for new residential development and $0.25 per square foot for new commercial development. *The decision to implement school impact fees is under the jurisdiction of the Board of Education.*

Additional Mitigation Measure *51*: Implement a Year-Round Elementary School. Although it is not within the responsibility or jurisdiction of the applicant or the county, the CUSD should change the current 9-month school year for the elementary schools to a year-round calendar. Year-round schools accommodate a greater amount of students while using the same facilities and personnel resources.

Additional Mitigation Measure *52*: Reopen Carmelo School. Carmelo School, which is currently operating as a *preschool/childcare program* ~~day care center~~, should be reopened as an elementary school by the CUSD to accommodate the increased demand for elementary school facilities. *This would require finding an alternative location for the preschool and childcare program.*

Law Enforcement

Impact: Potential Increased Demand for Additional Police Officers

The proposed project may result in the potential increased demand for police officers responding to the residential and commercial areas of the proposed project. The Stewardship Company will be responsible for providing security service for the Santa Lucia Preserve through the CSA. Security staff will be trained to patrol the residential areas, monitor the security alarms, and staff the entrance gate. Because the proposed project includes a gated community with residences equipped with security alarms monitored by onsite security, the need for police assistance will be minimal (Wilson pers. comm.). Additionally, onsite security and a staffed entrance gate will minimize criminal activities. The potential increased demand for law enforcement is considered a less-than-significant impact because the proposed project will not require additional law enforcement staff to be hired.

Mitigation Measure: No mitigation measures are required.

Fire Protection

Impact: Increased Potential for Fire Hazard

The proposed project will result in an increase of risk for fire hazards at the proposed project area. The project would also result in the need for additional onsite fire protection. Additional onsite fire protection personnel will be necessary to protect the proposed residential area and wildlands. To reduce the potential for fires, the Santa Lucia Preserve Fire Safety Management Plan (FSMP) was prepared (Roy A. Perkins 1994). The following information is provided by the FSMP.

The FSMP is designed to set standards for roadway, water distribution, and building designs based on fire prevention techniques and to implement a vegetation management program of fuel modification to reduce fire hazard. The design standards and management techniques closely adhere to Monterey County Ordinance No. 3600, Wildfire Protection Standards in State Responsibility Areas, adopted on March 10, 1992.

All roads are designed to a standard acceptable to CDF and the Monterey County Department of Public Works to facilitate the rapid deployment of firefighting equipment in an emergency. The overall network of roads provides two main points of emergency services ingress/egress from Rancho San Carlos Road to Carmel Valley Road, and Robinson Canyon Road to Rancho San Carlos Road. Secondary roads serving individual home sites connect these two roads.

There are approximately 100 miles of existing dirt roads at Rancho San Carlos. Of these roads, approximately 80 miles will be upgraded to provide access throughout the year. When used in conjunction with the paved ranch roads, a loop system will be created providing access to nearly all parts of the Santa Lucia Preserve. The Stewardship Company will monitor access and maintain the roads to ensure unrestricted emergency availability. Additionally, some emergency roads and ridgetops will serve as fuel breaks to reduce the risk of uncontrollable wildland fires. Refer to Chapter 13, "Traffic", for further discussion on roadways.

All buildings will be constructed using fire-resistant materials. These materials will be included in the Architectural Design Guidelines incorporated in the covenants, codes, and restrictions (CC&Rs) that are written into the deeds of sale for individual lots. Roofs will be constructed with noncombustible materials and exterior walls will be constructed with fireproof walls or fire-resistant siding. Additionally, all buildings designed for human occupancy will include internal sprinkler systems and be connected to a centralized alarm system.

The Santa Lucia Preserve will also use fuel modification, the reduction of flammable vegetation, as another means to reduce the risk of fire hazards. Resource managers from the Stewardship Company will implement fuel modification. Fuel modification progress will be monitored by CDF to ensure compliance with Sections 4290 and 4291 of the Public Resources Code and Chapter 18.56 of the Monterey County Code. The fuel management plan separates the property into three areas: wildlands, openlands, and homelands. Wildlands and homelands will be managed by removing brush, dead or dying trees located immediately adjacent to structures and by developing fuel breaks and firebreaks. Homeowners, *who will be responsible for managing the "homelands"*, will be required to remove brush and accumulated litter from their property, as well as keeping trees trimmed. *Additionally, cattle will graze on approximately 3,000 acres as a fuel reduction and fuel modification measure.*

Additional fire prevention measures will be used by the Santa Lucia Preserve. Community facilities and homes will be located outside identified high fire hazard areas. *Areas of potentially high fire hazard result from the combination of highly combustible coastal sage scrub and chaparral vegetation with slopes in excess of 30%, which significantly constrain access for fire suppression*

personnel and equipment. However, the Santa Lucia Preserve has been designated "high hazard" within the state responsibility area. Several locations on the preserve have been designated as "safety zones" to allow residents and firefighters a place to congregate in the event of a fire. Maps will be given to each homeowner identifying the location of the safety zones. The safety zones will also be clearly marked. Firefighting equipment will be stored in the Potrero area of the Santa Lucia Preserve to reduce the response time to the preserve's northern section. Additionally, all electrical lines will be located underground to avoid fires caused by power lines.

A fire station is proposed to be built in the project area, enabling the maximum response time to any incident in the project area to be approximately 15 minutes. The fire station will be managed by the Stewardship Company and provide primary first-response fire protection services to the proposed project area. Stewardship Company personnel will be trained in structural and wildland firefighting techniques. A volunteer firefighter program, already in use at the proposed project area, will be expanded to increase the amount of trained firefighters available to respond to fires in the proposed project area and additional equipment for firefighting will be located at the Santa Lucia Preserve. The volunteer firefighters will consist of employees and residents of the Santa Lucia Preserve. The Santa Lucia Preserve's 18,000 acres of open space will require additional fire protection services. Therefore, the CSA may contract with the California Department of Forestry and Fire Protection (CDF) to provide additional fire protection service because CDF is experienced in wildland and structural firefighting (Panzer pers. comm.). The CSA may also contract with one local fire protection district such as Mid-Carmel Valley Fire District or Cypress Fire District. Funding to contract with any fire district would come from property owners. *Annexation to* ~~Contracting with CDF or~~ a local fire district would require LAFCO approval, *whereas contracting with CDF or a local fire district would not* (Finegan pers. comm.). The Stewardship Company will also provide community forums on fire prevention and fire response to educate the residents of the Santa Lucia Preserve.

In addition to the FSMP, the applicant is proposing, as part of the project, to:

- *verify in writing for each individual improvement during the planning and building permit process that fire protection ordinances and standards have been complied with;*

- ~~provide a letter from the local fire district before installation or bonding that the proposed improvements meet fire flow standards;~~

- design and construct the water system to meet the standards as set forth in Title 15 of the Monterey County Code, or in Title 22 of the California Administrative Code as contained in the Residential Subdivision Water Supply Standards;

- require homeowners to maintain around and adjacent to such building or structure a firebreak made by removing and clearing away, for a distance of not less than 30 feet on each side thereof or to the property line, whichever is nearer, all flammable vegetation or other combustible growth. This subdivision does not apply to single specimens that are

used as groundcover, if they do not form a means of rapidly transmitting fire from the native growth to any building or structure *(Public Resources Code 4291)*; and

- conform to *the Uniform Fire Code* ~~local Fire Code Requirements~~ and Chapter 18.56 of the Monterey County Code for those areas located in state responsibility areas.

Because the proposed project includes the development of a fire station, it will not be necessary for CDF, MCVFPD, and CFPD to hire additional fire protection personnel. The increase in fire hazards and demand for fire protection is considered a less-than-significant impact because onsite fire protection (fire management plan, onsite fire station, and fire department) is included in the proposed project and CDF, MCVFPD, and CFPD will not be required to hire additional fire protection staff to maintain an acceptable level of service.

Mitigation Measure: No mitigation measures are required.

Impact: Increased Water Demand for Firefighting

In the event of a wildland fire or structural fire at the proposed project site, additional water will be required for firefighting. Water from storage tanks, stock ponds, lakes, and swimming pools will provide the necessary water for firefighting to satisfy emergency fire flow water requirements (Scoggins pers. comm.). Water storage tanks will be located throughout the project area and equipped with a 2.5-inch National Hose outlet that is clearly marked so equipment can be hooked up (Table 16-2).

The applicant proposes to provide fire flow as required by the Residential Subdivision Water Supply Standards unless otherwise approved by the local fire protection agency.

The increased water demand for firefighting is considered a less-than-significant impact because water will be available for emergency fire flow and for the applicant's proposed mitigation measure.

Mitigation Measure: No mitigation measures are required.

Emergency Medical Response

Impact: Need for Additional Medical Response Service

The project will result in the need for additional medical response services to the project area. The CSA will contract with the Stewardship Company to provide first-response emergency life/safety services. Company personnel will be trained in advanced first-aid techniques for both residential and

Table 16-2. Water System Domestic Demand/Storage Requirements (By Phase) for Santa Lucia Preserve Project

Phase	Three-Day Maximum Demand (Gallons)	Cumulative Maximum Three-Day Demand (Gallons)	Required Cumulative System Storage (Gallons)	Number of Tanks and Capacity (Gallons)		Tank Number	Cumulative Storage (Gallons)
A	380,160	--	440,160*		500,000*		500,000
B	237,600	617,760	677,670	1	500,000		1,000,000
C	125,280	743,040	803,040				
D	86,400	829,440	889,440				
E	38,880	868,320	928,320				
F	56,160	924,480	1,044,480*	1	150,000*	F1	1,150,000
G	108,000	1,032,480	1,212,480*	1	200,000*	G1	1,350,000
H	112,320	1,144,800	1,384,800* 1,444,800*	1 1	100,000* 150,000*	H1 H2	1,450,000 1,600,000
1	259,200	1,404,000	1,704,000	1	100,000	I1	1,700,00
Z	444,960	1,848,960	2,148,960	1	500,000	E1/Z1	2,200,000
Totals					2,200,000		

*Includes additional 60,000 gallons for fire flow.

backwoods situations. The CSA will also contract with other public agencies to provide ambulance and paramedic services for major medical emergencies.

The need for additional medical response service to the proposed project area is a less-than-significant impact because the CSA will provide first-response life and safety services and it will contract with the appropriate agencies to provide ambulance and paramedic services.

Mitigation Measure: No mitigation measures are required.

Electricity

Impact: Increased Demand for Electricity

The proposed project will result in an increased demand for electricity. Adequate electrical capacity is available adjacent to the property. New distribution lines will be located underground in the utility easements and driveways to accommodate the increased demand. Pacific Gas & Electric Company will design the infrastructure to deliver additional electricity to the proposed project area (Miller pers. comm.). Additionally, the existing aboveground power lines will be removed and replaced with underground distribution lines. The project will comply with Policy 56.2.1 of the Monterey County General Plan, which requires all new power lines to be placed underground.

To reduce the demand for electricity at the Santa Lucia Preserve, alternative energy will also be used. Architectural design of structures that maximizes the use of energy-efficient climate control systems will be required. Alternative energy that may be used includes passive solar gain for heating and natural ventilation for cooling (Ranch San Carlos Partnership 1992a).

The increased demand for electricity is a less-than-significant impact because the project demand will not exceed the capacity of existing facilities and planned improvements.

Mitigation Measure: No mitigation measures are required.

Telephone Service

Impact: Increased Demand for Telephone Service

The proposed project will result in the increased demand for telephone services. Currently, a 200-pair screened cable could provide additional service to approximately 400 houses at the proposed project area. Because the homes are located far from one another, however, additional cable and/or fiber will be necessary to distribute telephone services to the project elements. Pacific

Bell will work with the applicant to design a plan for the distribution line (Balesteri pers. comm.). The increased demand for telephone services is a less-than-significant impact because the proposed project demand will not exceed the capacity of existing facilities and planned improvements.

Mitigation Measure: No mitigation measures are required.

Cable Television

Impact: Increased Demand for Cable Television

The proposed project will result in an increased demand for cable television services. Cable television can be extended to the proposed project area to accommodate the increased demand. The distribution lines would be located in the utility easements (Walton pers. comm.). This impact is considered less than significant because the project demand will not exceed the capacity for planned improvements.

Mitigation Measure: No mitigation measures are required.

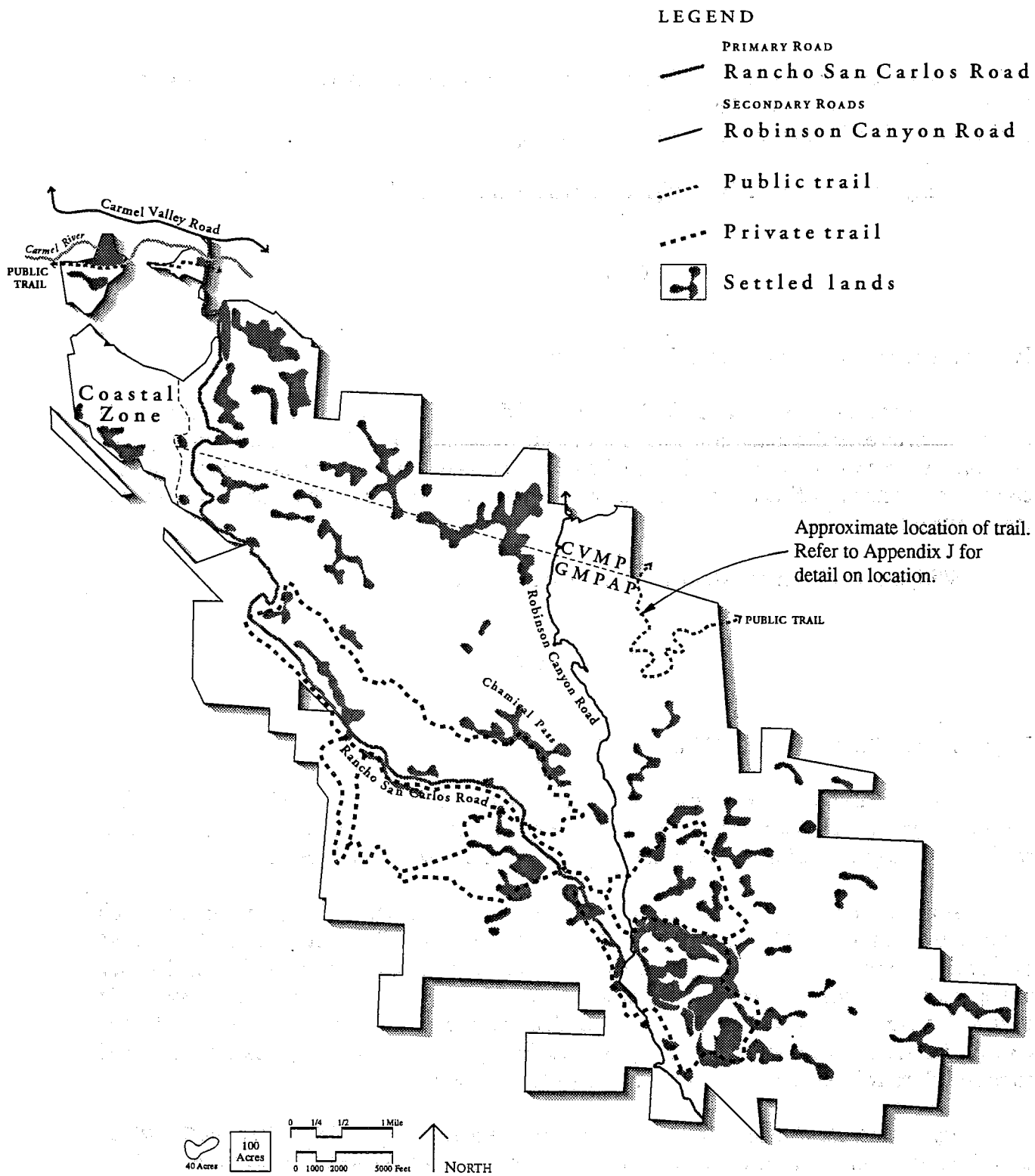
Public Trails

Impact: Need for Recreational Trails

The proposed project may result in the increased demand for recreational trails at the Santa Lucia Preserve. The proposed project includes the development of several private trails and *one* ~~two~~ public *trail, and five trail segments connecting with Garland Ranch public trails.* ~~trails.~~

A conceptual system of Conservancy trails is laid out in a series of loops linking the ranch center at San Francisquito Flat with central portions of the Santa Lucia Preserve (Figure 16-1). Most of the trails follow existing trails and ranch roads. These trails will be improved and maintained for use by hikers and equestrians, both for residents and guests of the Santa Lucia Preserve and for public interpretive programs and organized hikes. The Conservancy will assume all responsibility for the construction and maintenance of the trail system (excluding the ~~two~~ proposed public trails), as well as satisfy all patrol and liability requirements on Conservancy trails.

Six public trails were proposed by the Monterey Peninsula Regional Park District (MPRPD) to be included in the proposed project. These trails connect Las Garzas Canyon to Vasquez Knob and provide a link from the Carmel Valley to the Los Padres National Forest (LPNF). However, the proposed project includes only a portion of the trail that will connect Las Garzas Canyon to Vasquez Knob. The proposed loop trail will link Peñon Peak with Garland Ranch Regional Park.



Source: Rancho San Carlos Partnership 1994a.

Jones & Stokes Associates, Inc.

Figure 16-1
Public and Private Trails

Additionally, a second public trail is proposed that will allow a segment of the proposed Carmel Valley trail to cross the Santa Lucia Preserve parallel to the Carmel River (Figure 16-1) Although the proposed project will not provide a trail to connect the Carmel Valley with the LPNF, the MPRPD has acquired land in Hitchcock Canyon, which will allow this trail to be developed (Tate pers. comm.). The proposed trails will be licensed to the appropriate public agency who will assume all responsibility for their construction and maintenance as well as satisfying all patrol and liability requirements. *Specific alginments of these public trails have not been identified and would require additional environmental review before they are constructed.*

~~The development of recreational trails resulting from the proposed project is a considered a beneficial impact because residents and guests will be able to use trails on the preserve and the public will be able to use public trails and Santa Lucia Preserve trails when events are scheduled.~~

Mitigation Measure: No mitigation measures are required *at this time. Mitigation measures may be required after specific alignments are proposed and evaluated.*

Chapter 17. Cultural Resources

SETTING

Introduction

This chapter provides information on the cultural resources in the project area. Cultural resources is the term used in the following sections to describe several different types of properties (prehistoric and historic archaeological properties and architectural properties, such as buildings, bridges, and other structures) and resources of importance to Native Americans. The significance or importance of resources is assessed using the criteria established for the California Register of Historical Resources (CRHR) (see "Significance Criteria" below).

Methods

This "Setting" section is based primarily on reports prepared by Archaeological Consulting (1992, 1994a, and 1994b). The history section is based on reports by Gil Sanchez (1994) and Greenwood and Associates (1991, 1992). Information on historical resources and Native American consultation was also provided by the Rancho San Carlos Partnership (Panzer pers. comm.).

Supplemental historical research was conducted by Jones & Stokes Associates at the California State Library and the Monterey City Library. Research also included the review of historical maps, topographic map, project correspondence, and aerials photographs of the site.

In addition, a Jones & Stokes Associates archaeologist and a historian toured the property and visited several prehistoric and historic archaeological sites and historic structures. They were accompanied by Rancho San Carlos Partnership staff, Jeff Froke and Joel Panzer, who explained the project and the methods proposed to avoid impacts on cultural resources.

Cultural Background

Prehistory

The earliest reliable evidence of habitation in the Monterey Peninsula dates back to approximately 7,000 years ago, known as the Early Period (7000 B.P. to 2500 B.P.). Few sites are known from the first half of the Early Period, during which it is postulated that populations were small and mobile. The subsistence strategy of these early peoples was based largely on foraging for food daily or periodically.

Considerably more sites have been identified that date to the latter part of the Early Period. These sites indicate that the primary settlement in the area was located at present day Fisherman's Wharf. From this principal village, it has been suggested that extensive fishing, shell bead manufacture, and trade activities were directed, possibly for the whole Monterey Peninsula.

Middle Period (2500 B.P. to 900-1300 B.P.) sites show significant change from the Early Period, especially in the types, number, and locations of settlements. It has been suggested that the changes observed indicate an influx of new peoples and technologies into the area. Also seen at this time is more reliance on the acorn as a staple food and continuous or near continuous occupation of some prime locations. The archaeological evidence also seems to indicate significant population increases during the Middle Period. Several of the sites occupied during the late Period/early Historic Period that are located in the San Carlos area were first occupied during the Middle Period.

Although Late Period (900-1300 B.P. to A.D. 1800) sites are common in the Monterey Peninsula area, village site are apparently rare. Most of the Late Period sites that have been identified are small camps and resource-processing locales. This lack of village sites has led researchers to postulate that populations were more dispersed at this time than during the Middle Period.

The lack of Late Period villages is curious given that San Carlos Borromeo Mission records report at least five in the Monterey Peninsula area. To date, the sites excavated for this project (CA-MNT-1481,-1485/H, and-1486/H represent the only Late Period village (known as Echilat) that has been excavated in the Monterey Peninsula area (Archaeological Consulting 1992).

Ethnography

The following ethnographic section is based on a study by Randall Milliken (in Archaeological Consulting 1992). The San Carlos project area is within the territory of the Rumsen, a small group belonging to the Costanoan (or Ohlone) language family. To the north and south of the Rumsen were Costanoan tribelets. The Esselen, a group who spoke a very different language, lived to the east of the Rumsen.

Rumsen political organization, like most California native groups, was structured around the tribelet. A tribelet usually consisted of one or more major villages and numerous smaller camps and collecting sites. Tribelets were governed by a male headman or tribal captain. It is thought that the Rumsen were organized into only one tribelet, which encompassed a radius of 11-14 miles of territory.

It is estimated that the Rumsen tribelet numbered no more than 500 individuals. Historical accounts report that the tribelet included five principal Rumsen villages at the time of Spanish entry into the region. One of those primary villages, known as Echilat, was located on San Francisquito Flat within the project area. According to mission records, approximately 100 Rumsen people lived at this location.

Rumsen economy, like that of most Native American groups in California, centered around the collection of vegetal resources and the hunting of animals. Acorns were an important food source for most central California Native American groups. The Rumsen were no exception; however, the only part of Rumsen territory that was rich in black and valley oaks was the San Francisquito Flat area. Given that, it appears that Echilat was established in a highly desirable location.

In terms of external relations, mission records suggest that the people living at Echilat were linked by family association with Rumsen villages in the Carmel Valley. Apparently, strife characterized relations with their southern neighbors, the Esselen. It has been hypothesized that the San Francisquito Flat area may have been a primary location for conflict between the two groups, based on the presence of highly desirable resources (i.e., acorns) and its location away from the protection of other Rumsen villages.

Spanish influence in the area began in earnest in 1770 with the establishment of Mission San Carlos Borromeo. Early converts to the Christian faith were primarily children from the villages located near the mission. According to baptismal records, it was not until 1773, 3 years after establishment of the mission, that an occupant of Echilat was baptized. This lack of early converts from Echilat is said to have been the result of the village's remote location.

By the mid-1770s, the number of Rumsen converts had increased significantly, including additional members of the Echilat village. In 1774, children of Echilat's headman were baptized and in winter and spring 1775, nine adult married couples moved permanently to the mission. By 1783, all known Echilat people had been baptized and it appears that the village was abandoned.

Mission life for the Echilat presented many challenges, not the least of which was to survive the many sicknesses and epidemics that swept the area. Lacking immunity to many illnesses common to European cultures, the native population was severely diminished between 1776 and 1790. During this period, the number of people from Echilat was reduced by half, constituting only 15% of the total Rumsen population living at the mission.

Little is known about the years between 1790 and the end of the Mission period in ca. 1834. It is likely that the Rumsen population continued to decline. The census of 1836 indicates that five adult male Native American workers were living at Rancho San Francisquito, as it was referred to at that time. Unfortunately, it is unknown whether these individuals were descendants of former Echilat occupants, other Rumsen people, or Native Americans from more distant locales.

History

Mexican Period. The history of the Monterey area began in 1602 with Spanish explorer Sebastian Viscaino's entry into the area. The area and its occupants were little affected by these early outside influences until Mission San Carlos Borromeo de Carmelo and the Presidio de Monterey were established in 1770. The mission was the primary influence in the region from the time of its establishment until secularization and disbursement of all the mission holdings in 1834.

Following secularization, large tracts of land were granted by the Mexican government to Mexican citizens and occasionally non-Mexicans as a reward for service. The project site encompasses lands that were originally part of two land grants. The first, known as El Potrero de San Carlos, was granted to Fructuoso de Real, described as a "Mission Indian", in 1837. In 1852, a claim was filed with the U.S. Land Commission by Joaquin Gutierrez and his wife Maria Estefana, daughter of Fructuoso, for the 4,306 acres that made up Rancho El Potrero de San Carlos. The patent was not issued for the property until 1862, 4 years after it had been purchased by Bradley V. Sargent (see below) (Gil Sanchez 1994, Hoover et al. 1948).

Fructuoso de Real reportedly built an adobe in ca. 1838 in Potrero Canyon, where he had been living for 2 years previously with his wife Ignasia and their three daughters. The adobe was built on a location formerly occupied by a small wooden house also built by de Real. A portion of his grant was cultivated and the rest used for pasture for approximately 70 horses, 500-600 head of cattle, five or six yoke of oxen, some sheep, and milch cows (U.S. Land Commission 1852-1892a, Gil Sanchez 1994).

According to historical sources, the de Real adobe was a symmetrical building with a wooden kitchen addition. This structure was identifiable as late as 1948 (Hoover et al. 1948). In terms of the location of the de Real adobe, according to Hoover et al. (1948), it was reportedly located about 0.5 mile up the canyon from a former Indian rancheria where a cluster of small and plain adobe structures were located. In 1948, one of these structures was still standing and a former resident was reported to be living on a tract of land across the Carmel River, known as Meadow's tract (Hoover et al. 1948), which was also owned by Native Americans.

According to Howard (1973b), Land Commission maps from the 1850s show several adobes at the junction of Potrero Canyon and Carmel River in an area now occupied by the Carmel Valley Golf and Country Club. Howard suggests this might be the ethnographic village of Tucutnut. This location conforms with Milliken (in Archaeological Consulting 1992), who says that Tucutnut was

reportedly 3 miles up the Carmel River from the coast, which would place it near the mouth of Potrero Canyon.

Archaeological surveys in the area resulted in the identification of the remains of an adobe, which could be the same structure reported by Hoover et al. (1948) as having been built by de Real. However, this adobe is located more than 1.5 miles from the entrance to Potrero Canyon at a place reported to be where the Bradley Sargent Adobe (see below for a discussion of the Sargent family) was located (Plat of the Rancho El Potrero de San Carlos 1859). Although there have been reports of an adobe located closer to the entrance of Potrero Canyon at Carmel Valley, this location has not been confirmed by archaeological investigation.

The other land grant in the project area was Rancho San Francisquito. This grant of 8,814 acres was made in 1835 to Dona Catalina Manzanelli, wife of Estevan Munras. Improvements made to Rancho San Francisquito during Munras' tenure included a house and corrals where he cultivated about 30 acres and raised sheep, cattle, and horses (Gil Sanchez 1994). Munras also had a vineyard, fruit trees, large wheatfield, and also possibly grew barley on the property (U.S. Land Commission 1852-1892b). It was during Munras' ownership that the five Native American laborers were documented by the census as living at San Francisquito Flat.

Documents pertaining to the adjudication of private land claims in California report that Munras occupied the property; however, this is contradicted by other testimony that indicates the house was occupied by a steward employed by Munras and later by his brother, Salvador (U.S. Land Commission 1852-1892b). It seems unlikely that Munras, a wealthy and well-known man in the Monterey region, would permanently occupy the ranch given that he was also the grantee for two other land grants and owner of a fine house (now known as Casa Munras) in Monterey. After only 7 years, Munras sold the property to Francisco Soto in 1842. Between this time and 1853, Rancho San Francisquito passed through several hands. In 1862, the rancho was patented to Jose Abrego.

According to the adjudication documents, Abrego built a house (possibly in the same location as an earlier house) after the "old house" was destroyed by fire. The remains of the Abrego house or the earlier Munras house that burned may be the same adobe that was recognizable on San Francisquito Flat as late as 1973 when an avocational archaeologist documented the location and numerous mid- to late 19th century artifacts (Howard 1973a). This adobe has been reported to date to 1835 according to a list of historical resources prepared by Monterey County. Some have speculated that the adobe served as housing for *vaqueros* (cowboys) who pastured the cattle owned by the mission (Howard 1973a).

A 1924 map prepared for a later ranch development (Cozzens and Davis 1924) shows "Casa San Francisquito" at the location of the adobe, marked at that time by several small wooden structures. In the late 1940s, a frame house stood on the location of the former adobe and reportedly a stone threshing floor could still be seen on the property (Hoover et al. 1948). A corral built on the site has obliterated most indications of the adobe. Today, the site can be recognized by a low mound, some roof tile fragments, and mid- to late 19th century artifacts.

American Period. By the late 1850s, Bradley V. Sargent along with his three brothers owned both Rancho San Carlos de Potrero and Rancho San Francisquito, as well as many thousands of acres of land elsewhere in Monterey and Santa Clara Counties. In addition to these vast holdings, the Sargent family also secured 30 additional tracts surrounding the ranchos through homestead patent. The majority of these claims were patented between 1870 and 1890. According to local accounts, Sargent circumvented the requirements regarding homestead occupation by having local derelicts from Monterey live on the homesteads until the deeds were secured. In return, he supplied them with liquor (Breschini pers. comm.).

Sargent, his wife Julia, and their four children made their home on the ranch (Gil Sanchez 1994). An adobe, locally referred to as the Sargent Adobe, may have been their home. This adobe reportedly dates to the 1850s, according to the Monterey County list of historical sites. During the archaeological survey, one adobe was definitively identified in a location depicted on maps as the Sargent Adobe (Plat of the Rancho El Potrero de San Carlos 1859). Today, melted adobe walls that form a mound and scattered roof tiles and artifacts mark the location.

During Sargent's ownership of the property, two retired sea captains, Johnathan Wright and Anson Smith, occupied a section of the property on San Clemente Creek. There, they maintained a small vineyard, a peach orchard, and a small herd of goats. In 1879, this location was where Robert Louis Stevenson found himself after falling ill during a solo camping trip in the canyon. Wright and Smith found Stevenson "in a stupor" and nursed him back to health at their cabin. After a few weeks, Stevenson was well enough to return to Monterey (Gil Sanchez 1994, Hale 1980). Although dilapidated, this cabin is still partially standing.

The Sargent brothers divided up their empire in 1890, with the two ranchos or land grants and the surrounding homestead claims going to Bradley. He called his holdings San Francisquito y San Carlos (Gil Sanchez 1994). How long Sargent and his family lived on the property is unknown; however, they were living in Monterey by 1866 when their son Ross was born. Bradley died in 1893, but the property was held by his heirs until 1923, when it was purchased by George Gordon Moore.

Moore has been described as a millionaire from the East Coast. After buying the ranch, he reportedly spent more than $1 million building a 14,000-square-foot main hacienda-style house called Casa Grande, a large guest house, polo field, barns, artificial lake, and dwellings for employees of the ranch. Because of the remoteness of the ranch, more practical resources such as vegetable gardens, chickens, and dairy cows were added to increase the self-sufficiency of the ranch (Gil Sanchez 1994).

Life at the ranch was reported to be very lavish, and many grand parties were thrown there. The parties did not stop during Prohibition either. The house was fitted with a "secret" door to the wine cellar, which could be easily concealed should the authorities decide to make the long journey out to the ranch.

During Moore's tenure, wild boar were introduced to the ranch for hunting purposes, representing the first introduction of wild boar into California. The original group consisted of three

boar and nine sows and were imported from his ranch in North Carolina (Gil Sanchez 1994). These 12 animals interbred with domestic and feral pigs and spread across central California. Twenty years after the introduction of these animals, William Randolph Hearst reported to Moore, "Your pigs have reached San Simeon" (Hanford 1993).

In 1928, the Argentine national polo team stayed at the ranch and practiced for the 1928 Olympic Games, taking advantage of the beautiful guest house and the polo field (Hanford 1993). Unfortunately, Moore's grand lifestyle was greatly diminished by the stock market crash of 1929. Although Moore was able to keep the ranch until 1939, during the latter years, he was reduced to paying workers in poultry and eggs and his secretary remembers combing the library for first editions to raise cash. After the property was foreclosed and sold to Arthur C. Oppenheimer, Moore moved to Los Angeles (Rice 1992).

Arthur Oppenheimer was a businessman from San Francisco who owned the Rosenberg Fruit Company. Oppenheimer longed to become a rancher and he bought the ranch after its availability was discovered by his friend, George King. Under King's management, the property was turned into a working ranch once again. For 45 years, the ranch was well known for raising quality beef.

The Oppenheimers did not live on the ranch but instead used it as a family retreat. During the 1960s, the ranch was the setting for the weekly television series, "Lancer". A number of movies were also filmed there, including Woody Allen's *Sleeper*. The Oppenheimers sold the ranch in 1990 to the Rancho San Carlos Partnership.

Results of Previous Studies

Prehistoric Resources

Before 1990, little research had been done on cultural resources in the project area, and only one archaeological site (CA-MNT-476/H) had previously been identified within the 20,000-acre area. In 1971, this site had also been subjected to a minimal amount of excavation by Don Howard, a local avocationist. The results of this work are only minimally documented (Howard 1974). During the 1970s, Howard also reported on two adobes located within the project boundaries that were associated with the early ranchos (Howard 1973a, 1974), discussed above.

In 1990, work was undertaken by Archaeological Consulting to identify cultural resources in the project area. These efforts continued until 1993 and a report was prepared detailing the findings in 1994 (Archaeological Consulting 1994a). A complete records search was conducted by Archaeological Consulting at the Northwest Information Center of the California Archaeological Inventory prior to these studies. In conjunction with the studies conducted below, the records search is still current.

~~Five~~ *Four* resources have been identified in the GMPAP as being within the project area. These include the reported location of ~~the Bradley Sargent adobe,~~ the San Francisquito adobe, the Wright/Stevenson Cabin, the San Carlos Ranch House, and County Bridge #523. *The Bradley Sargent adobe located within the Carmel Valley Master Plan area.* County Bridge #523 *is owned by the county and is technically not part of the project. It* is considered significant because it was designed by Chester Dudley and is ingeniously constructed from war surplus landing craft components. The project applicant has no plans to modify or remove this structure.

For the present project, Archaeological Consulting undertook a survey of approximately 8,000-9,000 acres of the 20,000-acre project area. Areas were chosen to be surveyed based on predicted sensitivity for prehistoric archaeological sites and the likely locations of ground-disturbing development. As a result, all areas where prehistoric resources were likely to occur and where development was proposed were subjected to 100% intensive archaeological reconnaissance.

The archaeological inventory resulted in the identification and documentation of 45 prehistoric archaeological sites, consisting primarily of occupation (midden) sites and bedrock mortars used for processing acorns. Three of these primarily prehistoric sites also include historic components.

Archaeological Consulting also undertook test excavations at four sites within or in proximity to where ground-disturbing project activities will occur. These resources include sites CA-MNT-1481, -1485/H, -1486/H, and -1700 (Archaeological Consulting 1992, 1994b). The primary goal of these excavations and the analysis of the materials they contained was to reconstruct the Native American lifeways within the regions. Work at these sites was directed by a research design (Archaeological Consulting 1992).

Sites CA-MNT-1481, -1485/H, and -1486/H represent the archaeological remains of the Rumsen ethnographic village, Echilat. Test excavations were undertaken at the site to assess the potential for impacts from road improvements. Based on the test excavations, Echilat had been occupied for approximately 1,000 years, probably from as early as the late Middle Period, with intense occupation occurring during the Late Period. Several years after contact with the Spanish missionaries, the village was abandoned (Archaeological Consulting 1992).

Excavations at the three site locations that make up Echilat indicate that these archaeological deposits are significant for the data they contain. Specifically, excavations yielded data pertaining to seasonality of occupation, subsistence practices, population movement, and internal relations with other Rumsen tribelets and external relations with their neighbors (Archaeological Consulting 1992).

Work was also undertaken at site CA-MNT-1700 to assess the potential for impacts that could result from construction of the proposed golf trail. Based on the preliminary archaeological report (Archaeological Consulting 1994b), site CA-MNT-1700 appears to be a medium-size midden of moderate depth. Artifacts and midden constituents indicate that the site is significant for the data it contains.

Although only four of the 45 prehistoric sites identified within the project area have been test excavated, it is clear that sites in the region contain data that can address research questions outlined in the research design prepared for the project (Archaeological Consulting 1991). For this reason, all sites in the project area are considered significant until test excavation or research proves otherwise. Please refer to the "Significance Criteria" discussion below for a definition of significant resource.

Historical Resources

Historical studies undertaken for the project include analysis of the main house (Casa Grande), the guest house, and the features associated with these two structures (Gil Sanchez 1994). This study was conducted in conjunction with the General Development Plan and addressed the requirements of the Historic Resources Zoning District. The research resulted in an assessment of the significance of the main house, guest house, and related resources and assessed the impact of the proposed modifications and new development on the significance of the structures. The study documented the present appearance of the main house with plan and elevation drawings and photographs, and it photographed the guest house and other associated features.

The study determined that the main house is significant at the local level of significance according to Monterey County's Guidelines for Significance under Criterion A (Historic and Cultural), under the following two subcategories:

- a property valued for its character, interest or valued as part of the local, regional or state culture or history; and
- a property particularly representative of a distinct historical period, type, style, region, or way of life.

Under the first subcategory, the study determined that the significance of the main house is derived from its character, in this case, the image it projects as a *hacienda* on a California (1920s style) rancho. Under the second subcategory, the property is significant because it is representative of a particular way of life (i.e., life on a 1920s-era "gentleman's" ranch).

As part of previously permitted activities at the project site, historical studies were undertaken of the dairy barn and employee housing (Greenwood and Associates 1991, 1992). The earlier study (Greenwood and Associates 1991) consisted of the inventory and significance assessment of several ranch buildings proposed for removal and replacement. These buildings included 11 residential structures, which constituted most of the employee housing for the 1920s ranch, and a dairy barn. As part of the 1991 study, the dairy barn and the 11 residential structures were recorded and assigned the trinomials CA-MNT-1521H and CA-MNT-1522H, respectively.

The result of the 1991 report was that these buildings were determined to be potentially significant because they were a principal component of the San Carlos Ranch complex. Based on this assessment, recommendations were made to fully document the buildings. In 1992, Greenwood and Associates undertook this task, which included preparing California Department of Parks and Recreation Historic Resources Inventory (DPR-523) forms. Black-and-white photographs and color slides were taken of each structure to document its appearance. Plan drawings were also prepared for each structure. Exceptions to these tasks were made where buildings had similar plans and for the barn, which had a plan prepared as part of the 1991 Greenwood and Associates study.

Additional research was conducted by Gil Sanchez in 1995 to document and determine the significance of the 17 previously unevaluated ranch-related structures on San Francisquito Flat. Buildings and structures outside San Francisquito Flat were not inventoried or evaluated as part of this or earlier studies because they will not be affected by the construction of new facilities.

Gil Sanchez' (1995) analysis consisted of an inventory and limited documentation of the equestrian center buildings, several structures within the main house/guest house area, and two isolated structures. The result of this study was the determination that 10 of the buildings contributed to the significance of the San Carlos Ranch property as a whole. The other seven buildings were found to be of modern vintage or did not retain sufficient integrity.

Together with previous studies, it has been determined that San Carlos Ranch is most appropriately considered within the framework of an historic district and that the district is significant at the local level representing the broad patterns of California history and cultural heritage (i.e., gentleman's ranch of the 1920s and 1930s). Table 17-1 summarizes the information obtained from three previous studies that were conducted for the district, including which study addressed each building, findings of significance, current status, and proposed future uses and Figure 17-1 shows the locations of those buildings and structures.

In addition to the identification and determinations of significance, studies have also resulted in limited documentation of San Carlos Ranch. This documentation has largely focused on the individual buildings rather than the district as a whole.

During the survey by Archaeological Consulting, numerous historical archaeological sites were identified in the project area. Several additional sites have been identified as a result of historical research (Panzer pers. comm.). To date, over 25 locations or suspected locations of historical sites have been identified, including adobes (non-standing), homesteads, logging and hunting camps, a quarry, an orchard, a partially standing dwelling (Wright/Stevenson Cabin), historic dams, an historic bridge, as well as other property types. Although these properties have not yet been formally recorded, their locations, or suspected locations, have been mapped for incorporation into project plans (Panzer pers. comm.).

Many of these resources are likely to be eligible for the CRHR and would be considered significant under CEQA. The adobe locations, in particular, are likely to contain significant

archaeological data that could address questions about the early occupants of the ranchos. Both these resources have been recognized by Monterey County as being historically significant. Monterey County has also recognized the Wright/Stevenson Cabin as an important resource. Although the homesteads and logging and hunting camps are likely to contain only ephemeral remains, they represent resources that are becoming increasingly rare in the region and are therefore important.

Resources of Importance to Native Americans

In 1993, the project applicant initiated contact with appropriate Native Americans to determine whether any sites with traditional cultural value are known within the project area. A list was obtained from the Native American Heritage Commission (NAHC) of potential contacts. In April 1994, a representative of the project met with Mr. Tom "Little Bear" Nason, who was acting as spokesperson for the Esselen tribe of Monterey County. A site visit was planned and in May 1994, Mr. Nason, accompanied by his father, Fred Nason Sr., and his uncle, Chemo Candelaria, visited the property. The purpose of the site visit was to acquaint Mr. Nason and Mr. Candelaria with the nature of the project and the types of archaeological resources that had been identified during the survey.

In September 1994, a subsequent site visit was held, attended by Mr. Tom "Little Bear" Nason and Mr. Candelaria. The purpose of this visit was to try to locate plant and tree materials that were used historically in connection with traditional Esselen cultural and spiritual ceremonies. No plants were specifically identified by Mr. Nason as being important during the site visit. Mr. Nason did express an interest in having access to downed redwoods, bark, and certain types of berries that are present within the project boundaries. In addition, Mr. Nason indicated that Peñon Peak has sacred values and his group would like to have access to the area (Panzer pers. comm.).

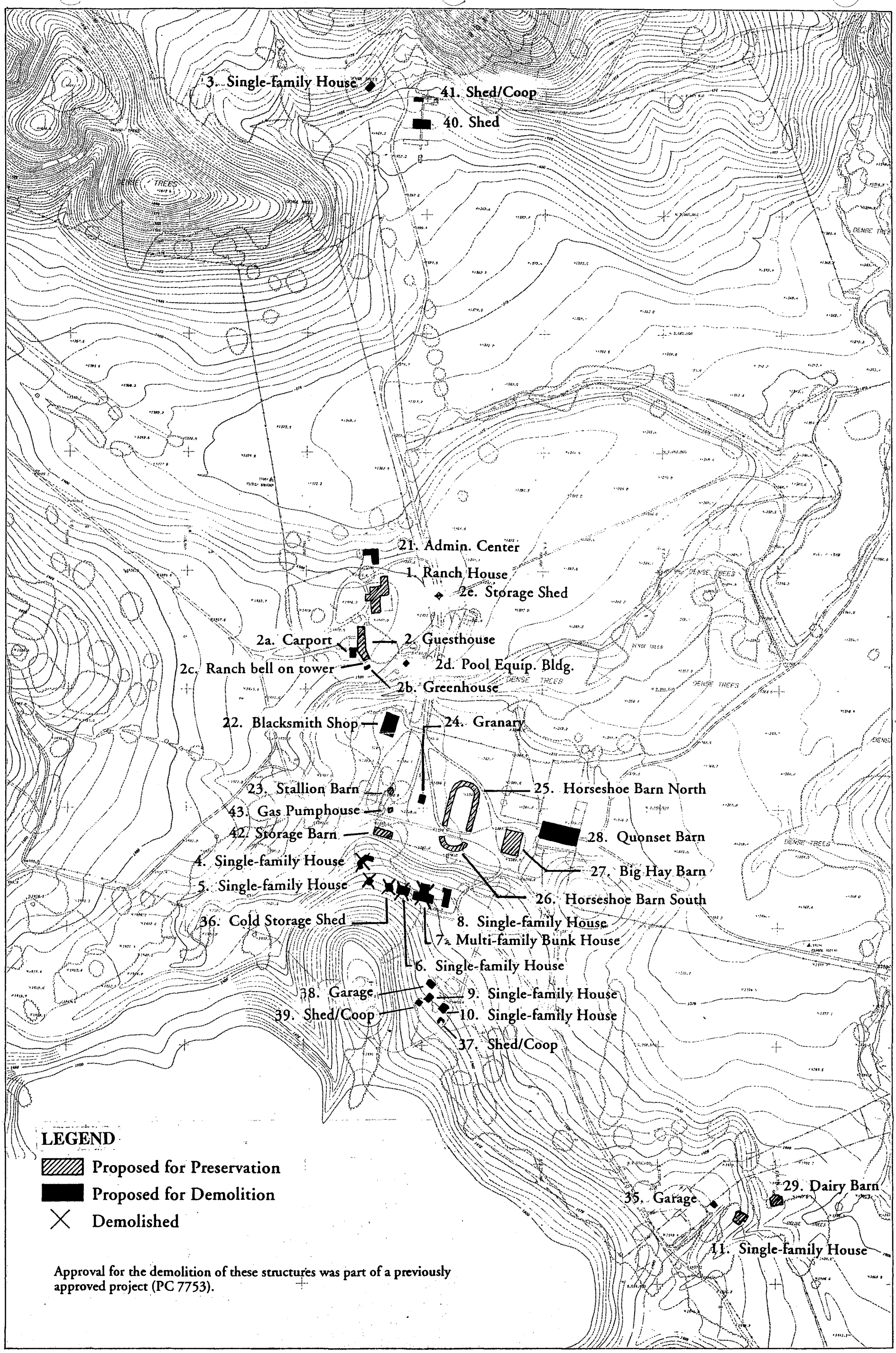
During the 1991 test excavations, Ella Rodriguez, an Ohlone, served as a Native American observer. When disarticulated human remains were found during the excavations, they were reburied in accordance with an agreement between Ms. Rodriguez, the Monterey County Coroner, and the principal investigators for the excavation in compliance with Public Resources Code 5097 et seq. Mr. Nason also visited the site during the 1991 excavations.

In early 1995, contacts were made with other Native Americans listed by the NAHC as having information about Monterey County. Coordination with the appropriate Native Americans is ongoing.

Table 17-1. Status of Contributing and Noncontributing Structures of San Carlos Ranch Historic District

Structure Number/ Description		Contributing to Historic District	Status	Documentation or Study
1	Ranch house	Yes	Proposed for preservation	Gil Sanchez 1994
2	Guesthouse	Yes	Proposed for preservation	Gil Sanchez 1994
2a	Carport	No	Proposed for demolition	Gil Sanchez 1995
2b	Greenhouse or hothouse	No	Proposed for demolition	Gil Sanchez 1995
2c	Ranch bell on tower	Yes	Proposed for preservation	Gil Sanchez 1995
2d	Pool equipment building	No	Proposed for demolition	Gil Sanchez 1995
2e	Storage shed	Yes	Proposed for preservation	Gil Sanchez 1995
3	Single-family house	Yes	Approved for demolition *	Greenwood and Associates 1991, 1992
4	Single-family house	Yes	Demolished *	Greenwood and Associates 1991, 1992
5	Single-family house	Yes	Demolished *	Greenwood and Associates 1991, 1992
6	Single-family house	Yes	Demolished *	Greenwood and Associates 1991, 1992
7	Multifamily bunk house	Yes	Demolished *	Greenwood and Associates 1991, 1992
8	Single-family house	Yes	Approved for demolition *	Greenwood and Associates 1991, 1992
9	Single-family house	Yes	Approved for demolition *	Greenwood and Associates 1992
10	Single-family house	Yes	Approved for demolition *	Greenwood and Associates 1991, 1992
11	Single-family house	Yes	Proposed for preservation	Gil Sanchez 1995
21	Administration center (former garage)	No	Proposed for demolition	Gil Sanchez 1995
22	Blacksmith shop	No	Proposed for demolition	Gil Sanchez 1995
23	Stallion barn	Yes	Proposed for preservation	Gil Sanchez 1995
24	Granary	Yes	Will be relocated	Gil Sanchez 1995
25	Horseshoe barn - north	Yes	Proposed for preservation	Gil Sanchez 1995
26	Horseshoe barn - south	Yes	Proposed for preservation	Gil Sanchez 1995
27	Big hay barn	Yes	Proposed for preservation	Gil Sanchez 1995
28	Quonset barn	No	Proposed for demolition	Gil Sanchez 1995
29	Dairy barn	Yes	Proposed for preservation	Greenwood and Associates 1991
35	Garage	No	Proposed for demolition	Gil Sanchez 1995
36	Cold storage shed	Yes	Demolished *	Greenwood and Associates 1991, 1992
37	Shed/coop	Yes	Approved for demolition *	Greenwood and Associates 1991, 1992
38	Garage	Yes	Approved for demolition *	Greenwood and Associates 1991, 1992
39	Shed/coop	Yes	Approved for demolition *	Greenwood and Associates 1991, 1992
40	Shed	Yes	Approved for demolition *	Greenwood and Associates 1991, 1992
41	Shed/coop	Yes	Approved for demolition *	Greenwood and Associates 1991, 1992
42	Storage barn	Yes	Proposed for preservation	Gil Sanchez 1995
43	Gas pumphouse	Yes	Proposed for preservation	Gil Sanchez 1995

* Approval for the demolition of these structures was part of a previously approved project (PC 7753); the structures have been individually documented (Greenwood and Associates 1991, 1992).



Source: Robert Lamb Hart 1995.

Jones & Stokes Associates, Inc.

Figure 17-1
Location of Buildings and Structures in San Francisquito Flat

IMPACTS AND MITIGATION MEASURES

Approach and Methodology

The project could affect either directly or indirectly prehistoric and historic archaeological properties that are considered significant or are presumed to be significant. Impacts could result from the physical disturbance of cultural resources during construction or construction-related activities; the demolition, replacement, substantial alteration, or relocation of historic properties; and management practices for preserve lands.

Direct effects or impacts result from destruction of historic properties or damage to the values that make them significant. Demolition of historic buildings and bulldozing an archaeological site are examples of direct effects. Indirect effects are secondary effects, such as vandalism, erosion, or land management activities, that follow construction.

The primary key assumption in assessing the project's effects on cultural resources is that whenever possible, impacts on cultural resource sites will be avoided, regardless of whether they are considered significant under CEQA. Impacts were identified by comparing the locations of resources in the archaeological survey report (Archaeological Consulting 1994a) and documentation provided on historic site locations by the Rancho San Carlos Partnership (Panzer pers. comm.) with the building envelopes, roads, and driveways identified on the Vesting Tentative Map, plans for the proposed golf trail (Rancho San Carlos Partnership 1994b), and information on the removal and modification of potentially historic buildings (Franklin pers. comm.). During the site visit, the archaeologist and the historian visited many of the highly significant resources and discussed with Rancho San Carlos staff their plans for avoidance or other mitigation measures.

Significance Criteria

The State CEQA Guidelines define a significant historical resource as "a resource listed or eligible for listing in the CRHR" (Public Resources Code Section 5024.1). A historical resource may be eligible for inclusion in the CRHR if it:

- is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
- is associated with the lives of persons important in our past;

- embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

- has yielded, or may be likely to yield, information important in prehistory or history.

Under the State CEQA Guidelines, an impact is considered significant if a project would have an effect that may change the significance of a significant historical resource (Public Resources Code Section 21084.1). Demolition, replacement, substantial alteration, and relocation of historic properties are actions that will change the significance of an historical resource (i.e., individual resources as well as districts; see definition of district in the following paragraph). Based on existing information, the impact analysis assumes that all resources are significant under CEQA, consistent with Public Resources Code Section 21084.1.

In terms of the buildings built by Moore during the 1920s and 1930s (i.e., the main ranch structures), it seems most appropriate to consider their importance collectively as a district. Historic districts are unified geographic entities that possess continuity of sites, buildings, objects, or structures that are united historically by plan or physical development. Properties that are not relevant to the theme, have poor integrity, and are not individually significant according to CEQA were considered "noncontributing elements" of the district and, therefore, determined to be insignificant for the following impact assessment. If the project would substantially alter an historic district, the impact is considered significant.

Applicant's Proposed Mitigation Measures

A summary of the mitigation measures proposed by the applicant for cultural resources is provided in the Santa Lucia Preserve Mitigation Monitoring Program (Appendix B). More detailed descriptions of these mitigation measures can be found in the technical reports prepared by Archaeological Consulting (1994a, 1994b).

This information has been supplemented by information provided by the Rancho San Carlos Partnership (Panzer pers. comm.). In addition, during the site visit the archaeologist and the historian visited many of the highly significant resources and discussed with Rancho San Carlos staff their plans for avoidance or other mitigation measures. This result of this consultation has been incorporated into the impact assessment and mitigation measures below.

The applicant's proposed method to reduce, minimize, or avoid impacts on cultural resources is that whenever possible, facilities have been relocated or redesigned to avoid cultural resources, regardless of whether they are considered significant under CEQA.

General Impact Assessment and Mitigation Measures

Impact: Unanticipated Impacts on Prehistoric and Historic Resources from Construction and Construction-Related Activities

Project components have been designed to avoid direct impacts on the majority of the 45 prehistoric archaeological sites identified during the archaeological survey with the exception of those specific sites discussed below. However, many of the prehistoric sites could be affected directly or indirectly. Direct impacts have been avoided for all known historic archaeological properties, but these and any unknown sites could also be affected indirectly. This is a potentially significant impact. In addition, as project plans become more definite, some of the sites may not be avoidable or the level of impact could change.

To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Applicant's Proposed Mitigation Measure *53*: Avoid Significant Prehistoric and Historic Resources. Final Cultural Resource Mitigation Plans (FCRMP) should be prepared during the specific planning of each phase of development for the project to ensure that direct impacts on significant prehistoric and historic resources are avoided wherever feasible. These plans should be prepared by a qualified archaeologist in coordination with Monterey County Planning and Building Inspection Department and Rancho San Carlos Partnership personnel. The plans should list all prehistoric and historic sites within the phase area; describe any site-specific mitigation measures that have been recommended for each site, if applicable; and outline the measures necessary to ensure that the remaining resources will be avoided.

These measures should include the requirement that an archaeologist review all final plans for buildings, utilities, and housing pad and driveway locations. Where necessary, the plans should require an archaeologist to be onsite while the locations of ground-disturbing activities are identified. The plans should specify areas where monitoring by a qualified archaeologist should be conducted during ground-disturbing activities. The plans should specify where ancillary construction activities, such as stock piling of construction materials or the placing of signs along roads, should occur to avoid impacts on cultural resources. Sites that will require fencing during construction and the location of the fencing also should be specified in the plan.

If, after reviewing the final project design, the archaeologist, the county, and the applicant determine that impacts on significant sites cannot be avoided, the plans should require the recovery of the data or other values that would be lost through development, possibly including data recovery excavations at archaeological sites, historic or ethnographic research, or the development of interpretive displays.

Site-Specific Impact Assessment
Prehistoric Archaeological Resources

Impact: Potential Damage to or Destruction of Prehistoric Archaeological Sites CA-MNT-1481, -1482, and -1483 from Construction

Sites CA-MNT-1481, -1482, and -1483 will be affected by construction in the hacienda area. Impacts on these sites would be significant because construction could damage significant archaeological deposits. Implementation of the following mitigation measures would reduce this impact to a less-than-significant level.

Applicant's Proposed Mitigation Measure *54*: Conduct Monitoring at Site CA-MNT-1481. Site CA-MNT-1481 will be affected by construction in the area of the hacienda. Test excavations indicate that the site has been extensively affected by past construction projects and very little of the deposit remains intact (Archaeological Consulting 1992). To reduce any potential impact to a less-than-significant level, it is recommended that all construction within the site boundaries be monitored by a qualified archaeologist. If potentially significant archaeological materials are identified, work should stop within 50 meters of the find until its significance can be assessed by a qualified archaeologist. If the find is determined to be significant, then appropriate data recovery excavations should be conducted by a qualified archaeologist (Archaeological Consulting 1994a). The results should be submitted to and approved by the Monterey County Planning and Building Inspection Department.

During the final design of the hacienda area when the exact details of project impacts on CA-MNT-1481 are known, additional data recovery efforts beyond what was originally proposed might be required (Archaeological Consulting 1992).

Applicant's Proposed Mitigation Measure *55*: Place Fill on Sites CA-MNT-1482 and -1483 and Conduct Data Recovery for Minor Impacts. According to current plans, sites CA-MNT-1482 and -1483 will be affected by construction of the proposed sporting center. It is recommended that a layer of decomposed granite be placed over sites CA-MNT-1482 and -1483, which will result in nearly complete preservation except for minor impacts associated with development of the tennis courts. For these minor impacts, minimal data recovery should be conducted in accordance with the recommendations in Archaeological Consulting 1994a.

During the final design of the proposed sporting center area when the exact details of project impacts on CA-MNT-1482 and -1483 are known, additional data recovery efforts beyond what was originally proposed might be required.

Impact: Potential Damage to or Destruction of Prehistoric Archaeological Sites CA-MNT-1481, 1482, -1484, -1485, -1486/H, -1702, and -1704 from Road Improvements

Sites CA-MNT-1481, -1482, -1484, -1485, -1486/H, -1702, could be affected by road improvements. Site CA-MNT-1704 will be affected by road improvements. These sites have either been determined to be significant or are potentially significant; therefore, impacts on these sites would be significant because construction could damage significant archaeological deposits. Implementation of the following mitigation measures would reduce this impact to a less-than-significant level.

Additional Mitigation Measure *56*: Construct Road through Site CA-MNT-1481 in Existing Location and Maintain Unimproved Road through Site CA-MNT-1482. Site CA-MNT-1481 is characterized by a very sparse, disturbed surface scatter that will not affect the site if the road is constructed in its existing location. Site CA-MNT-1482 will be improved and used for an equestrian trail, which will not affect the site.

Additional Mitigation Measure *57*: Incorporate Avoidance Procedures into Final Mitigation Plan for Sites CA-MNT-1481, -1482, -1484, -1485, -1486/H, and -1702. Current plans include moving the existing access road off sites CA-MNT-1484, -1485, -1486/H, and -1702. During the final design of the road, the measures necessary to ensure that the sites are avoided and protected during construction might be required and should be incorporated in the FCRMP. The recommendations in the FCRMP should then be implemented.

Additional Mitigation Measure *58*: Conduct Test Excavations and Conduct Data Recovery Excavation for Site CA-MNT-1704. Current plans include improving existing access in the area where site CA-MNT-1704 is located. A test excavation should be conducted to determine whether significant archaeological deposits would be affected by the road improvements. If the test excavation determines that significant archaeological deposits cannot be avoided, a data recovery excavation should be conducted. Requirements for the data recovery excavation should be incorporated in an FCRMP. The recommendations in the FCRMP should then be implemented.

Impact: Potential Damage to or Destruction of Prehistoric Archaeological Site CA-MNT-1700

Site CA-MNT-1700 will be affected by the proposed golf trail construction. Test excavations have determined that portions of the site contain significant materials (Breschini 1994b). These deposits are located in the area of the 13th tee on the proposed golf trail. Minimal deposits were also identified in the area of disturbance for the 12th green and fairway. Impacts on this site would be significant because construction could damage significant archaeological deposits. Implementation of *one of* the following mitigation measures would reduce this impact to a less-than-significant level.

Applicant's Proposed Mitigation Measure *59*: Monitor and Conduct Data Recovery Excavation for Site CA-MNT-1700. A qualified archaeologist should monitor during grading, trenching, and other subsurface impacts in the area where the 12th green will be constructed. If potentially significant archaeological materials are identified, work should stop within 50 meters of the find until its significance can be assessed by a qualified archaeologist. If the find is determined to be significant, then appropriate data recovery excavations should be developed and implemented in consultation with the Monterey County Planning and Building Inspection Department (Archaeological Consulting 1994b).

In the area where the 13th tee is proposed, a data recovery excavation should be undertaken. Excavation should consist of the removal and analysis of 10 cubic meters of materials in accordance with the recommendations provided in Archaeological Consulting 1994b. The results of the excavation report shall be presented in a report submitted to the Monterey County Planning and Building Inspection Department for review and approval.

Alternative Mitigation Measure 60: Avoid Damage to Prehistoric Archaeological Site CA-MNT-1700. *This archaeological site should be avoided by redesigning the portion of the golf trail that would affect this resource.*

Historic Archaeological Resources

Impact: Potential Changes or Modifications to Historic Structures

The project will require that one significant historic structure (the granary) be moved from its original location. This impact would not be significant because the building will be relocated within the general location of other similar buildings. All modifications to historic structures are planned to be in keeping with the historic architecture of the ranch.

Mitigation Measure: No mitigation measures are required.

Impact: Damage to Historic District from New Construction

The San Carlos Ranch historic district will be affected by the placement of new buildings in proximity to the original structures. This impact will be significant because the district will be substantially altered, resulting in the diminishment of the qualities that make the property significant (i.e., an example of an early 20th century gentleman's ranch). Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Additional Mitigation Measure *61*: Prepare Historic American Building Survey Photographic and Written Documentation. Prior to any new construction within the San Francisquito Flat areas, the existing documentation of the buildings should be augmented. This documentation should include photographic and written documentation of San Carlos Ranch Historic District prepared in a manner suitable for submittal to the Historic American Building Survey (HABS) program. Documentation should include large-format photography of individual buildings as well as overview views showing the relationship between ranch structures for each contributing structure that is still present. A detailed map would be prepared showing the location of each original building and its current or proposed status. The map should correspond to photographic documentation by keying each photographic station with a mapped location. The documentation need not include previously demolished structures. Written documentation should be prepared to augment previously prepared historical analysis. This documentation should focus on the significance of the ranch in architecture and in the history of Monterey County during Moore's tenure. This work should be conducted by a qualified architectural historian and qualified HABS photographer.

Impact: Potential Impact on San Francisquito Adobe from Demolition of Garage (Building Number 35)

A garage, located on top of San Francisquito Adobe, is proposed for demolition. Demolition of this structure could cause significant impacts on the San Francisquito Adobe site. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Additional Mitigation Measure *62*: Demolish Garage by Hand. The garage on top of the San Francisquito Adobe should be demolished using only hand tools. No equipment of any type should be permitted on top of the site. Construction workers should be notified of these requirements prior to beginning demolition. The demolition should be monitored by a qualified archaeologist.

Impact: Potential Damage to or Destruction of Known and Unknown Historic Archaeological and Architectural Resources from Construction

The general locations of historic archaeological sites and architectural resources (buildings and structures) identified during the previous archaeological survey (Breschini pers. comm.) have been incorporated into project plans; however, these resources have not been formally recorded. Several of the sites, including the location of a highly significant adobe, are located close to areas proposed for development. Because the exact locations of these sites and all their possible ancillary features are not documented, impacts could inadvertently occur.

Because the previous survey strategy was based on the predicted location of prehistoric archaeological sites, it is possible that previously unknown historic archaeological sites or architectural properties could be affected by the project. Impacts would be significant because

construction could damage significant historical resources. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Additional Mitigation Measure *63*: Conduct Historical Research and Document Historic Archaeological and Architectural Resources. To identify possible historical resource locations, in-depth historical archival research for the entire project site should be conducted. This effort should include both propertywide and resource-specific archival research. All known and predicted historical site locations identified during the previous survey and those discovered as part of the historical archival research should be visited by a qualified archaeologist and the remains observed should be recorded according to the standards of the Office of Historic Preservation. All historic sites that are identified within the 20,000-acre project area as a result of the archival research and previous studies should be recorded. Refined site locational information should also be incorporated into project plans and designs so that construction impacts on significant historical resources can be avoided. The documentation should also be used to provide the baseline data for historical resources necessary for future management (see below "Additional Mitigation Measure: Develop Long-Term Management and Monitoring Plan to Protect Prehistoric- and Historic-Period Resources").

Impact: Potential Damage to or Destruction of Unknown Historic-*Period* Archaeological and Architectural Resources from Land Management Activities

Land management practices, as specified in the Resource Management Plan, that occur in previously unsurveyed parts of the project area could inadvertently affect historic archaeological and architectural resources. Examples of activities that could affect resources include habitat restoration and compensation, fuel modification (e.g., selective thinning and prescribed burning), and fence building. Impacts would be significant because such activities could damage significant historical resources. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Additional Mitigation Measure *64*: Prepare Historical Sensitivity Analysis and Identify Historically Sensitive, Unsurveyed Areas. To prevent unknown historical archaeological and architectural resources from being inadvertently affected, a historical archaeological/ architectural sensitivity map should be prepared identifying all areas not previously surveyed that could contain historical resources. This map should be prepared using information obtained from historical archival research and the known location of historical resources.

Before the start of ground-disturbing activities outside the previously surveyed project area, the historic resources sensitivity map should be consulted. If it is determined that ground-disturbing activities (i.e., revegetation, grubbing, habitat restoration, prescribed burning) will occur in areas that have been determined to be sensitive for historic-period archaeological resources, the impact area should be surveyed. If resources are identified that cannot be avoided, an evaluation plan should be prepared to determine the significance of the resource. If the resource is determined to be significant, then appropriate data recovery excavation and historical research should be conducted.

Impact: Potential Damage to or Destruction of Cultural Sites from Grazing

Most sites within the project area will benefit from the project because the number of head per acre and the duration of grazing will be decreased; however, some of the resources that are very fragile will sustain impacts from continued grazing. These sites include CA-MNT-1484, -1485/H, -1486/H, and -1487 (Echilat) and the two known adobe sites. These sites would be affected by cattle trampling and the erosion that results from decreased vegetation. Sites that are grazed also support ground squirrel populations, which can damage sites. In the case of the sites that constitute Echilat, ground squirrel activities are not only mixing the deposit, but they are also turning up artifacts, shell, and midden soils, making the sites more noticeable.

Other sites could also be affected by placing grazing improvement on or near sites, causing cows to congregate and trample cultural resources. Impacts would be significant because grazing and grazing improvements could damage significant historical resources. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Additional Mitigation Measure *65*: Cease Grazing on Sites CA-MNT-1484, -1485/H, -1486/H, -1487, and Two Adobe Sites and Place Grazing Improvements Away from Known Cultural Resources. Grazing should not be permitted to occur on sites CA-MNT-1484, -1485/H, -1486/H, -1487, and on the two adobe sites. In addition, all grazing improvements that result in cattle congregation, such as watering facilities, salt licks, and feeding areas, should be placed at least 50 meters away from the boundaries of all cultural resource sites.

Impact: Potential Damage to or Destruction of Known Prehistoric Archaeological or Historic-Period Resources from Incidental Project Activities and Vandalism

Impacts on known prehistoric- and historic-period resources could occur from incidental project activities such as fence building and tree planting. Sites could also be affected by vandalism. Sites such as CA-MNT-1484, -1485/H, -1486/H, and -1487 (also known as the ethnographic village of Echilat) are particularly visible because of dark soil and high concentrations of shell, which will make them attractive to vandals and pot hunters. Other resources that could be targets of pot hunting include the historical sites present on the property, especially the highly significant adobe locations and the Wright/ Stevenson Cabin.

Impacts would be significant because these activities could damage significant prehistoric- and historic-period resources. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Additional Mitigation Measure *66*: Develop Long-Term Management and Monitoring Plan to Protect Prehistoric- and Historic-Period Resources. To ensure that resources are not exposed to secondary effects of the project, a cultural resources management and monitoring plan (CRMMP) should be prepared and incorporated into the project's implementation plan(s). The CRMMP should outline where each site is located and why it is significant, and identify the potential impact mechanisms that could cause damage. The plan should then specify, on a site-by-site basis, what measures will be implemented to prevent damage from occurring. These measures could include one or a combination of the following:

- Seed highly visible archaeological sites with tall, non-invasive native vegetation.
- Plant hedgerows or build low fences (outside of site boundaries) to prevent foot traffic on or near sites.
- Erect "Sensitive Habitat" signs in archaeological site areas.
- Stabilize historic structures to prevent further deterioration.

The CRMMP should also require cultural resources management objectives to be incorporated into general land management practices. Recommended requirements include the following:

- identifying a point of contact who will ensure that site locations and protection measures are incorporated into project implementation and land management activities,
- training for staff regarding the importance of cultural resources and the need to protect them,
- developing a CC&R that prohibits excavation or disturbance to archaeological properties; and
- having planned security patrols monitor archaeological sites.

The CRMMP should also include a monitoring element to be used to determine whether the protection measures that have been implemented are adequate to protect cultural resources. Minimally, the monitoring element should require that all known sites within the project area be visited annually by a qualified archaeologist. The archaeologist should prepare a report and submit it to the Monterey County Planning and Building Inspection Department that indicates the current condition of the sites relative to baseline conditions. The monitoring element should identify any sites that are being affected and, if necessary, additional protection or mitigation measures to be implemented to prevent or mitigate the impacts.

Finally, to ensure that the important data in these sites can someday be extracted, the CRMMP should outline how further scientific research could be conducted by universities or private organizations at sites within the project area possibly in cooperation with the Rancho San Carlos Education Foundation. The CRMMP should provide requirements for professional qualifications and the scope and types of research that should be permitted.

Impact: Potential Damage to or Destruction of Unknown Prehistoric- or Historic-Period Resources and Human Remains

Previously unidentified prehistoric- or historic-period archaeological resources or human remains could be discovered during project implementation. Impacts on these resources, if present, would be significant because project activities could damage significant prehistoric- and historic-period resources. Implementation of the following mitigation measure would reduce this impact to a less-than-significant level.

Applicant's Proposed Mitigation Measure *67*: Stop Work and Consult with Appropriate Parties. If previously unknown prehistoric- or historic-period archaeological resources are identified during construction or other ground-disturbing activities, all work should stop within 50 meters of the find and the Monterey County Planning and Building Inspection Department should be contacted. A qualified archaeologist should be contacted to assess the significance of the find and develop appropriate mitigation measures, such as data recovery or historical research, as needed. These mitigation measures should be incorporated into an FCRMP.

If human remains are discovered, state law requires that the Monterey County Coroner be notified immediately. Within 24 hours of the discovery, the coroner will confirm whether they are human and if they are believed to be Native American, the coroner will contact the NAHC. The NAHC will notify the Most Likely Descendant, who will have 24 hours to provide the project applicant with recommendations regarding disposition of the remains. If no recommendations are provided within the time of notification from the project applicant, the descendant may rebury the remains in a respectful manner in a location that will be protected from future disturbance.

Chapter 18. Social Effects

INTRODUCTION

This chapter identifies potential effects of the project on the social structure of the local area. Existing social characteristics of the local area, including racial composition and age and income characteristics, are largely described using data from the 1990 Census of Population and Housing (Bureau of the Census 1990).

The study areas for social effects include the project site and its adjacent properties and the project site's nearest community, Carmel-by-the-Sea (Carmel).

SETTING

Social Characteristics of the Project Site and Adjacent Area

Rancho San Carlos is largely undeveloped but contains 14 dwelling units that are primarily used by ranch employees. The ranch house and auxiliary buildings contain 16 guest rooms, two meeting rooms, and office space used by employees and guests of the ranch. Existing public access to ranch properties is highly restricted, with use generally limited to guests and residents of the ranch.

Rancho San Carlos is situated in a rural area characterized by grazing lands, low-density residential and second-home development, and private and public recreational properties. The project site is surrounded by 41 neighbors dispersed around the ranch's 20,000 acres.

Because of the rural nature of the area, the social structure of the local area encompassing the project site is not highly developed. The area is characterized by isolated clusters of residents who rely on nearby communities for much of their social interaction.

Social Characteristics of Carmel-by-the-Sea

The closest community to the project site is Carmel, located approximately 5-10 miles northwest of the site's northern boundary. Future residents of the project site would likely travel to Carmel (among other more distant communities in Monterey County) for those needs that are not met by the proposed project's commercial development, including shopping, restaurants, entertainment, social gatherings, and community events.

Demographic data from the 1990 census, depicted in Table 18-1, were used to describe the social characteristics of Carmel and Monterey County. The data indicate that the social characteristics of Carmel are very different from those of Monterey County as a whole. The population of Carmel is less racially diverse, older, and wealthier than the population of Monterey County.

According to census data, approximately 97% of Carmel's residents are white, compared to 64% countywide. Carmel's Hispanic population is proportionally much smaller (3%) than the Hispanic population countywide (34%). (Under census definitions of racial categories, persons of Hispanic descent may be of any race.) Carmel's African American and Asian populations are also much smaller than countywide populations.

The distribution of Carmel's population by age is markedly different from the distribution in Monterey County. The median age of a Carmel resident is estimated at 53 years, compared to almost 30 years for a resident of Monterey County. As Table 17-1 shows, only 14% of Carmel's population is under the age of 24, compared to 41% countywide. Carmel's retirement-age population, however, is much larger than the proportion of this age group countywide. Almost 35% of Carmel's population is over the age of 64, compared to 10% in the county.

The incomes of Carmel's households are not substantially higher than incomes countywide; however, housing values indicate that Carmel is a much wealthier community than others in the county. Median household income in Carmel was approximately $36,800 in 1990, compared to $33,600 countywide. Carmel's per capita income, however, was substantially higher ($26,600 in Carmel compared to $14,600 in the county), reflecting higher incomes and fewer dependents within households. Housing values in Carmel indicate the actual wealth of Carmel residents. The median value of owner-occupied housing was estimated at $435,000 in 1990, compared to $198,000 countywide. The disparity between income and housing values in Carmel indicates that the wealth of Carmel residents is generally based on investments, savings, and assets rather than current income from employment.

Table 18-1. Selected Social Characteristics of Carmel and Monterey County, 1990

Characteristics	Carmel	Monterey County
Distribution of population by race (%):		
White	96.8	63.8
Black	0.3	6.4
Asian or Pacific Islander	1.7	7.8
Other race	1.2	21.9
Hispanic origin [a]	3.1	33.6
Distribution of population by age (%):		
Under 24 years of age	14.3	40.7
25 to 44 years	23.8	34.2
45 to 64 years	27.1	15.4
Over 64 years	34.8	9.7
Median age (years)	53.0	29.6
Income characteristics ($):		
Mean household income	48,800	43,200
Median household income	36,800	33,600
Per capita income	26,600	14,600
Median value of owner-occupied housing	434,700	198,200

[a] Persons of Hispanic origin may be of any race.

Source: Bureau of the Census 1990.

IMPACTS AND MITIGATION MEASURES

Approach and Methodology

Social impacts can result from projects that introduce a new population with substantially different social characteristics to an existing neighborhood or community. Social stresses and tensions can result from an existing community adjusting to the values, beliefs, customs, and needs of a new demographic group. Projects that result in economic dislocations or physical division of existing neighborhoods or communities can also result in social impacts.

The proposed Santa Lucia Preserve project was evaluated to determine its social compatibility with nearby areas, including the unincorporated rural area around the project site and the community of Carmel. The lack of certainty about the social characteristics of the project site's future population requires an approach that is somewhat speculative and uses qualitative methods. Characteristics of the project, such as probable housing prices and project design, were used to assess the likely social characteristics of the project site population. These characteristics were then compared to the social characteristics of nearby areas to assess the social compatibility of the project with these areas.

Significance Criteria

Similar to economic effects under CEQA, the social effects of a project are not treated as significant effects on the environment. The social effects of a project may be evaluated to determine whether significant physical effects, such as adverse effects on humans, may result from the project. An EIR may also use the severity of a project's social effects as a measure to determine the significance of physical changes caused by a project.

Because social effects are not considered significant environmental impacts under CEQA, no significance criteria were developed for the social effects of the project. Rather, social effects were identified as being beneficial, adverse, or negligible. Physical changes associated with any adverse social effects of the project, however, were identified.

Applicant's Proposed Mitigation Measures

The applicant has proposed no mitigation measures for social effects that may result from the Santa Lucia Preserve project.

Social Effects

Impact: Compatibility with Social Characteristics of Adjacent Areas

The Santa Lucia Preserve project is not expected to result in development of facilities that would physically divide an existing community and cause adverse social effects.

As described in the "Setting" section, the project site and adjacent areas are largely rural and sparsely developed. Under the project, almost 90% of the project site would remain in open space and grazing uses and would remain similar to the characteristics of adjacent areas. Except for the inclusionary housing units, most of the housing developed onsite would feature large lots with homes set apart from neighboring houses. This rural residential, estate development would be similar to existing residential development near the project site.

The exclusive nature of the onsite community would likely limit interaction with residents of adjacent properties. The social structure of the area encompassing the project site would not be substantially altered by the project because interaction would be limited and the density of residential development onsite would be similar to residential development on surrounding properties. Onsite residential and commercial development would result in increased traffic on local roads and could alter the views from adjacent properties. These effects are evaluated in other chapters of this EIR.

The open space and outdoor recreational amenities offered by the project could result in social benefits to nearby residents and communities; however, public access to the project site is expected to be highly controlled, similar to existing access. The environmental education tours and golf course would provide social and recreation opportunities to non-residents to the extent that these benefits are available to the general public.

The project would increase the population of the project area; however, the characteristics of this population are likely to be similar to the existing social characteristics of the population in the area. Social effects of the project in the immediate vicinity of the projects are therefore expected to be less than significant.

Mitigation Measure: No mitigation measures are required.

Impact: Compatibility with Social Characteristics of Carmel-by-the-Sea

According to current information on the project, most of the housing developed as part of the project will be expensive. Lots are anticipated to sell for $500,000-$1,000,000 each. Custom homes would likely be constructed on these lots.

The characteristics of the project, with its high-end housing, golf course, recreation and equestrian centers, and hotels, indicate that it would attract relatively wealthy home buyers seeking

privacy, an exclusive living environment, and unique recreation and natural amenities. These characteristics, combined with the project site's distance from major employment centers, indicate that residents would likely be composed primarily of retirees and second-home owners.

The social characteristics of project site residents would likely be similar to those of Carmel residents, who are generally older and wealthier than residents of other areas of the county. The interaction of project site residents with residents of Carmel is unlikely to result in adverse social effects because of the probable similarity of these populations. This impact is considered less than significant.

Mitigation Measure: No mitigation measures are required.

Chapter 19. Cumulative Impacts

CEQA REQUIREMENTS

"Cumulative impacts" refers to two or more effects that, when combined, are considerable or compound other environmental impacts. The State CEQA Guidelines require EIRs to include a discussion of cumulative impact when such impacts are significant. Section 15130 requires the discussion to reflect the severity of the impacts and their likelihood of occurrence, but the discussion should be guided by the standards of practicability and reasonableness.

Three elements are necessary for an adequate cumulative analysis:

- either a list of past, present, and reasonably foreseeable future projects producing related or cumulative impacts, including those projects outside the control of the agency (list approach), or a summary of projects contained in an adopted general plan or related planning document that is designed to evaluate regional or areawide conditions (plan approach);

- a summary of the expected environmental effects to be produced by those projects, with specific adherence to additional information stated where that information is available; and

- a reasonable analysis of the cumulative impacts of the relevant projects. An EIR shall examine reasonable options for mitigating or avoiding any significant cumulative effects of a proposed project. With some projects, the only feasible mitigation for cumulative impacts may involve the adoption of ordinances or regulations rather than the imposition of conditions on a project-by-project basis.

This EIR uses the list approach.

LIST OF PENDING AND APPROVED PROJECTS IN THE VICINITY OF RANCHO SAN CARLOS

Table 19-1 is a list of pending and approved projects in the region of Rancho San Carlos that could contribute to cumulative impacts on resources. Figure 19-1 shows the location of these projects.

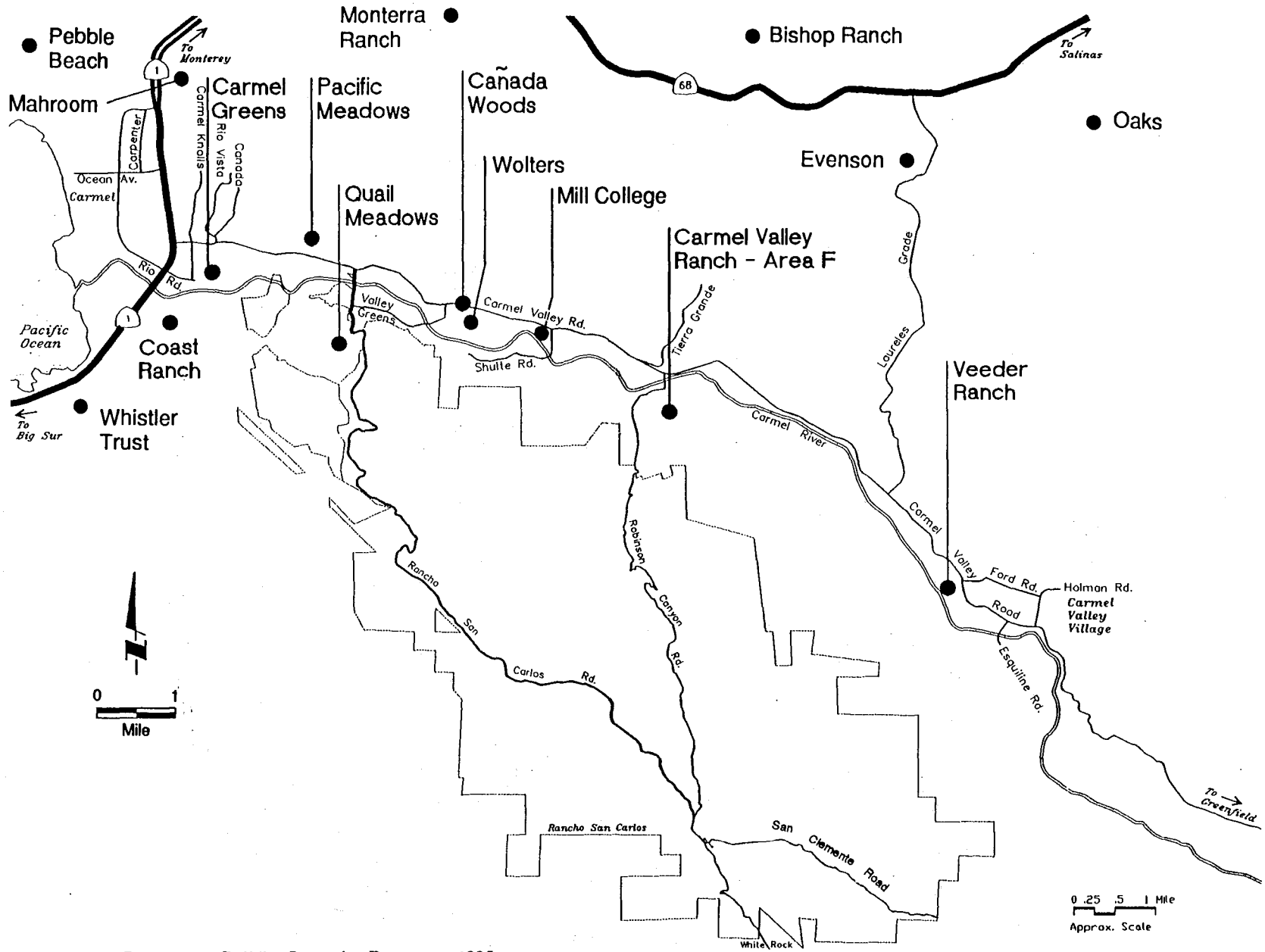
Table 19-1. Approved and Proposed Projects in the Project Region

Project	Dwelling Units	Visitor-Serving Units or Other Uses
Built		
Pacific Meadows[a]	200	
Approved		
Quail Meadows	65	40
Carmel Valley Ranch	64	44
Coast Ranch	82[b]	
Monterra Ranch	326 (includes 283 market rate and 43 low- and moderate-income housing units)	
Mahroom	36	
Proposed		
Cañada Woods	59	80,000 sf commercial center
Veeder Ranch	29	
Carmel Greens	88	
Wolters		10,000 sf commercial building
Mill College	3	
Whistler Trust	7	
Bishop Ranch	202 (includes 164 market rate and 38 low- and moderate-income housing units)	18-hole golf course
Evenson	4	
Oaks	13	
Pebble Beach Lot Program	403 (includes 316 residential units, 34 P.U.D.s, and 53 inclusionary housing units)	
Total	1,581	84 visitor-serving units; 90,000 sf of commercial uses; and an 18-hole golf course

[a] Pacific Meadows was completed by 1992 but was not yet fully occupied.

[b] Excludes 6 existing units. Note that Coast Ranch may not be built.

Source: Monterey County Planning and Building Inspection Department 1995.



Source: Monterey County Planning and Building Inspection Department 1995.

Jones & Stokes Associates, Inc.

Figure 19-1
Locations of Approved and Proposed Projects

In addition to these projects, this EIR considers the effects of development of auxiliary units that could be developed on lots proposed for low-density residential zoning (i.e., the market rate lots). Auxiliary units are defined for the purposes of this EIR as guesthouses, senior citizen units, and caretaker units. These uses are defined and regulated in the following sections of the Monterey County Zoning Ordinance:

- *Senior citizen units are defined in Monterey County Zoning Ordinance Section 21.06.1000 and regulated by Section 21.64.010.*

- *Guesthouses are defined in Section 21.06.620 and regulated by Section 21.64.020.*

- *Caretaker units are defined in Section 21.06.160 and regulated by Section 21.64.030.*

Except for guesthouses, all auxiliary units require a discretionary permit, either an administrative permit or a conditional use permit. The residential areas of the proposed project are proposed to be zoned low-density residential, which requires an administrative permit for any senior citizen or caretaker unit.

Although guesthouses do not require a discretionary permit, they are subject to development standards (Monterey County Zoning Ordinance Section 21.64.020). Those standards specify that the unit be "for limited sleeping and living purposes, but not for independent living purposes, permanent residential use, or rental purposes." They limit the size of the unit to 600 square feet, require that the unit be located in proximity to the principal residence, prohibit any kitchen or cooking facilities in the unit, require that the guesthouse share the same utility connections as the main residence, and prohibit any subdivision from the main house.

The present application does not include any entitlements for auxiliary units, and whether auxiliary units are subsequently applied for by purchasers of the lots is speculative. However, it is certainly likely that at least some purchasers will apply. Because of these facts, auxiliary units are treated in the final EIR as cumulative development.

The following development standards are noted and assumptions made for this EIR for the purposes of evaluating this reasonably foreseeable use of the project site:

- *Guesthouses are limited to 600 square feet as noted above; they will be typically occupied on a seasonal and/or weekend use basis and kitchens are prohibited. See other regulations mentioned above. It is assumed that 75% of the market rate residences would have guesthouses. At full buildout of the comprehensive development plan, this means that 223 guesthouses (0.75 x 297) are assumed.*

- *Senior citizen units are limited to 700 square feet if attached and 850 square feet if detached; caretaker units are limited to 1,000 square feet if the lot is less than 10*

acres, and 1,200 square feet if the lot is larger than 10 acres. It is assumed that 50% of the market rate residences would have either a senior citizen or a caretaker unit. At full buildout of the comprehensive development plan, this means that 149 units (0.50 x 297 feet) are assumed.

CUMULATIVE IMPACTS AND MITIGATION MEASURES

The following topics are evaluated in this chapter:

- land use;
- geology and soils;
- groundwater hydrology, stream base flow, and water supply and demand;
- runoff, flooding, and water quality;
- fisheries;
- biological resources;
- *traffic;*
- air quality;
- noise;
- public services and utilities; and
- cultural resources.

~~The cumulative impact analysis for traffic is in Chapter 13, "Traffic".~~

Land Use

Impact: Conversion of Open Space to Urban Development

The proposed project will contribute to the cumulative conversion of open space to urban development in the Carmel Valley/Monterey Peninsula area of Monterey County. Although the proposed project includes designating land as open space, development will occur in a rural area and convert land from open space to urban development. Expansion of pending, approved, and proposed urban development into open space areas may change the rural character of the Carmel Valley and the Monterey Peninsula. However, the GMPAP, CVMP, Monterey Peninsula Area Plan, and CZ include policies and zoning designations relating to agricultural preservation, viewshed preservation, and land use densities to preserve the relationship between open space areas and development. Additionally, the project site is visually separated from the Carmel Valley and the Monterey Peninsula and thus would not contribute to the visual changes associated with urbanization in the Carmel Valley. For these reasons, the cumulative land use impacts are considered less than significant.

Mitigation Measure: No mitigation measures are required.

Geology and Soils

Impact: Cumulative Consumption of Aggregate and Carmel Stone

The proposed project would contribute to the cumulative consumption of aggregate and Carmel Stone, both nonrenewable resources, *by pending and proposed projects and auxiliary unit development.* However, because of the relatively widespread availability of these resources in the region, the cumulative impact is considered less than significant.

Mitigation Measure: No mitigation measures are required.

Impact: Increased Sediment Loads in the Carmel River

The proposed project could cause increased sediment loads in the Carmel River and combine with sediment produced by construction of other development projects in the Carmel River watershed, *including those listed in Table 19-1 (not all are in the Carmel River watershed) and auxiliary unit development.* The effect of the Santa Lucia Preserve project and other projects on water quality and flood hazard is considered significant. To reduce this impact to a less-than-significant level, Monterey County Planning and Building Inspection Department should continue to require appropriate erosion and sediment controls on new projects, monitor effectiveness of those measures, and require remedial measures as necessary.

Mitigation Measure: Implement Erosion and Sediment Control Plans for All New Development within the Carmel River Watershed. Erosion and sediment control measures should be implemented for all new development within the Carmel River watershed. The measures identified for the proposed project would be consistent with this mitigation measure for cumulative impacts.

Groundwater Hydrology, Stream Base Flow, and Water Supply and Demand

Impact: Increased Consumptive Use of the Groundwater Aquifer at the Project Site

To estimate the water demand of the auxiliary units, the following assumptions are used:

- *Guesthouse unit use assumes one-half of inclusionary housing rate or 0.1 af/yr/unit. Net demands take into account return rate flows to the groundwater basin using the same percentages as the comprehensive hydrological studies. At full buildout, the gross water*

demand would be 22 af/yr and net water demand would be 4 af/yr (223 units at 0.1 af/yr = 22 af/yr gross and 4 af/yr net, all indoor use with 80% return flow).

- *Caretaker and senior citizen units will assume 0.3 af/yr based on an average of the existing employee unit use (0.4 af/yr) and inclusionary housing (0.169 af/yr). At full buildout, the gross water demand would be 45 af/yr and net water demand would be 22 af/yr (149 units at 0.3 af/yr = 45 af/yr gross and 22 af/yr net, both indoor and outdoor use with 50% return flow).*

Based on these assumptions, the revised net in groundwater demand considering the proposed project and auxiliary units would be 298 af/yr (272 af/yr for the proposed project + 26 af/yr for the auxiliary unit demand).

Although the impacts on the groundwater aquifer would be exacerbated by development of the auxiliary units, none of the impact conclusions for the proposed project would change as a result of this cumulative development and no additional mitigation measures would be required.

Mitigation Measures: No additional mitigation measures would be required other than those recommended for the proposed project.

Impact: Increased Consumptive Use of Carmel Valley Aquifer

Most of the projects listed in Table 19-1 as having the potential to create cumulative groundwater impacts are located in or adjacent to the Carmel Valley. None of them are upstream or upgradient of Rancho San Carlos; consequently, none of them would affect groundwater or surface water conditions within Rancho San Carlos. The only impact that would be increased by the other projects would be the impact on offsite water users. The other projects would presumably obtain their water supply from groundwater and surface water in the Carmel Valley or from aquifers upgradient of the Carmel Valley aquifer. The total number of dwelling units for the projects (1,581) is about four and a half the number of dwelling units for the proposed project. Water use factors for residences in these developments were not provided, but many of the developments include similar combinations of deluxe homes, country club-type facilities, and low-income or inclusionary housing units. Based on the assumption that the overall water demand per residence, visitor unit, commercial use, and recreational use for all of the projects is the same as that for the Santa Lucia Preserve, the combined consumptive use of water for these projects would be approximately 1,449 af/yr.

Unlike the Santa Lucia Preserve, some of the cumulative projects are replacing preexisting agricultural or other open space uses. In many cases, the overall net consumptive use of water decreases when the land is converted from agricultural to residential use. The Monterey Peninsula Water Management District (MPWMD), which has jurisdiction over allocation of water connections for community developments within its boundaries (including most of the cumulative projects), generally expects developers to achieve a net water savings (Fuerst pers comm.). MPWMD does not

have a uniform policy on this matter, however, and each proposed development is evaluated on a case-by-case basis. MCWRA has a policy that requires developers to achieve a net 10% water savings relative to prior water use on the site.

The cumulative projects probably would not increase the net consumptive use of water in the Carmel Valley because of the expectations and regulations of MPWMD and Monterey County Water Resources Agency (MCWRA) regarding water use for land use conversion projects. Thus, the cumulative impact of these projects and the Santa Lucia Preserve project is no greater than the direct impact of the Santa Lucia Preserve project alone.

Mitigation Measure: No mitigation measures are required.

Runoff, Flooding, and Water Quality

As stated in the section on geology and soils, individual impacts related to flooding and water quality are considered significant. The proposed project would also contribute to cumulative impacts of flooding and urban pollution in the Carmel Valley. Extensive development in the Carmel Valley has exposed people and property to catastrophic flooding of the Carmel River. Development of urban land uses has also resulted in pollution of surface waters. Both of these issues are described briefly below.

Impact: Increased Floodflows on the Carmel River

The natural rainfall-runoff process is altered by urbanization. Part of the land is covered by impervious materials. As a result, urbanization increases the stormwater runoff volumes and rates and possibly causes or aggravates flooding of downstream areas. Extended periods of heavy rainfall have produced large catastrophic floods, which have damaged property by erosion, flotation, and inundation and by depositing debris against bridges and on downstream properties. Significant floods have occurred on the Carmel River numerous times in the past and are well documented. Most recently, the Carmel River flooded in March 1995, resulting in substantial damage.

Individual projects are required to implement best management practices (BMPs) to attenuate peak floodflows in accordance with the Monterey County Erosion Control Ordinance. Although intuitively it would appear that this would reduce the potential for flooding in the Carmel Valley, the resultant composite hydrograph of all the tributary inflows may actually have a greater peak flow. Structures that delay the peak runoff could cause the peaks to coincide with peak runoff from tributaries higher in the Carmel River watershed. Because implementation of the project and other proposed projects *and auxiliary units* could increase floodflows on the Carmel River and subject people and property to flooding, this cumulative impact is considered significant. To reduce this impact to a less-than-significant level, the following mitigation measure should be implemented.

Mitigation Measure: Implement BMPs so That Flooding in the Carmel River Is Not Aggravated. Stormwater runoff BMPs should be designed and implemented so that flooding in the Carmel Valley is not aggravated. For each project, the applicant shall develop 100-year floodflow hydrographs for discharges from the project site to the Carmel River and submit them to the MCWRA. Ideally, these could be submitted as modules that include projected land uses and proposed BMPs and could be incorporated into a HEC-1 or other flood hydrograph model. The resultant floodflows should be compared with the existing Carmel River hydrograph to ensure that flooding in the Carmel Valley is not aggravated by the project. As a result of this analysis, modification of the proposed BMPs may be necessary. The mitigation measure, "Design and Implement Stormwater Runoff BMPs so That Flooding in the Carmel Valley Is Not Aggravated", recommended for direct project impacts is consistent with this mitigation measure for cumulative impacts.

Impact: Potential Degradation of Carmel River Water Quality

Cumulative development in the Carmel Valley could degrade water quality by increasing urban stormwater runoff and increasing the sediment loading in the river. Urban stormwater runoff is recognized as a major source of pollution that can adversely affect receiving waters. During dry periods, pollutants accumulate on the land surface. These pollutants include inorganic chemicals and minerals (metals, salts), oil and grease from parking areas and roads, synthetic organic chemicals (detergents), oxygen-demanding and disease-causing wastes (animal waste), fertilizers, and pesticides, which are common household substances. At the beginning of the rainy season, the accumulated pollutants are washed off surfaces and are typically conveyed directly to streams via storm drain infrastructure.

Sediment is another pollutant that is associated with urban development. Sediment itself is a pollutant and also transports many substances such as nutrients, hydrocarbons, and metals. Construction activities expose disturbed and loosened soils to erosion from rainfall, water, and wind. Most natural erosion occurs at slow rates; however, the rate increases when the land is cleared or altered and left disturbed. Construction activities remove the protective cover of vegetation.

Excessive sediment can cause increased turbidity and reduced light penetration, resulting in the reduction in prey capture for predators, reducing light available for photosynthesis, clogging of gills of fish and filters of aquatic invertebrates, reduced spawning and juvenile fish survival, smothering of bottom-dwelling organisms, changes in substrate composition, and reduction in aesthetic values. Concentrations of nutrients and other pollutants (such as metals and certain pesticides) associated with sediment particles could also increase. Although these effects are usually short term and greatly diminish after revegetation, sediment and sediment-borne pollutants may be remobilized under suitable hydraulic conditions. The cumulative water quality impacts as a result of urban land use and construction activities are considered significant.

Mitigation Measure: Implement BMPs to Protect Water Quality. Urban pollutant and construction activity BMPs should be designed and implemented to protect water quality for each project. Although erosion control measures are required by RWQCB (through the NPDES permit) for projects greater than 5 acres and the county requires erosion control measures as condition of approval for grading permits, many activities are unregulated (such as oil leaking from cars). BMPs such as oil and grease separators, vegetative buffer strips, street cleaning, and storm drain stenciling are effective measures that can reduce urban pollutant loads. The mitigation measure, "Implement BMPs to Control Urban Pollutants", recommended for direct project impacts is consistent with this mitigation measure for cumulative impacts.

Fisheries

As mentioned in Chapter 10, "Fisheries", use of groundwater may result in the loss of fisheries habitat. The cumulative impact of the proposed project, in combination with the pending, approved, and proposed projects, would result in a potentially significant impact on fisheries of the Carmel River through degradation of surface water quality. For cumulative impacts on surface water quality, refer to information on surface water quality listed above.

Biological Resources

Impact: Ongoing Cumulative Loss and Degradation of Regional Native Communities and Associated Wildlife Habitats

Extensive past and proposed development in the Carmel Valley and elsewhere on the Monterey Peninsula have reduced the regional extent and quality of native communities (such as oak woodlands and savannas, coastal terrace prairie, and riparian and wetland habitats). The Santa Lucia Preserve is currently one of the largest blocks of undeveloped native habitat in this region.

The loss of about 2,000 acres of native habitat *from development of the proposed project,* will have adverse impacts on local plant and wildlife populations *(The 2,000 acres includes all building envelopes [or "homelands"] and other uses identified in the comprehensive development plan; auxiliary units would be developed within these building envelopes and, consequently, the 2,000 acres represents cumulative development of the proposed project and auxiliary units.).* This loss, however, will be largely mitigated by the designation of 17,815 acres as permanent open space as part of the proposed project. Improved management of these designated preserve lands (i.e., reduced grazing intensity, control of invasive exotic plants, and implementation of erosion control and soil protection programs) will increase the value of these lands for native habitats and wildlife. Even with the enhancement that would occur under the proposed resource management regime and the mitigation measures proposed by the applicant and recommended in this EIR, the proposed

project would contribute to regional losses of important native communities from past, approved, and pending projects. These cumulative losses are considered significant.

Mitigation Measure: Continue to Require Projects to Minimize Impacts on Important Habitats. Monterey County Planning and Building Inspection Department, through its review of projects and through the environmental review process, should ensure that habitat losses are minimized through avoidance and sensitive site planning. The proposed project adheres to this mitigation because much of the study area will be protected and enhanced under the proposed resource management plans, and mitigation will be employed to reduce impacts on oak woodlands and savannas, coastal terrace prairie, and landmark trees to less-than-significant levels.

Traffic

This section addresses the potential cumulative impacts of increased traffic from the proposed project combined with impacts of the auxiliary units and cumulative impacts relates to construction of the new Los Padres dam; regional cumulative impacts are addressed in Chapter 12, "Traffic".

Impact: Increased Traffic from Auxiliary Units

This analysis is based on the description of the number of auxiliary units provided under "List of Pending and Approved Project in the Vicinity of Rancho San Carlos". The Institute of Transportation Engineers Trip Generation Manual does not provide trip generation data for caretaker or senior citizen units located on the same lot as a single-family residence. Caltrans has data on trip rates for a retirement community, indicating that the average trip rate for dwelling units occupied by senior citizens is 3.3 daily trips per unit.

The caretaker units can be slightly larger than the senior citizen units, and the caretaker units are not limited to two-person occupancy as are the senior units. By definition, the caretaker unit will not generate peak-hour trips entering or leaving the ranch because the occupant must be primarily employed onsite. Trip generation characteristics of the caretaker units were considered similar to those of the multifamily inclusionary housing of the proposed project. These units are estimated to generate 5.0 daily trips per unit, of which 1.4 daily trips would exit the ranch. Five percent of these trips are estimated to occur during the p.m. peak hour.

Applying these rates of the projected maximum of 149 caretaker/senior citizen units at buildout results in 209 daily off-ranch trips, of which 10 trips would occur during the p.m. peak hour.

The trips generated by the guests are a standard part of a residential unit trip generation and are already included in the trip generation used for market rate homes. Even though separate units could be provided for guests, the market rate homes are not anticipated to have a higher visitor rate than the Via Los Tulares residential development, which was surveyed to determine the trip generation of market rate homes.

The caretaker/senior citizen units might potentially increase the forecasted off-ranch peak hour trip generation at buildout by 4.7%.

This increase is not large enough to affect the conclusions of the EIR; all forecasted levels of service with the ranch at buildout were unchanged by the inclusion of the caretaker, senior citizen, and guesthouse units.

Mitigation Measure: No additional mitigation measures are required other than those recommended in Chapter 13, "Traffic".

Impact: Increased Traffic Associated with the New Los Padres Dam

One other large project in the foreseeable future is the construction of the New Los Padres Dam. If approved by voters in 1995, the construction of this project would begin in 1999, after the design phase of the Santa Lucia Preserve project. The New Los Padres Dam project is in the Cachagua area and dam construction traffic would impact Carmel Valley Road because traffic would use Carmel Valley Road to access the dam site. The EIR/EIS for the dam project indiciates that this impact would be temporary and proposes to mitigate traffic impacts to Carmel Valley Road with the mitigations listed in Volume II of the Monterey Pennisula Water Supply Project EIR/EIS (SCH# 87092203). Cumulative impacts to Carmel Valley Road would be signficant after 1999 due to construction vehicle traffic and area growth only if planned roadway improvements to Carmel Valley Road have not been made by that time.

Mitigation Measure: No additional mitigation measures are required.

Air Quality

Impact: Increased Emissions Equal to 29 ppd PM10

This section describes the cumulative air quality impacts associated with future buildout of the project. The cumulative analysis was performed by comparing the operational emissions of future buildout to the MBUAPCD emission thresholds described in the MBUAPCD's draft CEQA Air Quality Guidelines (MBUAPCD 1995).

A project is assumed to have cumulative impacts in terms of ozone precursors if it is found to be inconsistent with the MBUAPCD's most recent air quality management plan (AQMP). Projects considered to be consistent are those that have been included in the MBUAPCD's 1994 AQMP and, consequently, will not have a significant cumulative impact on regional ozone levels. As described in the air quality section, the population increase associated with the proposed project has been included in the 1994 AQMP and is therefore considered to be consistent with that plan. Consequently, the cumulative ozone precursor impacts of the project are less than significant.

The MBUAPCD's cumulative impact criteria for localized air pollutants such as CO and PM10 are based on the emission thresholds established by the District. The cumulative increase in PM10 of 29 ppd is less than the PM10 threshold of ~~86~~ *82* ppd and is considered to be less than significant. Similarly, CO modeling was conducted for the intersection (Carmel Valley Road and Rancho San Carlos Road) showing the highest level of traffic congestion associated with cumulative development. The modeling results found that such development would not cause or contribute to violations of the state or federal CO standards and consequently, cumulative CO impacts are less than significant.

Mitigation Measure: No mitigation measures are required.

Noise

Impact: Imperceptible Increase in Noise Levels

As mentioned in Chapter 15, "Noise", the traffic study for the project evaluated traffic conditions under no-project, CDP-GMPAP conditions, and buildout conditions under two background development scenarios. The first background scenario is for 1992 plus approved projects. This is the scenario analyzed in the noise report to evaluate the direct effects of the project on traffic noise. The second scenario is for 1992 plus approved projects plus proposed projects and includes all currently foreseeable development in the area. This scenario, in effect, constitutes the cumulative condition.

No other projects in the area, either approved or proposed, will result in additional traffic on Rancho San Carlos Road or Robinson Canyon Road. Accordingly, the implementation of the project will not contribute to any cumulative traffic noise effects on these roads. On Carmel Valley Road, implementation of the project will increase traffic volumes by 8% at most. This corresponds to an increase in noise of less than 0.5 dB, which would not be perceptible. Given that traffic noise on Carmel Valley Road is currently not considered excessive and the fact that the contribution of the project to overall traffic noise levels would not be perceptible, the project is not considered to contribute to any significant cumulative traffic noise impacts along Carmel Valley Road. *As discussed above under cumulative traffic impacts, auxiliary housing units, specifically caretaker/senior citizen units, might potentially increase the forecasted off-ranch peak hour trip generation a buildout by*

4.7%. This small increase has, for all practical purposes, no effect on the cumulative traffic noise modeling results and accordingly no effect on the significance conclusions for cumulative traffic noise.

Because noise from construction will be temporary, it will not result in any significant cumulative noise impacts. Noise generated by residents and users of other facilities is not considered to contribute to a significant cumulative noise effect because this noise will be limited to localized areas and will be intermittent.

Mitigation Measure: No mitigation measures are required.

Public Services and Utilities

Cumulative impacts on these public services may result from the proposed project and projects located near the proposed project.

Impact: Cumulative Demand for Law Enforcement

The proposed project would contribute to the increased demand for law enforcement from the Monterey County Sheriff's Department, which is experiencing an increased caseload and reduction in staff. Although the proposed project results in a less-than-significant impact on law enforcement, the proposed project, when combined with other projects, could result in a cumulative impact on law enforcement.

Mitigation Measure: Require Developers to Contribute to Law Enforcement Fund. Monterey County should require developers to contribute to a law enforcement fund to offset the demand caused by new development in Monterey County.

Impact: Cumulative Demand for Fire Protection

The proposed project will not have a cumulative impact on demand for fire protection because the project proposes to establish an onsite fire department.

Mitigation Measure: No mitigation measures are required.

Impact: Cumulative Increased Demand for Schools

Elementary schools located within the Carmel Unified School District are site impacted and will not be able to accommodate additional students without the use of portable classrooms. Additionally, the high school and junior high school are reaching capacity for student enrollment. The proposed project would contribute to a significant cumulative demand for school facilities in the Carmel Unified School District. In addition to Policy 47.2.1 of the Monterey County General Plan, which implements school impact fees, further mitigation is recommended to reduce this impact. To reduce this impact to a less-than-significant demand, the following mitigation measure should be implemented.

Mitigation Measure: Implement Year-Round Schools within the Carmel Unified School District. The Carmel Unified School District should implement year-round schools as school facilities become site impacted. Year-round schools accommodate a greater number of students while utilizing the same facilities and personnel resources.

Impact: Cumulative Generation of Solid Waste

Landfills available to serve Monterey County are operating at varying levels of capacity. Because landfills are available to service development in Monterey County, including the Marina Landfill, which is projected to have approximately 90 years of remaining capacity, the proposed project's cumulative impact on solid waste disposal is considered less than significant.

Mitigation Measure: No mitigation measures are required.

Cultural Resources

Impact: Potential Degradation or Loss of Important Cultural Resources

Development of the proposed project in combination with pending, approved, and proposed projects could result in damage to or loss of important historic and prehistoric archaeological resources in the region. However, through the environmental review process for new development, cultural resources are required to be evaluated, and mitigation measures are required to be implemented. Because of the site-specific environmental review requirements imposed on new development in Monterey County, the cumulative impact on cultural resources is considered less than significant.

Mitigation Measure: No mitigation measures are required.

Chapter 20. Alternatives

CALIFORNIA ENVIRONMENTAL QUALITY ACT REQUIREMENTS

Section 15126(d) of the State CEQA Guidelines requires a discussion of a reasonable range of alternatives to the proposed project or to the location of the proposed project, that could feasibly attain the basic objectives of the project. The comparative merits of the alternatives also should be presented. CEQA provides the following guidelines for discussing alternatives to a proposed project:

> If there is a specific proposed project or a preferred alternative, explain why the other alternatives were rejected in favor of the proposal if they were considered in developing the proposal.
>
> The specific alternative of the "No-Project" also shall be evaluated along with the impacts of this alternative. If the environmentally superior alternative is the No-Project Alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives.
>
> The discussion of alternatives shall focus on alternatives capable of eliminating significant adverse effects or of reducing them to a level of insignificance, even if these alternatives would partially impede the attainment of the proposed objectives, or would be more costly.
>
> If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative shall be discussed, but in less detail than the significant effects of the project as proposed.
>
> The range of alternatives required in an EIR is governed by the "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The key issue is whether the selection and discussion of alternatives fosters informed decision-making and informed public participation. An EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative.

OVERVIEW OF THE ALTERNATIVES SELECTION PROCESS

The alternatives selection process involves the following sequence of steps:

- Identify the project objectives.
- Determine the significant impacts to be avoided or reduced.
- Develop a broad list of alternatives.
- Develop screening criteria for feasibility.
- Screen alternatives.
- Evaluate those that passed the screening or explain why an alternative was rejected as infeasible.

Project Objectives

As stated in Chapter 2, "Project Description", of this EIR, the project objective is to establish a permanent preserve for native plants and wildlife habitat while pursuing limited development (i.e., a residential community that is sustainable by providing visitor-serving accommodations, local commercial, and recreational facilities) ~~of~~ *clustered on* the least environmentally sensitive land.

The project applicant, the Rancho San Carlos Partnership, has elaborated on this objective in its combined development permit application materials. The applicant's objectives are stated more specifically below.

Resource Protection Objectives

- Actively promote the native biological diversity and integral ecosystems; guide all development and ranching activities consistent with resource-oriented principles and standards.
- Secure long-term protection of natural resources by the creation of an independent conservation organization, the Santa Lucia Conservancy, which will manage, restore, protect, and enhance the resources in perpetuity.

Community within a Preserve Objectives

- Incorporate a residential settlement - limited in perpetuity - as an integral, interactive part of a healthy rural ecosystem - a community within a preserve.

- Preserve a sense of place by providing support uses (e.g., employee housing, commercial and recreational uses) capable of sustaining the community by itself while reducing impacts (e.g., traffic) on the surrounding community.

Sustainability

- Incorporate a small, vital residential community that provides the philosophical, cultural, and financial support required for the long-term preservation of the natural resources.

Significant Impacts

All of the impacts of the proposed project could be reduced to a less-than-significant level through implementation of mitigation measures as specified in this EIR. Through the applicant's resource constraints planning process, the project avoids many of the sensitive biological and cultural resources onsite; all of the identified significant impacts on these sensitive resources can be reduced to a less-than-significant level through additional avoidance, compensation, and other appropriate mitigation measure. Thus, reducing the size of the proposed development is the only meaningful way to reduce impacts. Reducing the size of the development could reduce:

- demand for groundwater and associated impacts;

- surface water hydrology runoff, flooding, and water quality impacts;

- traffic through the intersection of Rancho San Carlos Road/Carmel Valley Road; and

- public service impacts.

Alternatives Considered and Screening Criteria

Development of the List of Alternatives

A broad range of alternatives was developed for consideration in this EIR through a thorough review of planning documents for the project site, conversations with Monterey County planning staff, and representatives of the applicant.

Screening Criteria

Screening criteria were developed based on the need to meet project objectives and reduce or avoid significant impacts of developing the proposed project. The screening criteria are presented below. An alternative must:

- result in the long-term protection of open space for grazing, recreation, and resource conservation of at least 14,467 acres of Rancho San Carlos in perpetuity;
- provide a mix of land uses on the least sensitive habitats to support a residential community so that offsite travel is reduced and a viable community is established;
- generate sufficient revenues both initially and over the long term to fully support the growth limitation, the resource management program, and the residential management program;
- be consistent with the Monterey County Inclusionary Housing Ordinance Chapter 18.40, which requires 15% of the total number of housing units to be reserved for inclusionary housing; and
- be consistent with the GP, the GMPAP, and Board Resolution No. 93-115.

Results

Table 20-1 lists the alternatives that were considered and the results of the screening process. The table indicates whether the alternative was considered feasible or why it was rejected as infeasible. Based on the results of the screening process, five alternatives are evaluated in this EIR: the No-Lodge Alternative, the Reduced-Lodge Alternative, the No-Golf Trail Alternative, the No-Project Alternative (Maintenance of Existing Conditions), and the No-Project Alternative (Existing Lots of Record).

Table 20-1. Results of Alternatives Screening Process

Alternatives Considered	Results of Screening
1. No-Project Alternative (Existing Lots of Record)	
This alternative involves developing and subdividing the existing lots of record for a total of approximately 323 lots.	This alternative would result in greater environmental impact than the applicant's proposed project because the lots are dispersed throughout the ranch, which would require massive extension of roadways and infrastructure, many lots are located on environmentally sensitive areas (including areas of chaparral, mixed evergreen forest, riparian habitat, oak savanna, and steep slopes), no supporting uses to minimize offsite travel or provide a well-balanced community would be provided, and long-term resource protection would not be provided; in summary, this alternative is inconsistent with all screening criteria, however, it is evaluated as a No-Project Alternative because it could be reasonably expected that these lots would be developed if the project were not approved.
2. Dense-Cluster Alternative	
This alternative involves 425 residential units (40 acres/unit) tightly clustered on no more than 2,500 acres in three or four locations (San Francisquito Flat, Touche, Potrero, and San Clemente); a commercial ranch center and the balance of the ranch as a preserve; no visitor-serving facilities would be developed.	This alternative would result in greater environmental impacts than the applicant's proposed project because the areas that would be developed include sensitive grasslands, wetlands, and riparian corridors; tightly clustered development would eradicate contiguous habitat; viewsheds from Robinson Canyon Road would be adversely affected; concentrated development in Potrero Canyon would relate to existing urban development in Carmel Valley, thereby generating offsite traffic impacts; groundwater and surface water impacts would be concentrated in the development areas; a sewer system would be required precluding effective use of reclaimed wastewater; and long-term resource protection would not be able to be financially supported due to lower revenues that would be generated. This alternative is inconsistent with the screening criteria and is not evaluated in this EIR.
3. No Commercial Alternative	
This alternative involves 256 residential units, 150-room visitor-serving accommodations and golf trail as proposed, but no commercial or ranch center. The balance of the site would be a preserve.	This alternative would result in an increase in offsite traffic by requiring residents to travel offsite to meet their needs for goods and services; long-term resource protection may not be able to be financially supported due to lower revenues that would be generated under this alternative. This alternative is inconsistent with the screening criteria and is not evaluated in this EIR.
4. The Reduced-Lodge Alternative	
This alternative involves reducing the lodge from a 110-room full-service visitor accommodation to 50 guest bungalows with no central facilities and 297 residential units, 40 guest units in the hacienda, a ranch center, sporting center, equestrian center, employee recreation center, golf trail, and a preserve.	This alternative would reduce environmental impacts and is therefore evaluated in this EIR.
5. The No-Lodge Alternative	
This alternative involves 297 residential units, 40 guest units in the hacienda, a ranch center, sporting center, equestrian center, employee recreation center, golf trail, and preserve. No lodge would be developed under this alternative.	This alternative would reduce the environmental impacts compared to the applicant's proposed project because impacts relating to the lodge would be avoided. This alternative is evaluated in this EIR.

Table 20-1. Continued

Alternatives Considered	Results of Screening
6. No-Golf Trail Alternative	
This alternative involves the project as proposed, with 297 residential units, 40 guest units in the hacienda, a 110-room full-service visitor accommodation, ranch center, sporting center, equestrian center, employee recreation center, and the preserve within the GMPAP. No golf trail would be developed under this alternative.	This alternative would reduce the environmental impacts compared to the applicant's proposed project because impacts relating to the golf trail would be avoided. This alternative is evaluated in this EIR.
7. Relocated Golf Trail Alternative	
This alternative involves relocating the golf trail to some other portion of the project site to reduce or avoid significant environmental impacts.	The golf trail requires approximately 300 acres of relatively flat terrain. Additionally, to avoid or reduce significant environmental impacts, the site should be relatively open (i.e., few trees), should not contain substantial quantities of wetlands or other sensitive habitats, and should be reasonably close to the ranch center to reduce travel time. In searching for a location for the golf trail, the applicant considered four locations: the Potrero area, San Francisquito Flat, Mesa, and Touche/San Clemente area. The Potrero area was rejected because 300 acres of developable land for a golf course was not available and was considered too remote from the community. The San Francisquito area was rejected because of the potential for significant wetland impacts, and the Mesa area was rejected for being too remote and because access would have to be from Robinson Canyon Road. The Touche/San Clemente is the site of the proposed golf trail because it represented the most suitable location based on environmental constraints. Additionally, based on the EIR evaluation, all impacts of the golf trail can be mitigated to a less-than-significant level. A relocated golf trail is not evaluated in this EIR because the impacts of the golf trail can be mitigated, relocation of the golf trail would *not* eliminate significant environmental impacts, or would not be feasible from a land use planning perspective.
8. Offsite Alternative	
This alternative involves preserving a similarly sized area of similar natural resource value and developing a sustainable community.	An offsite alternative is not evaluated in this EIR because there is no other property in the County bearing an appropriate land use designation to allow for a similar project; the applicant cannot reasonably acquire, control, or otherwise have access to another comparable site on which to create a similar project.
9. No-Project Alternative (Maintenance of Existing Conditions)	
This alternative assumes continuation of existing conditions, including management and operation of a cattle ranch and use of the hacienda.	Although this alternative would not fulfill project objectives, it is required to be evaluated under CEQA.

DESCRIPTION AND EVALUATION OF ALTERNATIVES TO THE PROPOSED PROJECT

No-Lodge Alternative

Description

A lodge would not be developed under this alternative. All other elements of the proposed project would remain the same: development of 350 residential units, 50 guest units in the hacienda, ranch center, sporting center, equestrian center, and employee recreation center, golf trail, and the preserve.

Impact Discussion

Economics. Compared to the economic effects of the proposed project, exclusion of the lodge would reduce direct and secondary employment generated by construction and operation of the project. The reduction in construction-related employment can not be estimated; however, exclusion of lodge facilities would reduce nonresidential construction from approximately 207,000 square feet (sf) to 73,000 sf, substantially reducing the employment required to construct nonresidential facilities.

Permanent employment generated by annual operations and maintenance of project facilities would also be reduced under this alternative. As indicated by Table 5-1, exclusion of the lodge would reduce onsite employment from an estimated 227 jobs to 126 jobs. Similarly, secondary employment generated within the region by project operations would be reduced from an estimated 462 jobs to 311 jobs.

Implementation of this alternative would have no effect on Monterey County's jobs/housing balance.

Geology and Minerals. Slightly fewer people would be exposed to seismically induced ground shaking and potential liquefaction hazards under this alterative. There would be slightly less changes in topography and overcovering of the soil. The amount of aggregate and Carmel Stone extracted from the site would be slightly decreased. There would be no change in the potential effect on paleontological resources.

Soils. The amount of vegetation removed, soil compaction, and resultant accelerated erosion and sedimentation would be slightly reduced under this alternative.

Groundwater Hydrology, Stream Base Flow, and Water Supply and Demand. The lodge would have an estimated *net* ~~gross~~ annual water demand of ~~41.31~~ *44.3* acre-feet per year (af/yr). ~~of which 15.15 af/yr would be for irrigation uses that would be supplied by reclaimed water. The lodge would generate approximately 20.93 af/yr of wastewater, which would be treated at the wastewater treatment plant. Thus, the lodge would produce slightly more reclaimed water than it would use.~~ *Of this, 29.7 af/yr would be for indoor use, which would be collected by the wastewater collection system and retained for use at the golf trail.* The net consumptive use of groundwater (allowing for reclaimed water use) would equal the *net* ~~gross~~ pumpage for *all* ~~indoor~~ uses minus the *amount collected for reclaimed use* ~~return flow from irrigation uses~~, or ~~23.13~~ *14.6* af/yr. Under the No-Lodge Alternative, net consumptive use of groundwater for the lodge would decrease by ~~23.13~~ 14.6 af/yr. ~~but groundwater pumping would increase by 5.78 af/yr to compensate for the net decrease in reclaimed water available for irrigation uses at other project facilities. If the return flow from groundwater used for irrigation is considered, the consumptive use of groundwater would decrease by 18.51 af/yr, or 7% of the combined consumptive use for project elements included in the combined development permit.~~

Short-term local impacts caused by drawdowns near individual wells would be essentially the same as those under the proposed project, and mitigation measures for those impacts would still be required. Long-term indirect impacts related to consumptive use of groundwater, included regional water-level declines, depletion of stream base flow, decreases in area of riparian vegetation, and decreases in subsurface outflow, would all decrease by approximately ~~7~~ *5%*. This amount of decrease would not be enough to make significant impacts clearly less than significant. Consequently, the applicable mitigation measures would still be required.

Runoff, Flooding, and Water Quality. Implementation of this alternative would result in similar runoff, flooding, and water quality impacts as those under the proposed project. However, eliminating the lodge would reduce the total amount of impervious area created in the Las Garzas Creek watershed. Reducing impervious surface area would reduce the amount of runoff that could contribute to local flooding and flooding on the Carmel River. Impacts on water quality would be similar to those described under the proposed project.

Fisheries. This alternative to the proposed project would reduce potential construction-related erosion and sedimentation for the Las Garzas Creek watershed. Less water would be required for this alternative because 100 guest accommodation units would not be constructed. Although less water would be required for this alternative, reduction of fisheries habitat in Las Garzas Creek watershed would be considered a significant impact and would require similar mitigation measures as those recommended for the proposed project to reduce the impact to a less-than-significant level.

Biological Resources. Approximately 50 fewer acres of natural vegetation and associated wildlife habitat would be affected under this alternative when compared with the proposed project. The lodge area footprint includes approximately 28 acres of oak woodland and savanna, about 14 acres of coastal terrace prairie, and roughly 7 acres of riparian habitat.

Implementing this alternative would result in the loss or degradation of about 547 acres (5.5%) of oak communities and associated wildlife habitat, compared with 575 acres (6%) under the preferred alternative. This impact is considered significant because a substantial reduction in the extent of an important native community would occur. Implementing the mitigation involving enhancement of oak woodland and savanna habitat described for the proposed project would reduce this impact to a less-than-significant level.

Under this alternative, the loss of coastal terrace prairie would be considered less than significant because only 2.3% of the total area occupied by this community on the project site would be affected. No mitigation is required.

Two fewer landmark trees would be removed under this alternative relative to the proposed project. The mitigation measure described for the proposed project should be implemented to compensate for the loss of approximately 227 landmark trees.

All other impacts discussed for the proposed project would occur under this alternative. A slight reduction in the loss of area utilized by special-status wildlife with potential to occur in habitats on the lodge site would be affected under this alternative.

Aesthetics. Implementation of this alternative would result in the following impacts.

Changes in Views from Robinson Canyon Road. For the development plan, the lodge is proposed to be located in an area that is designated by the county as visually sensitive. Portions of the lodge would be visible from Robinson Canyon Road, a county-designated scenic road. Most elements of the lodge and appurtenant facilities would be sensitively sited to fit into the terrain and vegetation patterns of the area or they would be screened or partially screened from views from the scenic road by vegetation. The proposed architectural characteristics of the lodge (e.g., subdued colors and colors and forms reminiscent of the hacienda) would provide a high level of design consistency with the landscape and other existing and proposed development, which would result in high visual unity. Because the proposed lodge did not substantially reduce intactness or vividness of views from Robinson Canyon Road, visual impacts of the lodge were identified as less than significant. Eliminating the lodge from the development plan under this alternative would maintain a slightly higher level of intactness and vividness for views from Robinson Canyon Road. Because visual impacts of the lodge were not determined to be substantial, eliminating the lodge from the development plan would not substantially affect views from Robinson Canyon Road. For the reasons described above, this alternative would have no substantial adverse aesthetic effects on views from Robinson Canyon Road.

Changes in Views from Private Residences. Although portions of the proposed lodge would be partially visible from some private residences located several miles south of the lodge site, visual impacts associated with views of the lodge from private residences were not determined to be significant. Eliminating the lodge from the development plan may have a slight beneficial effect but would not substantially affect the quality of views from private residences.

Changes in Views from Public Trails. Although portions of the proposed lodge would be partially visible from portions of public trails located several miles east of the lodge site, visual impacts associated with views of the lodge from public trails were not determined to be significant. Eliminating the lodge from the development plan would slightly improve the quality of views from public trails; however, this alternative would not substantially affect the quality of views from public trails.

Traffic. Implementation of this alternative would result in 510 fewer daily trips, and 36 fewer p.m. peak hour trips than the proposed project. As with the proposed project, this alternative would result in significant impacts by adding traffic volumes to facilities that would already be operating at unacceptable levels of service. This would require mitigation measures similar to those recommended for the proposed project to reduce the impacts to a less-than-significant level.

Internal traffic volumes within the preserve under this alternative would be less than the proposed project; however, it would still be high enough to create significant impacts on Rancho San Carlos Road and would require the same mitigation measures as the proposed project.

The extent and duration of construction traffic impacts would be slightly less than the proposed project because the lodge would not be constructed; however, the construction traffic would be high enough to result in significant impact and would require the same mitigation measures as the proposed project.

Climate and Air Quality. Worst-case daily construction emissions under this alternative would be similar to those generated by the proposed project, although the period of construction would be shorter because the lodge would not be constructed. This would result in a lower overall level of emissions over the life of the project. However, daily construction-related emissions would still be high enough to create significant impacts under this alternative.

Operational emissions would be slightly lower under this alternative than under the proposed project because of the reduction in vehicle trips generated by removal of the lodge. Because impacts associated with operational emissions would be less than significant under the proposed project, they also would be less than significant under this alternative.

All odor impacts associated with this alternative would be the same as those under the proposed project. Odor impacts would be significant under the proposed project; therefore, odor impacts would be significant under this alternative. It should be noted that this alternative would not conflict with the MBUAPCD 1994 Air Quality Management Plan.

Noise. In general, noise impacts that would occur with implementation of this alterative would be the same as those identified for the proposed project. Traffic volumes on nearby roadways would be slightly less under this alternative because no traffic would be generated by the lodge. The change in traffic volume, however, would be so small that there would be no perceptible change in traffic noise and related impacts. A doubling or halving of traffic volume is generally needed before

a perceptible change in traffic noise occurs and the change in volume associated with removal of the lodge would be substantially less than 50%.

The extent and duration of construction noise impacts would be slightly less than those identified for the proposed project because the lodge would not be constructed. All other impacts associated with exposure of residences and wildlife to construction noise and exposure of residences to noise from the Carmel Associated Sportsmen's Gun Club would be the same as those under the proposed project.

Public Services and Utilities. This alternative would reduce the demand for water, electricity, and telephone and cable services for the guest accommodations. Additionally, less wastewater (approximately 16,500 gallons per day) and less solid waste per year would be generated. This alternative will not affect the number of students attending the Carmel Unified School District; however, without the guest accommodations less impact fees would be collected because less commercial space would be constructed. This alternative would result in a minimal change in demand for law enforcement and fire protection compared with the proposed project. The impacts of this alternative would be similar to, but slightly less than, the proposed project.

Cultural Resources. This alternative would result in the same cultural resource impacts as those for the proposed project because construction of the lodge would not affect any known important cultural resources; therefore, not developing the lodge would not reduce cultural resource impacts.

Social Effects. The exclusion of lodge facilities would have little effect on the social characteristics of the proposed project, as described in Chapter 18, "Social Effects". The reduction of traffic associated with operation of lodge facilities would represent a minor improvement in the project's compatibility with the social characteristics of the surrounding area.

No-Project Alternative (Maintenance of Existing Conditions)

Description

CEQA states that an EIR must always analyze the No-Project Alternative. The No-Project Alternative must describe maintenance of existing environmental conditions as a baseline for comparing impacts of the alternatives (Dusek v. Redevelopment Agency [1986] 173 Cal. App. 3d 1029).

This alternative assumes continuation of the present management at Rancho San Carlos. The environmental setting described in this EIR reflects existing conditions at Rancho San Carlos. Residential, visitor-serving, commercial, or recreational facilities would not be developed under this alternative. Resource management plans would not be implemented under this alternative.

Impact Discussion

Economics. Implementation of the No-Project Alternative would result in no change to local and regional employment levels and would not affect Monterey County's jobs/housing balance.

Compared to the economic effects of the proposed project, implementation of the No-Project Alternative would result in the loss of construction employment and the loss of an estimated 227 direct and 462 secondary jobs. The loss of potential onsite employment and housing would have little effect on Monterey County's jobs/housing balance.

Geology and Minerals. No increased exposure of people and structures to geologic hazards would occur under this alternative. No changes in ground surface relief, potential destruction of paleontological resources, or mineral extraction would occur.

Soils. There would be no change in the amount of vegetation removed, soil compaction, and resultant potential accelerated erosion and sedimentation under this alternative. There would be no potential adverse effects caused by failure of onsite septic systems.

The rate of accelerated erosion and sedimentation caused by present grazing management conditions is expected to continue.

Groundwater Hydrology, Stream Base Flow, and Water Supply and Demand. Under the No-Project Alternative, consumptive use of groundwater at the site would remain at the existing level of approximately 10.36 af/yr, or about 4% of the net consumptive use for the proposed project. Short-term, localized impacts related to drawdown near individual wells would be avoided. Long-term impacts on regional groundwater levels, stream base flow, riparian vegetation, and subsurface outflow would also be avoided. The Cattle Grazing Plan would not be implemented, however, and the expected beneficial effects of the plan on groundwater recharge would not be realized. These benefits could more than offset the adverse effects of groundwater pumping for the project, in which case stream base flow, riparian vegetation, and offsite water users would forgo a net beneficial effect if the project is not implemented.

Runoff, Flooding, and Water Quality. The No-Project Alternative would not result in any adverse impacts on runoff, flooding, or water quality. Beneficial effects on surface water hydrology and runoff would not be realized under this alternative because the proposed grazing plan would not be implemented.

Fisheries. Under the No-Project Alternative, the watersheds and fisheries located within the proposed project area would not be affected.

Biological Resources. No impacts on biological resources would result from the No-Project Alternative. Beneficial impacts of the proposed project, such as improvements to native grass stands

from grazing regime modifications and native habitat improvement from the control of invasive exotics, would not occur because the resource management plans developed by the project applicant would not be implemented.

Aesthetics. Continuing the present management at Rancho San Carlos would not produce any new adverse effects on the project site. Visual quality for the project site would remain the same as that under existing operations.

Traffic. Under this alternative, none of the traffic impacts identified for the proposed project would occur.

Climate and Air Quality. Under the No-Project Alternative, no project-related construction would occur at the project site; therefore, there would be no significant construction-related air quality or odor impacts. Similarly, there would be no operations-related emissions increase because there would be no increase in the number of residential units or associated vehicle trips. Therefore, there would be no significant operations-related air quality impacts. There would also be no significant operational odor impacts because neither the odor-generating facilities nor the sensitive odor receptors would be built. This alternative would not conflict with the MBUAPCD 1994 Air Quality Management Plan.

Noise. Under this alternative, none of the noise impacts identified for the proposed project would occur.

Public Services and Utilities. Under the No-Project Alternative, there would be no increase in demand for water, schools, law enforcement, fire protection, and cable and telephone services. Additionally, no increase in the generation of solid waste or wastewater would occur.

Cultural Resources. Under the No-Project Alternative, no impacts on cultural resources resulting from new development would occur. Resources present on the property would continue to be affected by grazing activities and other ranch-related activities. Historic resources might continue to be maintained; however, it is also likely that they would be demolished and replaced as necessary. Historic resources, such as the Wright/Stevenson Cabin, would continue to degrade.

Social Effects. Implementation of the No-Project Alternative would result in no change in the social characteristics of the project site and surrounding areas. The continued use of the site as a ranch would be compatible with surrounding areas. Implementation of this alternative would eliminate the minor social effects described in Chapter 18, "Social Effects".

No-Project Alternative (Existing Lots of Record)

Description

The Rancho San Carlos property is composed of approximately 125 legal lots of record that were land grants from the mid-1800 Mexican period, late-1800 homestead patents from the American period, or deeds for creating parcels during the early 1900s. Existing lots are located throughout the ranch and within the three different county planning areas. Parcel totals by planning area are as follows: three parcels in the Carmel Area Land Use Plan (coastal zone), 73 parcels in the Greater Monterey Peninsula Area Plan (GMPAP), and 49 parcels in the CVMP, for a total of 125 existing lots of record.

Because a number of the existing lots exceed the minimum land use densities provided for in the three land use plans that cover the ranch, additional subdivision of these lots could be pursued by the applicant. If the applicant submits a comprehensive development plan for the entire ranch, a ranchwide density of 40 acres per unit would be permitted (Board of Supervisors Resolution No. 93-115). By subdividing the existing lots, 397 new lots could be created, bringing the ranchwide total to 522 lots.

If the applicants do not pursue development under the ranchwide comprehensive development plan, (Resolution No. 93-115), the acreage within the GMPAP portion of the ranch will revert to 160 acres per unit, and the land use densities for the balance of the acreage in the CVMP (10 acres per unit) and coastal zone (CZ) areas (40 acres per unit) would remain under the existing land use designations. Subdividing existing legal lots would result in the following: 49 lots in the GMPAP, 199 lots in the CVMP and 17 lots in the CZ, for a total of 265.

In summary, 125-522 lots are possible under this alternative. Forecasting the exact number that would be pursued is speculative; however, estimating the number of lots is appropriate to establish a comparison between alternatives. Therefore, the mean of this range was selected as an appropriate unbiased number of lots assumed to be developed. This alternative is based on the assumption of 323 lots developed for single-family residences and no development of commercial, visitor-serving, or recreational facilities. Resource management plans would not be implemented, and no preserve would be created.

Impact Discussion

Economics. Compared to the effects of the proposed project, this alternative would reduce the direct and secondary employment generated by the construction of the proposed project. In particular, the elimination of commercial, visitor-serving, and recreation facilities would substantially eliminate employment required for construction and operation of these facilities. Implementation of this alternative would have little effect on Monterey County's jobs/housing balance.

Geology and Minerals. Compared to the proposed project, slightly fewer people overall would be exposed to seismically induced ground shaking and potential for liquefaction under this alternative; however, some of the lots that would be developed under this alternative would be located near or on active faults. Substantial grading, changes in topography, and overcovering of soils exceeding that of the proposed project would also be expected under this alternative due to the location of many lots in the steepest areas of Rancho San Carlos.

Soils. This alternative would have greater erosion and sedimentation impacts compared to the proposed project largely due to the location of proposed lots on steep slopes.

Groundwater, Stream Base Flow, and Water Supply and Demand. This alternative would have an estimated gross water demand of approximately 242 af/yr assuming an average annual water demand of 0.75 af/yr/dwelling unit. This demand is less than that of the applicant's proposed project. Short-term and indirect impacts on the groundwater aquifer would be reduced under this alternative compared to the proposed project, but not to less-than-significant levels. Additionally, because individual lots are involved under this alternative, it is likely that the water system would consist of individual wells and not be managed as one system; therefore, the potential for individual well operations influencing each other (e.g., by increasing drawdown) would increase under this alternative.

Runoff, Flooding, and Water Quality. This alternative would result in increased runoff, flooding and decreased water quality compared to existing conditions. Significant impacts would result because many of the lots are located on steep slopes and adjacent to sensitive riparian habitat; increased runoff, urban pollutants, and sedimentation could cause adverse effects at these locations. This alternative would result in localized impacts in the steep areas of the site that exceed the proposed project. The flooding impact on the Carmel River would be similar under this alternative compared to the proposed project.

Fisheries. This alternative could have more severe fisheries impacts than the proposed project for the reasons stated above under runoff, flooding, and water quality. The impacts of water quality on fisheries habitat would be significant.

Biological Resources. This alternative would result in the development of lots in sensitive habitats, including chaparral, mixed evergreen forest, riparian habitat, oak savanna, grasslands, and coastal terrace prairie. In addition, the dispersed nature of the lots would require the extension of roadways and infrastructure through these sensitive habitats. Direct habitat loss, disruption of wildlife corridors, and the indirect impacts associated with urban development would be greater under this alternative compared to the proposed project. The benefits of the preserve, including the resource management plan, grazing plan, and fire management plan of the proposed project, would not be realized under this alternative.

Aesthetics. This alternative would result in hillside development that would be visible from Robinson Canyon Road, a county-designated scenic road, and other important viewing locations.

Because this alternative does not assume controls for architectural characteristics, sensitive siting, or screening, the aesthetic impacts of this alternative would likely be significant and unavoidable.

Traffic. This alternative would result in slightly fewer daily and peak hour trips onsite than the proposed project; however, it would result in substantially greater offsite impacts than the proposed project because no commercial or resident-serving uses would be provided onsite, therefore requiring more offsite travel.

Climate and Air Quality. Construction and operational impacts would be similar in kind to the proposed project but would likely be less severe than the proposed project because fewer units would be developed.

Noise. No significant noise impacts would be likely under this alternative.

Public Services and Utilities. This alternative would slightly reduce the demand for water, wastewater, electricity, telephone, cable, solid waste, schools, and law enforcement services compared to the proposed project because fewer units would be developed. Fire hazards would likely be greater under this alternative due to the location of lots in fire-prone chaparral and on steep slopes, reducing the ability of fire protection equipment (e.g., pumpers) and personnel to reach residences.

Cultural Resources. This alternative would result in potentially significant impacts to cultural resources because the many lots are located in unsurveyed areas of the site where important cultural resources could be located.

Social Effects. This alternative would have little effect on the social characteristics of region.

Reduced-Lodge Alternative

Description

This alternative would reduce the lodge from a 110-room full-service visitor accommodation to 50 guest bungalows with no central facilities and would develop 297 residential units, 40 guest units in the hacienda, a ranch center, sporting center, equestrian center, employee recreation center, a golf trail, and a preserve.

Impact Discussion

Economics. The reduced scale of this alternative would slightly reduce the direct and secondary employment generated by construction and maintenance of the facilities. Implementation of this alternative would have little effect on Monterey County's jobs/housing balance.

Geology and Minerals. The impacts of this alternative are similar to the impacts of the proposed project; the difference would be fewer lodge visitors and lodge structures potentially exposed to seismic hazards. The same impacts and mitigation measures of the proposed project would apply under this alternative.

Soils. Depending on the site design, this alternative would have slightly less erosion and sedimentation impacts compared to the proposed project because there would be no central facility (i.e., main building). The impacts of the proposed project would not be substantially reduced under this alternative, and the same impacts and mitigation measures would apply.

Groundwater, Stream Base Flow, and Water Supply and Demand. This alternative would reduce the estimated gross water demand of the proposed project by approximately 12 af/yr assuming an average annual water demand of 0.204 af/unit. This reduction would not reduce the impacts of the proposed project to a less-than-significant level, and the same impacts and mitigation measures would apply.

Runoff, Flooding, and Water Quality. This alternative would result in a magnitude of increased runoff, flooding, and decreased water quality similar to the proposed project. There would be a slight reduction in impacts, but the impacts of the proposed project would not be reduced to a less-than-significant level, and the same impacts and mitigation measures would apply.

Fisheries. This alternative would result in fisheries impacts similar to the proposed project. There would be a slight reduction in impacts, but the impacts of the proposed project would not be reduced to a less-than-significant level, and the same impacts and mitigation measures would apply.

Biological Resources. This alternative would reduce the impacts on coastal terrace prairie land by less than 2 acres; all other impacts would be the same. The same impacts and mitigation measures of the proposed project would apply.

Aesthetics. This alternative would result in the same visual impacts as the proposed project, except that the main building would not be developed, slightly reducing the visual impacts at this location. The same impacts and mitigation measures of the proposed project would apply.

Traffic. This alternative would result in 348 fewer daily trips off the ranch than the proposed project; however, this would not reduce the impacts of the proposed project to a less-than-significant level, and the same impacts and mitigation measures would apply.

Climate and Air Quality. Construction and operational impacts would be similar to, but slightly less than, the proposed project. The same impacts and mitigation measures would apply.

Noise. No significant noise impacts would be likely under this alternative.

Public Services and Utilities. This alternative would slightly reduce the demand for water, wastewater, electricity, telephone, cable, solid waste, and law enforcement services compared to the proposed project; however, this reduction would not decrease the impacts of the proposed project to a less-than-significant level, and the same impacts and mitigation measures would apply.

Cultural Resources. This alternative would result in no change to impacts on cultural resources. The same impacts and the mitigation measures would apply.

Social Effects. This alternative would have little effect on the social characteristics of the region.

No-Golf Trail Alternative

Description

This alternative does not include a golf trail, but includes all other elements of the proposed project including a 110-room full-service visitor accommodation, 297 residential units, 40 guest units in the hacienda, a ranch center, sporting center, equestrian center, employee recreation center, and a preserve.

Impact Discussion

Economics. The reduced scale of this alternative would slightly reduce the direct and secondary employment generated by construction and maintenance of the facilities. Implementation of this alternative would have little effect on Monterey County's job/housing balance.

Geology and Minerals. The impacts of this alternative would be similar to the impacts of the proposed project except that the golf clubhouse would not be developed. The same impacts and mitigation measures as those of the proposed project would apply under this alternative.

Soils. This alternative would result in ~~slightly reduced~~ *continued* erosion and sedimentation impacts *in the San Clemente Creek watershed* compared to the proposed project because no ~~grading or earth-disturbing activities would be~~ *erosion and sedimentation control plan would be implemented* associated with the golf trail; *this area is experiencing gulleying and erosion from past land use priorities.* The grading of the proposed project would be reduced by approximately 292,000 cubic yards. The impacts of the proposed project would not be ~~substantially~~ reduced under this alternative, and the same impacts and mitigation measures would apply.

Groundwater, Stream Base Flow, and Water Supply and Demand. This alternative would reduce the estimated net water demand of the proposed project by approximately ~~*210*~~ *152 af/yr*. This represents a substantial reduction in water demand but ~~may~~ *would* not reduce

the impacts of the proposed project to a less-than-significant level, and the same impacts and mitigation measures would apply.

Runoff, Flooding, and Water Quality. This alternative would result in a similar magnitude of increased runoff, flooding, and decreased water quality similar to the proposed project. The potential water quality impacts of irrigating the golf trail with reclaimed wastewater would be eliminated under this alternative. The impacts associated with all other issues and mitigation measures would apply.

Fisheries. This alternative would result in fisheries impacts similar to the proposed project. A slight reduction in impacts would result but would not reduce the impacts of the proposed project to a less-than-significant level, and the same impacts and mitigation measures would apply.

Biological Resources. This alternative would reduce the impacts on oak woodlands and savannas by 53 acres; annual grasslands by 45 acres; riparian habitats by 5 acres; herbaceous wetlands by 4 acres; and dependent wildlife species, including Cooper's hawk, golden eagle, American badger, burrowing owl, California horned lark, purple martin, yellow warbler, yellow-breasted chat, and the dusky-footed woodrat. Seventy-eight fewer landmark trees would be removed under this alternative. All other impacts and mitigation measures would be the same as those of the proposed project.

Aesthetics. This alternative would result in visual impacts similar to the proposed project, except that the clubhouse and golf trail would not be developed. Their elimination from the project would not change the impact conclusions reached for the proposed project because the golf trail and clubhouse would not result in a significant visual impact. The same impacts and mitigation measures as those of the proposed project would apply.

Traffic. This alternative would result in 35 fewer daily trips than the proposed project; however, this reduction would not decrease the impacts of the proposed project to a less-than-significant level, and the same impacts and mitigation measures would apply.

Climate and Air Quality. Construction and operational impacts would be similar to, but slightly less than, the proposed project. The same impacts and mitigation measures would apply.

Noise. No significant noise impacts would be likely under this alternative.

Public Services and Utilities. This alternative would slightly reduce the demand for electricity, telephone, cable, solid waste, and law enforcement services compared to the proposed project; however, this reduction would not decrease the impacts of the proposed project to a less-than-significant level, and the same impacts and mitigation measures would apply.

Cultural Resources. This alternative would avoid impacts on CA-MNT-1700, and all other impacts and mitigation measures would apply.

Social Effects. This alternative would have little effect on the social characteristics of the region.

COMPARISON OF ALTERNATIVES AND IDENTIFICATION OF THE ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Table 20-2 provides a comparison of impacts of the alternatives evaluated in the EIR to the proposed project. The issue areas of main concern for the the proposed project based on public and agency comments include groundwater demand, traffic on Carmel Valley Road and Robinson Canyon Road, biological resources, water quality impacts, visual impacts, and cultural resources.

CEQA states that if the environmentally superior alternative is the No-Project Alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives. Maintenance of existing conditions would result in the least environmental impact because there would no impacts on resources; (however, there would not be the benefits associated with the resource management plan, grazing plan, erosion control plans, and fire management plan.) Because the environmentally superior alternative is maintenance of existing conditions, this comparison is between the four project alternatives: No-Lodge, Reduced Lodge, No-Golf Trail, and the proposed project.

Groundwater Demand

Of the alternatives evaluated, the No-Golf Trail Alternative would result in the least demand for groundwater (Table 20-2).

Water Quality

Many members of the public were concerned with the adverse effects on water quality associated with the use of fertilizers and pesticides on the golf trail. However, the overall design and management of the golf trail will preclude significant environmental impacts. Additionally, the golf trail will reduce erosion and sedimentation in the San Clemente watershed because of the implementation of the erosion control plan in an area that is experiencing severe gulleying and sedimentation from historic overgrazing.

Therefore, it was determined that the No-Lodge Alternative would have the least water quality impacts because fewer acres would be disturbed and less areas would become impervious.

Table 20-2. Comparison of Impacts of the Alternatives to the Proposed Project Alternative

Topic	No-Lodge Alternative	No-Project Alternative (Maintenance of Existing Conditions)	No-Project Alternative (Existing Lots of Record)	Reduced-Lodge Alternative	No-Golf Trail Alternative	Proposed Project
Economics	Compared to the proposed project, there would be a reduction in construction-related direct and secondary employment as well as reductions in permanent employment; onsite employment would be reduced from an estimated 227 jobs to 126 jobs, while secondary employment would be reduced from 462 jobs to 311 jobs. There would be no effect on Monterey County's jobs/housing balance.	No change to local and regional employment levels would occur; therefore, this alternative would not affect Monterey County's jobs/housing balance. Compared to the proposed project, this alternative would have an estimated 227 direct and 462 secondary fewer jobs.	Compared to the proposed project, there would be a reduction in construction-related direct and secondary employment , as well as reductions in permanent employment . This alternative would have little effect on Monterey County's jobs/housing balance.	Compared to the proposed project, there would be a reduction in construction-related direct and secondary employment , as well as reductions in permanent employment. This alternative would have little effect on Monterey County's jobs/housing balance.	Compared to the proposed project, there would be a reduction in construction-related direct and secondary employment , as well as reductions in permanent employment. This alternative would have little effect on Monterey County's jobs/housing balance.	The proposed project would result in the generation of construction- and operations-related employment. Direct operations-related employment is estimated at approximately 241 full-time positions and secondary is estimated to be 428 jobs. Implementation would have no effect on Monterey County's jobs/housing balance.
Geology and Minerals	Compared to the proposed project, there would be slightly fewer people exposed to seismic hazards, slightly less changes in topography and overcovering of the soil, a decrease in the amount of aggregate and Carmel Stone extracted from the site, and no change in potential effect on paleontological resources	No impacts on geology and minerals would occur.	Compared to the proposed project, there would be slightly fewer people exposed to seismic hazards; however, some of the lots that would be developed under this alternative could be located near or on active faults. Substantial grading, changes in topography, and overcovering of soils exceeding that of the proposed project could also be expected due to the location of many lots in the steepest areas of the project site.	Compared to the proposed project, there would be slightly fewer people exposed to seismic hazards, slightly less changes in topography and overcovering of the soil, a decrease in the amount of aggregate and Carmel Stone extracted from the site, and no change in potential effect on paleontological resources	Compared to the proposed projects, the impacts on geology and minerals would not be substantially reduced under this alternative, and the same impacts and mitigation measures would apply.	The proposed project could disrupt and destroy a limited paleontological resource as a result of site grading, and increase exposure of people and structures to seismically induced events and those related to landslides or other slope failures.

Topic	No-Lodge Alternative	No-Project Alternative (Maintenance of Existing Conditions)	No-Project Alternative (Existing Lots of Record)	Reduced-Lodge Alternative	No-Golf Trail Alternative	Proposed Project
Soils	Compared to the proposed project, there would be a reduction in removal of vegetation, soil compaction, and erosion and sedimentation	No impacts on soils would occur.	Compared to the proposed project, this alternative would have greater erosion and sedimentation impacts largely due to the location of lots on steep slopes.	Compared to the proposed project, this alternative would have slightly less erosion and sedimentation impacts because there would be no central facility (i.e., main building). The impacts of the proposed project would not be substantially reduced, and the same impacts and mitigation measures would apply.	The golf trail application includes a comprehensive erosion control plan that would reduce existing erosion and sedimentation into adjacent streamcourses. Thus, without implementation of the golf trail erosion control plan, there would be continued erosion and sedimentation. The grading of this alternative compared to the proposed project would be reduced by approximately 292,000 cubic yards. The same impacts and mitigation measures as those of the proposed project would apply.	The proposed project could accelerate erosion and sedimentation on a ranch-wide basis, and reduce soil productivity and revegetation potential. Soil erosion and sedimentation, however, would be reduced through implementation of proposed erosion control plans and the resource management plan.
Groundwater Hydrology, Stream Base Flow, and Water Supply and Demand	Compared to the proposed project, net consumptive use of groundwater would decrease by 13.6 af/yr. Short-term local impacts would be similar to those of the proposed project and long-term indirect impacts, although reduced by 5%, would still require applicable mitigation measures.	No impacts would occur; however, under this alternative, stream base flow, riparian vegetation, and offsite water users would forgo a net beneficial effect since the Cattle Grazing Plan would not be implemented.	Compared to the proposed project, groundwater demand would be reduced by approximately 120 af/yr. Short-term and indirect impacts would also be reduced, though not to a less-than-significant level. There is also a potential impact because the water system would consist of individual wells and not be managed as one system.	This alternative would reduce the estimated gross water demand of the proposed project by approximately 12 af/yr. This reduction would not reduce the impacts of the proposed project to a less-than-significant level, and the same impacts and mitigation measures would apply.	This alternative would reduce the estimated net water demand of the proposed project by approximately 107 af/yr. This represents a substantial reduction in water demand but would not reduce the impacts of the proposed project to a less-than-significant level, and the same impacts and mitigation measures would apply.	The proposed project would increase net groundwater demand by 272 af/yr and could result in water supply shortages because of overestimated well yields, as well as induced seepage losses from creeks, substantially deplete dry-season base flows, and decrease long-term or drought-period base flows. It could also affect direct mortality and total area of riparian vegetation because of groundwater pumping near base flow reaches. Implementation of the Cattle Grazing Plan would provide a beneficial impact of increased groundwater recharge.

Topic	No-Lodge Alternative	No-Project Alternative (Maintenance of Existing Conditions)	No-Project Alternative (Existing Lots of Record)	Reduced-Lodge Alternative	No-Golf Trail Alternative	Proposed Project
Runoff, Flooding, and Water Quality	Compared to the proposed project, this alternative would result in similar types of impacts; there would be a reduction in the total amount of impervious area, which would reduce runoff that could contribute to local flooding and flooding on the Carmel River. Water quality impacts would also be similar to those of the proposed project.	No impacts would occur; however, beneficial effects on surface water hydrology and runoff would not be realized under this alternative because the Cattle Grazing Plan would not be implemented.	Compared to the proposed project, this alternative would result in increased runoff, flooding and decreased water quality. Localized impacts in the steep areas of the site would occur that exceed those of the proposed project.	Compared to the proposed project, this alternative would result in a similar magnitude of increased runoff, flooding, and decreased water quality. There would be a slight reduction in impacts, but the impacts of the proposed project would not be reduced to a less-than-significant level, and the same impacts and mitigation measures would apply.	Compared to the proposed project, this alternative would result in a similar magnitude of increased runoff, flooding, and decreased water quality The potential water quality impacts of irrigating the golf trail with reclaimed wastewater would be eliminated under this alternative. The impacts and mitigation measures associated with all other issues would apply. Continued water quality degradation would occur in the San Clemente watershed as a result of continued erosion.	The proposed project would result in increased stormwater runoff, a potential increase in flooding on the Carmel River, and degradation of surface water and groundwater quality. Implementation of the Cattle Grazing Plan would result in a beneficial impact of increased infiltration and base flows, and decreased floodflows.
Fisheries	Compared to the proposed project, impacts on fisheries would be similar.	No impacts on fisheries would occur.	Compared to the proposed project, this alternative could have more severe fisheries impacts than the proposed project because of runoff, flooding, and water quality impacts associated with development in environmentally constrained areas (e.g., steep slopes, forested areas, etc).	Compared to the proposed project, this alternative would result in similar fisheries impacts. There would be a slight reduction in impacts, but the impacts of the proposed project would not be reduced to a less-than-significant level, and the same impacts and mitigation measures would apply.	Compared to the proposed project, this alternative would result in similar fisheries impacts. Because ongoing erosion in the San Clemente watershed would not be rectified by the applicant's proposed erosion control plan under this alternative, fisheries impacts would be greater for this watershed compared to the proposed project.	The proposed project could cause acute and chronic toxicity to fisheries and reduced fish productivity. It could reduce spawning and habitat conditions as a result of water quality issues and reduce overall fisheries habitat as a result of groundwater extraction.

Topic	No-Lodge Alternative	No-Project Alternative (Maintenance of Existing Conditions)	No-Project Alternative (Existing Lots of Record)	Reduced-Lodge Alternative	No-Golf Trail Alternative	Proposed Project
Biological Resources	Compared to the proposed project, approximately 50 fewer acres of natural vegetation and associated wildlife habitat would be affected under this alternative; a substantial reduction in the extent of loss or degradation to an important native community would occur. Because only 2.3% of the total area of coastal terrace prairie would be affected under this alternative, the impact would be considered less than significant. Additionally, two fewer landmark trees would be removed and there would be a slight reduction in the loss of area utilized by special-status wildlife with potential to occur in habitats on the lodge site.	No biological impacts would occur; however, beneficial effects, such as improvements to native grass stands from grazing regime modifications and native habitat improvements from the control of invasive exotics, would not occur because the resource management plans developed by the project applicant would not be implemented.	Direct habitat loss, disruption of wildlife corridors, and the indirect impacts associated with urban development would be greater under this alternative compared to the proposed project. The benefits of the preserve, including the resource management, grazing, and fire management plans, would not be realized under this alternative.	This alternative would reduce the impacts on coastal terrace prairie land by less than 2 acres; all other impacts would be the same. The same impacts and mitigation measures of the proposed project would apply.	This alternative would reduce the impacts on oak woodlands and savannas by 53 acres; annual grasslands by 45 acres; riparian habitats by 5 acres; herbaceous wetlands by 4 acres; and dependent wildlife species, including Cooper's hawk, golden eagle, American badger, burrowing owl, California horned lark, purple martin, yellow warbler, yellow-breasted chat, and the dusky-footed woodrat. Seventy-eight fewer landmark trees would be removed under this alternative. All other impacts and mitigation measures would be the same as those of the proposed project.	The proposed project could eliminate or degrade 574.7 acres of oak woodlands and savannas and 26.6 acres of coastal terrace prairie. Construction-related impacts could disrupt nesting Cooper's hawks and golden eagles. It could eliminate 229 landmark trees and induce an adverse effect on riparian vegetation from changes in groundwater hydrology. Beneficial impacts of the proposed project would be improvement of grassland and oak savanna habitats through changes in the grazing regime, as well as a reduction in the extent of invasive exotic plant species through active vegetation management.
Aesthetics	Compared to the proposed project, this alternative would have no substantial adverse aesthetic effects on views from Robinson Canyon Road. It may have a slight beneficial effect but would not substantially affect the quality of views from private residences or public trails.	No aesthetic impacts would occur.	Because this alternative does not assume controls for architectural characteristics, sensitive siting, or screening, the aesthetic impacts of this alternative would be greater than the proposed project.	This alternative would result in the same visual impacts as the proposed project, except that the main building would not be developed, slightly reducing the visual impacts at this location. The same impacts and mitigation measures of the proposed project would apply.	This alternative would result in visual impacts similar to those of the proposed project, except that the clubhouse and golf trail, which did not result in a significant visual impact, would not be developed. The same impacts and mitigation measures as those of the proposed project would apply.	The proposed project would significantly change views north from the intersection of Robinson Canyon Road and Rancho San Carlos Road.

Topic	No-Lodge Alternative	No-Project Alternative (Maintenance of Existing Conditions)	No-Project Alternative (Existing Lots of Record)	Reduced-Lodge Alternative	No-Golf Trail Alternative	Proposed Project
Traffic	Compared to the proposed project, there would be a slight overall reduction in traffic levels, but similar types of significant impacts as those of the proposed project would occur and would require mitigation. This alternative would result in 510 fewer daily trips and 36 fewer p.m. peak hour trips than the proposed project.	No traffic impacts would occur.	This alternative would result in slightly fewer daily and peak hour trips onsite than the proposed project; however, it would result in substantially greater offsite impacts than the proposed project because no commercial or resident-serving uses would be provided onsite, which would require more offsite travel.	This alternative would result in 348 fewer daily trips off the ranch than the proposed project; however, this would not reduce the impacts of the proposed project to a less-than-significant level, and the same impacts and mitigation measures would apply.	This alternative would result in 35 fewer daily trips than the proposed project; however, this reduction would not decrease the impacts of the proposed project to a less-than-significant level, and the same impacts and mitigation measures would apply.	The proposed project would result in the following: increased traffic volume on segment 6 of Carmel Valley Road; degradation of a.m. and p.m.peak-hour LOS at the intersection of Carmel Valley Road and Rancho San Carlos Road; degradation of LOS at the intersection of Highway 1 and Carpenter Street; addition of traffic volume to the intersection of Highway 1 and Carmel Valley Road; increase in V/C by more than 1% at the intersection of Highway 1 and Rio Road; and, increased traffic hazards resulting from addition of construction trucks and additional traffic volumes to Rancho San Carlos Road.

Topic	No-Lodge Alternative	No-Project Alternative (Maintenance of Existing Conditions)	No-Project Alternative (Existing Lots of Record)	Reduced-Lodge Alternative	No-Golf Trail Alternative	Proposed Project
Climate and Air Quality	Compared to the proposed project, similar types of impacts would occur. The resulting decrease in the period of construction would result in a lower overall level of emissions over the life of the project; however, mitigation would still be required as daily construction-related activities would still be high enough to create significant impacts.	No air quality impacts would occur.	Construction and operational impacts would be similar in kind to the proposed project but would likely be less severe than the proposed project because fewer units would be developed.	Construction and operational impacts would be similar to, but slightly less than, those of the proposed project. The same impacts and mitigation measures would apply.	Construction and operational impacts would be similar to, but slightly less than, those of the proposed project. The same impacts and mitigation measures would apply.	The proposed project could increase PM10 emission during project construction. There could also be odor generation impacts associated with the operation of the portable asphalt batch plant and the proposed equestrian center .
Noise	Similar types of impacts as those of the proposed project would occur, although slight reductions in the extent and duration of construction-related noise impacts would occur.	No noise impacts would occur.	No impacts would be likely to occur.	No significant impacts would be likely to occur.	No significant impacts would be likely to occur.	No significant impacts would be likely to occur.
Public Services and Utilities	The impacts of this alternative would be similar to, but slightly less than, those of the proposed project.	No impacts would occur.	This alternative would slightly reduce the demand for most public services compared to the proposed project because fewer units would be developed; however, fire hazards would likely be greater due to the location of lots in fire-prone chaparral and on steep slopes, reducing the ability of fire protection equipment and personnel to reach residences.	This alternative would slightly reduce the demand for most public services compared to the proposed project; however, this reduction would not decrease the impacts of the proposed project to a less-than-significant level, and the same impacts and mitigation measures would apply.	This alternative would slightly reduce the demand for many public services compared to the proposed project; however, this reduction would not decrease the impacts of the proposed project to a less-than-significant level, and the same impacts and mitigation measures would apply.	The proposed project could potentially generate increased demand for schools. Beneficial impacts would be consistent with LAFCO Groundwater Standards and Standards for the Evaluation of Proposals, as well as an increased amount of wastewater for disposal and need for recreation trails.

Topic	No-Lodge Alternative	No-Project Alternative (Maintenance of Existing Conditions)	No-Project Alternative (Existing Lots of Record)	Reduced-Lodge Alternative	No-Golf Trail Alternative	Proposed Project
Cultural Resources	Compared to the proposed project, the impacts would be the same.	No impacts on cultural resources would occur.	This alternative would result in potentially significant impacts on cultural resources because the many lots are located in unsurveyed areas of the site where important cultural resources could be located.	Compared to the proposed project, the impacts would be the same.	This alternative would avoid impacts on CA-MNT-1700, and all other impacts and mitigation measures would apply.	The proposed project would result in the following impacts: ■ unanticipated impacts on prehistoric and historic resources from construction and construction-related activities; ■ potential damage to or destruction of prehistoric archaeological sites CA-MNT-1481, -1482, -1483, -1484, -1485, -1486/H, -1700, -1702, and -1704; ■ damage to an historic district; ■ potential impact to San Francisquito Adobe; ■ potential damage to or destruction of known and unknown historic and archaeological and architectural resources; ■ potential damage to or destruction of known prehistoric archaeological or historic-period resources; and ■ potential damage to or destruction of known prehistoric- or historic period resources.

Topic	No-Lodge Alternative	No-Project Alternative (Maintenance of Existing Conditions)	No-Project Alternative (Existing Lots of Record)	Reduced-Lodge Alternative	No-Golf Trail Alternative	Proposed Project
Social Effects	Similar types of impacts as those of the proposed project would occur, although the reduction in traffic associated with the operation of lodge facilities would represent a minor improvement.	No impacts would occur.	This alternative would have little effect on the social characteristics of the region.	This alternative would have little effect on the social characteristics of the region.	This alternative would have little effect on the social characteristics of the region.	The proposed project would have little effect on the social characteristics of the region.

Biological Resources

Of the alternatives evaluated in the EIR, the No-Golf Trail Alternative would have the least impacts on biological resources (Table 20-2). Even though the applicant is proposing wetland and landmark tree compensation to reduce impacts, compensation is not considered superior to avoidance of impacts altogether.

Aesthetics

Of the alternatives evaluated in the EIR, there is no clear alternative that poses the least impact on aesthetics. The No-Golf Trail Alternative would eliminate impacts associated with the golf clubhouse and trail while the No-Lodge Alternative would eliminate impacts associated with the lodge. Neither of these elements of the proposed project was considered to pose significant impacts on visual resources. Therefore, elimination of either of these elements would not substantially reduce visual resource impacts.

Traffic

Of the alternatives evaluated in the EIR, the No-Lodge Alternative would generate the least amount of traffic (Table 20-2).

Cultural Resources

Of the alternatives evaluated in the EIR, the No-Golf Trail Alternative would have the least impact on cultural resources (Table 20-2).

Environmentally Superior Alternative

The No-Golf Trail Alternative would pose the least impacts on groundwater, biology, and cultural resources and is therefore considered the environmentally superior alternative of the project alternatives.

Chapter 21. Citations

PRINTED REFERENCES

ABAG Training Institute. 1988. Public services and infrastructure. May 17. Oakland, CA.

Akan, A. 1993. Urban stormwater hydrology. Technomic Publishing Company, Inc. Lancaster, PA.

Alkire, W. K., M. J. O'Connor, D. J. Shetlar, and A. Harivandi. 1994. Draft integrated golf course management plan for the Santa Lucia Preserve golf trail, Monterey County, California. December. N.p.

Archaeological Consulting. 1992. Baseline archaeological studies at Rancho San Carlos, Carmel Valley, Monterey County, California. September 2. Submitted to Rancho San Carlos Partnership, Carmel, CA.

_____. 1994a. Inventory of prehistoric cultural resources and preliminary mitigation plan for Rancho San Carlos, Carmel Valley, Monterey County, California. Submitted to Rancho San Carlos Partnership, Carmel, CA.

_____. 1994b. Preliminary archaeological report and archaeological mitigation plan for site CA-MNT-1700, Rancho San Carlos, Carmel Valley, Monterey County, California. October 15. Submitted to Mr. Roger Franklin, Robert Lamb Hart.

Association of Bay Area Governments. 1987. 1982 input-output model and economic multipliers for the San Francisco Bay region. Oakland, CA.

Balance Hydrologics, Inc. 1990. Memorandum to Bill Elsey, Habitat Restoration Group, and others regarding base flow conditions in Las Garzas Creek. November 19. Berkeley, CA. Prepared for Rancho San Carlos Partnership, Carmel, CA.

_____. 1991a. Memorandum to File 9054.7 (restoration reconnaissance) regarding base flow conditions on Las Garzas Creek. August 23. Berkeley, CA. Prepared for Rancho San Carlos Partnership, Carmel, CA.

_____. 1991b. Letter report to Bill Elsey, Habitat Restoration Group, regarding base flow in San Jose, Potrero, and Las Garzas Creeks. August 30. Berkeley, CA. Prepared for Rancho San Carlos Partnership, Carmel, CA.

_____. 1991c. Memorandum to file 9054.7 (restoration reconnaissance) regarding flow and sediment conditions along San Jose Creek. August 30. Berkeley, CA. Prepared for Rancho San Carlos Partnership, Carmel, CA.

Ballanti, Donald. 1994. Air quality impact analysis of Rancho San Carlos, Monterey County. El Cerrito, CA.

Bay Area Air Quality Management District. 1985. Air quality and urban development, guidelines for assessing impacts of projects and plans. San Francisco, CA.

Beardsley, R. C., C. E. Dorman, C. A. Friehe, L. K. Rosenfeld, and C. D. Winant. 1987. Local atmospheric forcing during the coastal ocean dynamics experiment - description of the marine boundary layer and atmospheric conditions over a northern California upwelling region. Journal of Geophysical Research 92:91467-91488.

Beedy, E. C., S. D. Sanders, and D. Bloom. 1991. Breeding status, distribution, and habitat associations of the tricolored blackbird (*Agelaius tricolor*) 1850-1989. Sacramento, CA. Prepared for U.S. Fish and Wildlife Service., Sacramento, CA.

Bestor Engineers, Inc. 1994a. Rancho San Carlos preliminary drainage and erosion control report. February. Monterey, CA. Prepared for Rancho San Carlos Partnership, Carmel, CA.

_____. 1994b. The Santa Lucia Preserve golf trail preliminary drainage report. December. Monterey, CA. Prepared for Rancho San Carlos Partnership, Carmel, CA.

Bies, D. A., and C. H. Hansen. 1988. Engineering noise control: theory and practice. Unwin Hymand. London, England.

BioSystems Analysis, Inc. 1992a. Biological resources inventory. Santa Cruz, CA. Submitted to The Rancho San Carlos Partnership, Carmel, CA.

_____. 1992b. Rancho San Carlos 1992 annual monitoring report (draft). BioSystems Analysis, Inc. Santa Cruz, CA. Prepared for Rancho San Carlos Partnership, Carmel, CA.

_____. 1994a. Rancho San Carlos special-status wildlife and botanical resources on the Santa Lucia Preserve golf trail. Santa Cruz, CA. Submitted to the Rancho San Carlos Partnership, Carmel, CA.

_____. 1994b. Rancho San Carlos special-status biological resources report. February. Santa Cruz, CA. Submitted to the Rancho San Carlos Partnership, Carmel, CA.

BioSystems Analysis, Inc.; The Habitat Restoration Group; and John Stanley & Associates, Inc. 1992. Rancho San Carlos 1992 annual monitoring report (draft). BioSystems Analysis, Inc. Santa Cruz, CA. Prepared for Rancho San Carlos Partnership, Carmel, CA.

Blaney, H. F., P. R. Nixon, G. P. Lawless, and E. J. Widman. 1963. Utilization of the waters of the Santa Ynez River basin for agriculture in southern Santa Barbara County, California. U.S. Department of Agriculture, Agricultural Research Service. Riverside, CA.

Brown-Buntin Associates, Inc. 1993. Environmental noise analysis; Teichert Aggregates woodland operations, Yolo County, California. Fair Oaks, CA. September 15. Prepared for Teichert Aggregates, Sacramento, CA.

California. Air Resources Board. 1993. California air quality data. Volumes XXI-1989 to Volume XXV-1993. Annual Summaries. Sacramento, CA.

_____. 1982. California ambient air quality standards for carbon monoxide (sea level). Sacramento, CA.

California. Department of Finance. 1993. California statistical abstract. Sacramento, CA.

California. Department of Fish and Game. 1994. Natural communities. Natural Diversity Data Base. Sacramento, CA.

California. Employment Development Department. 1994. Annual planning information Salinas metropolitan statistical area (Monterey County). Sacramento, CA.

California Fish and Game Commission. 1987. Wetlands resources policy. Sacramento, CA.

California. Department of Transportation. 1988. Air quality technical analysis notes. Sacramento, CA.

_____. 1985. Traffic manual. Revised 1986. Sacramento, CA.

California. Department of Water Resources. 1975. Vegetative water use in California, (Bulletin 113-3.) Sacramento, CA.

California Region Framework Study Committee. 1971. Comprehensive framework study - California region. Appendix V. N.p.

California State Water Resources Control Board. Division of Water Quality. 1988. Nitrate in drinking water, report to the legislature. (Report No. 88-11WQ.) Sacramento, CA.

_____. Division of Water Quality. 1984. Irrigation with reclaimed municipal wastewater. A guidance manual. (Report No. 84-1 WR.) Sacramento, CA.

Camp Dresser & McKee Inc.; Balance Hydrologics, Inc.; David Keith Todd Consulting Engineers, Geoconsultants, Inc.; and Luhdorff Scalmanini Consulting Engineers. 1994a. Comprehensive hydrological study - Rancho San Carlos. March. Prepared for Rancho San Carlos Partnership, Carmel, CA.

_____. 1994b. Comprehensive hydrological study: supplement number one. July. Walnut Creek, CA. Prepared for Rancho San Carlos Partnership, Carmel, CA.

_____. 1995. Supplement number two to the comprehensive hydrological study. January. Walnut Creek, CA. Prepared for Rancho San Carlos Partnership, Carmel, CA.

Camp Dresser & McKee Inc.; Bestor Engineers, Inc.; Cleary Consultants, Inc.; and Geoconsultants, Inc. 1994a. Comprehensive wastewater disposal plan. February. Prepared for Rancho San Carlos Partnership, Carmel, CA.

_____. 1994b. Supplemental nitrogen loading study. Prepared for Rancho San Carlos Partnership, Carmel, CA.

Charles M. Salter Associates. 1994. Rancho San Carlos noise assessment study. February. San Francisco, CA.

Cleary Consultants, Inc. 1994. Geological and geotechnical *investigation* ~~irrigation~~, vesting tentative map submittal, Rancho San Carlos, Monterey County, California. Los Altos, CA. Prepared for Rancho San Carlos Partnership, Carmel, CA.

_____. *1995a. Preliminary geotechnical engineering assessment of ground liquefaction potential, Santa Lucia Preserve residential development, Rancho San Carlos, Monterey County, California. Los Altos, CA. Prepared for Rancho San Carlos Partnership, Carmel, CA.*

_____. *1995b. Geotechnical assessment of potential debris flow conditions at the building envelopes, Santa Lucia Preserve, Monterey County, California. Los Altos, CA. Prepared for Rancho San Carlos Partnership, Carmel, CA.*

_____. *1995c. Geological investigation report, possible landslide at Lots 194-200 and lineament in the vicinity of Clemente Creek, Santa Lucia Preserve, Monterey County, California. Los Altos, CA. Prepared for Rancho San Carlos Partnership, Carmel, CA.*

Cozzens, and Davis. 1924. Topographical map of a portion of the George G. Moore "Home Tract" showing proposed improvements. On file with the Rancho Carlos Partnership, Carmel, CA.

Denise Duffy & Associates. 1994. The Santa Lucia Preserve mitigation and monitoring plan. Prepared for Rancho San Carlos Partnership, Carmel, CA.

Dettman, D. H. 1986. Relationships between steelhead sport catch, angling success, and streamflows in the Carmel River during 1984. Appendix F in D. H. Dettman and D. W. Kelly, Assessment of the Carmel River Steelhead Resource. Volume 1 - Biological Investigations. Prepared for Monterey Peninsula Water Management District, Monterey, CA.

Dowling Associates, Inc. 1994. Rancho San Carlos traffic impact analysis and traffic report for Rancho San Carlos. Oakland, CA.

EIP Associates. 1991. Monterey Peninsula water supply project, supplemental draft EIR/EIS. August. San Francisco, CA. Prepared for Monterey Peninsula Water Management District, Monterey, CA.

_____. 1994. Final EIR/EIS of the Monterey Peninsula water supply project, Volume 3, technical appendices. March. San Francisco, California. Prepared for Monterey Peninsula Water Management District, Monterey, CA.

Evans, D. M. 1966. The Denver area earthquakes and the Rocky Mountain Arsenal disposal well. Mountain Geology 3:23-26.

Federal Emergency Management Agency. 1986. Flood insurance study - Monterey County, California - unincorporated areas. Washington, DC.

Federal Highway Administration. 1983. Visual impact assessment for highway projects. (Contract DOT-FH-11-9694.) Washington, DC.

Freeze, R. A., and J. A. Cherry. 1979. Groundwater. Prentice-Hall, Inc. Englewood Cliffs, NJ.

Gaines, D. 1974. A new look at the nesting riparian avifauna of the Sacramento Valley, California. Western Birds 5:61-80.

Gil Sanchez. 1994. Rancho San Carlos main ranch house and guest house historic analysis, Monterey County, California. Submitted to Rancho San Carlos Partnership, Carmel, CA.

_____. 1995. Survey and documentation of the equestrian center area and other buildings Rancho San Carlos Monterey County, California. April. Santa Cruz, CA. Prepared for Rancho San Carlos Partnership, Carmel, CA.

Governor's Office of Planning and Research. 1986. CEQA: California Environmental Quality Act statutes and guidelines. Sacramento, CA.

Greenwood and Associates. 1992. Employee housing recordation, Rancho San Carlos, Monterey County, California. Submitted to Rancho San Carlos Partnership, Carmel, CA.

_____. 1991. Dairy barn and employee housing, Rancho San Carlos, Monterey County, California. Submitted to Rancho San Carlos Partnership, Carmel, CA.

Hale, S. L. 1980. The history of Carmel, Carmel Valley, Big Sur, Point Lobos, Carmelite Monastery, and Los Burros. Valley Publishing Company. Santa Cruz, CA.

Hanford, J. 1993. Carmel Valley history. Manuscript on file at the Local History Department, Harrison Memorial Library, Carmel, CA.

Harris, J. H., S. D. Sanders, and M. A. Flett. The status and distribution of the willow flycatcher in California. (Administrative Report 88-1.) California Department of Fish and Game, Wildlife Management Division. Sacramento, CA.

Harrison, R. T. 1993. Sound levels of five motorcycles traveling over forest trails. U.S. Forest Service. San Dimas, CA.

Hatano, M., P. Benson, and K. Pinkerman. 1989. CALINE4 - a dispersion model for predicting air pollution concentrations near roadways. Sacramento, CA.

Henson, P., and D. J. Usner. 1993. The natural history of Big Sur. University of California Press. Berkeley, CA.

Holland, R. F. 1986. Preliminary description of the terrestrial natural communities of California. State of California, The Resources Agency, Department of Fish and Game. Sacramento, CA.

Hoover, M. B., E. Rensch, E. G. Rensch, and W. E. Abeloe. 1948. Historic spots in California. 2nd edition. Revised by D. E. Kyle. Stanford University Press. Stanford, CA.

Howard, D. M. 1973a. Lost adobes of Monterey County. Monterey County Archaeological Society. Monterey, CA.

_____. 1973b. The history of Carmel Valley. Carmel Pine Cone (Carmel, CA). April 19, 1993.

_____. 1974. Archaeology in paradise. Antiquities Research Publications. Carmel, CA.

Howitt, B. F., and J. T. Howell. 1964. The vascular plants of Monterey County, California. The Wasmann Journal of Botany 22(1):1-60.

Hubbert, M., and W. W. Rubey. 1959. Role of fluid pressures in mechanics of overthrust faulting: I. Mechanics of fluid-filled porous solids and its application to overthrust faulting. Bulletin of the Geological Society of American 70:115-166.

Jones & Stokes Associates, Inc. 1994. Monterey pine forest ecological assessment: historical distribution, ecology, and current status of monterey pine. (JSA 94-083.) Sacramento, CA. Prepared for California Department of Fish and Game Natural Heritage Division, Sacramento, CA.

Knight, R. W. 1993. Managing stocking rates to prevent adverse environmental impacts. Department of Rangeland Ecology and Management, Texas A & M University. College Station, TX.

Kondolf, G. M., and R. R. Curry. 1984. The role of riparian vegetation in channel bank stability: Carmel River, California. Pages 124-133 in R. E. Warner and K. M. Hendrix (eds.), California Riparian Systems. University of California Press. Berkeley, CA.

Luhdorff & Scalmanini Consulting Engineers. 1995a. Initial analysis of intermittent pump cycles and domestic water demand, Rancho San Carlos. January 4. (Technical memorandum.) Woodland, CA. Prepared for Jones & Stokes Associates, Inc., Sacramento, CA.

_____. 1995b. Finalized conceptual water system design, Rancho San Carlos. February 7. (Technical memorandum.) Woodland, CA. Prepared for Rancho San Carlos Partnership, Carmel, CA.

McCalla, G. R., W. H. Blackburn, and L. B. Merrill. 1984. Effects of livestock grazing on infiltration rates, Edwards Plateau, Texas. Journal of Range Management 37(3):265-269.

Megahan, W. F. 1992. An overview of erosion and sedimentation processes on granitic soils. Pages 11-39 in S. Sommarstrom, Proceedings of the Conference on Decomposed Granitic Soils: Problems and Solutions, October 21-23, 1992. Prepared for University Extension, University of California, Davis, CA.

Milliken, R. 1992. Ethnographic and ethnohistoric background for the San Francisquito Flat vicinity, Carmel Valley, Monterey County, California. In Baseline Archaeological Studies at Rancho San Carlos, Carmel Valley, Monterey County, California. Prepared by Archaeological Consulting. Submitted to Rancho San Carlos Partnership, Carmel, CA.

Monterey Bay Unified Air Pollution Control District. 1994. 1994 draft air quality management plan for the Monterey Bay Region. Monterey, CA.

_____. 1991. 1991 air quality management plan for the Monterey Bay Region. Monterey, CA.

Monterey County. Board of Supervisors. 1978. Noise ordinance. Salinas, CA.

Monterey County. 1992. Monterey County General Plan. Adopted September 30, 1982. Amended as of October 10, 1992.

_____. Planning and Building Inspection Department. 1982. Monterey County, California north county land use plan, local coastal program. Salinas, CA.

Muff, O. P. 1993. Design, instrumentation, execution, and analysis of three bedrock pumping tests. Pages 171-182 in HoMorel-Seytoux (ed.), Proceedings of the thirteenth annual Hydrology Days, March 30-April 2, 1993, Fort Collins, CO, Hydrology Days Publications. Atherton, CA.

National Oceanic and Atmospheric Administration. 1992. Final environmental impact statement/management plan. Washington, DC.

Nelson, C. S. 1977. Wind stress and wind stress curl over the California current. (NOAA Technical Report: NMFS-SSRF-714.) National Oceanic and Atmospheric Administration. Washington, DC.

Neufeldt, V., and D. B. Guralnik (eds.). 1988. Webster's New World Dictionary of American English, third college edition. Webster's New World. Cleveland, OH, and New York, NY.

Nolan Associates. 1995. Geologic review services, Santa Lucia Preserve. Santa Cruz, CA. Prepared for Jones & Stokes Associates, Sacramento, CA.

Ogden Environmental and Energy Services. 1994. Third party review of Rancho San Carlos comprehensive hydrological study in letter report to Mr. Walter Wong, Monterey County Division of Environmental Health. December 19. San Diego, CA. Prepared for *Monterey County Environmental Health Division Agency, Salinas, CA.* ~~Rancho San Carlos Partnership, Carmel, CA.~~

Planning Analysis & Development. 1992. Draft subsequent environmental impact report Rancho San Carlos. San Francisco, CA. Prepared for the County of Monterey Planning and Building Inspection Department, Salinas, CA.

Pluhar, J. J., R. W. Knight, and R. K. Heitschmidt. 1987. Infiltration rates and sediment production as influenced by grazing systems in the Texas rolling plains. Journal of Range Management 40(3):240-243.

Raleigh, R. F., T. Hickman, R. C. Solomon, and P. C. Nelson. 1984. Habitat suitability information: rainbow trout. (FWS/OBS-82/10.60.) U.S. Fish and Wildlife Service. Washington, DC.

Ralph Osterling Consultants, Inc. 1994a. Rancho San Carlos forest management plan. San Mateo, CA. Prepared for Rancho San Carlos Partnership, Carmel, CA.

_____. 1994b. The management plan for the golf trail at the Santa Lucia Preserve. San Mateo, CA. Prepared for the Rancho San Carlos Partnership, Carmel, CA.

Rancho San Carlos Partnership. 1994a. The Santa Lucia Preserve 1.0 comprehensive development plan. Carmel, CA.

_____. 1994b. The Santa Lucia Preserve 2.0 combined development permit. Carmel, CA.

_____. 1994c. The Santa Lucia Preserve 3.0, the golf trail: a management plan. Carmel, CA.

_____. 1994d. The Santa Lucia Preserve visual resource analysis. Carmel, CA.

_____. 1994e. The Santa Lucia Preserve golf trail supplemental information package #2. December. Carmel, CA.

_____. 1994f. The Santa Lucia Preserve golf trail use permit application. December. Carmel, CA.

Ravzi, F., and C. L. Hanson. 1966. Water intake and runoff as affected by intensity of grazing. Journal of Range Management 19:351-356.

Regional Water Quality Control Board - Central Coast Region. 1991. Water quality control plan - central coast basin. San Luis Obispo, CA.

Remsen, J. V., Jr. 1978. Bird species of concern in California. California Department of Fish and Game. Project PR W-54-R-9, Nongame Wildlife Investigations. Wildlife Management Branch Administrative Report No. 78-1. Sacramento, CA.

Rhoades, E. D., L. F. Locke, H. M. Taylor, and E. H. McIlvain. 1964. Water intake on a sandy range as affected by 20 years of differential cattle stocking rates. Journal of Range Management 17:185-190.

Rice, C. 1992. "Woman recalls hard times at Rancho San Carlos." Weekly Sun. March 6, 1992.

Roberson, D. 1985. Monterey birds. Monterey Peninsula Audubon Society. Monterey, CA.

Roy A. Perkins, Inc. 1994. Santa Lucia Preserve fire safety management plan. Prepared for Rancho San Carlos Partnership, Carmel, CA.

Sage Associates. 1994a. Rancho San Carlos cattle grazing plan. February. Montecito, CA. Prepared for Rancho San Carlos Partnership, Carmel, CA.

_____. 1994b. Santa Lucia Preserve golf trail erosion and sediment control plan. November. Montecito, CA. Prepared for Rancho San Carlos Partnership, Carmel, CA.

Sanders, S. D., and M. A. Flett. 1989. Ecology of a Sierra Nevada population of willow flycatchers (*Empidonax traillii*), 1986-1987. California Department of Fish and Game, Nongame Bird and Mammal Section. Sacramento, CA.

Sedway & Associates. 1992. Housing impact analysis of Fort Ord downsizing. Monterey, CA.

Shapovalov, L., and A. C. Taft. 1954. The life histories of the steelhead rainbow trout (*Salmo gairdneri gairdneri*) and silver salmon (*Oncorhynchus kisutch*) with special reference to Waddell Creek, California, and recommendations regarding their management. (Fish Bulletin No. 98.) California Department of Fish and Game. Sacramento, CA.

Skinner, M. W., and B. M. Pavlik (eds.). 1994. California Native Plant Society's inventory of rare and endangered vascular plants of California. 5th edition. February. (Special Publication No. 1.) Sacramento, CA.

Smardon, R. C., J. F. Palmer, and J. P. Felleman. 1986. Foundations for visual project analysis. John Wiley & Sons. New York, NY.

Smith, Jerry J. 1982 Fishes of the Pajaro River System. Studies on the distribution and ecology of stream fishes of the Sacramento-San Joquin drainage system. pp. 83-169. In P.B. Moyle (ed.) University of California Publication in Zoology. 115, Berkeley, CA.

Snider, W. M. 1983. Reconnaissance of steelhead resource of the Carmel River drainage, Monterey County. (Administrative Report No. 83-3.) California Department of Fish and Game, Environmental Services Branch. Monterey, CA.

Stromberg, J. C., D. T. Patten, and B. D. Rickter. 1991. Flood flows and dynamics of Sonoran riparian forests. Rivers 2(3):221-235.

Takar, A. A., J. P. Dobrowlski, and T. L. Thurow. 1990. Influence of grazing, vegetation, life form, and soil type on infiltration rates and interrill erosion on a Somalian rangeland. Journal of Range Management 43(6):486-490.

Titus, R. G., D. C. Erman, and W. M. Snider. 1994. History and status of steelhead in California coastal drainages south of San Francisco Bay. Manuscript. Hilgardia. Berkeley, CA.

Transportation Research Board. 1985. Highway capacity manual. (Special Report 209.) National Research Council. Washington, DC.

U.S. Bureau of the Census. 1990. Census of population and housing 1990. (Summary Tape File 1.) Washington, DC.

_____. 1989. County business patterns 1987 California. U.S. Government Printing Office, Washington. DC.

U.S. Department of Transportation. 1988. Manual on uniform traffic control devices for streets and highways. 1988 edition. Federal Highways Administration. Washington, DC.

U.S. Environmental Protection Agency. 1985. Compilation of air pollutant emission factors. Volume I: Stationary point and area sources. Fourth edition. Research Triangle Park, NC.

_____. 1979. Air quality criteria for carbon monoxide. Washington DC.

U.S. Forest Service. 1993. Sound levels of five motorcycles traveling over forest trails. Technology Center. San Dimas, CA.

_____. 1974. National forest landscape management, volume 2. Chapter 1, the visual management system. April. (Agriculture Handbook Number 461.) U.S. Government Printing Office. Washington, DC.

U.S. Land Commission. 1859. Plat of the Rancho San Francisquito finally confirmed to Jose Abrego et al. 1959. On file with documents pertaining to the adjudication of private land claims in California. Land Cases No 271, Potrero de San Carlos. On file at the Bancroft Library, University of California, Berkeley, CA.

_____. 1852-1892a. Documents pertaining to the adjudication private land claims in California. Land Cases No. 271, Potrero de San Carlos. On file at the Bancroft Library, University of California, Berkeley, CA.

_____. 1852-1892b. Documents pertaining to the adjudication private land claims in California. Land Cases No. 247, Rancho San Francisquito. On file at the Bancroft Library, University of California, Berkeley, CA.

U.S. Soil Conservation Service. 1978. Soil survey of Monterey County, California. U.S. Government Printing Office. Washington, DC.

_____. 1986. Urban hydrology for small Watersheds, Technical Release No. 55. 2nd edition. U.S. Government Printing Office. Washington, DC.

Warner, R. E. 1979. California riparian study program. California Department of Fish and Game, Planning Branch. Sacramento, CA.

Warren, S. D., T. L. Thurow, W. H. Blackburn, and N. E. Garza. 1986. The influence of livestock trampling under intensive rotation grazing on soil hydrologic characteristics. Journal of Range Management 39(6):491-495.

Whipple, W., and L. Randall. 1983. Detention and flow retardation devices. In Storm Water Management in Urbanizing Areas. Prentice Hall. Englewood Cliffs, NJ.

Williams, D. F. 1986. Mammalian species of special concern in California. (Administrative Report 86-1.) California Department of Fish and Game. Sacramento, CA.

Wood, M. K., and W. H. Blackburn. 1981. Grazing systems: their influence on infiltration rates in the rolling plains of Texas. Journal of Range Management 34(4):331-335.

PERSONAL COMMUNICATIONS

Avery, Caroline. Secretary. Carmelo School, Carmel, CA. April 4, 1995 - telephone conversation.

Baldwin, Vance. Superintendent. Carmel Unified School District, Carmel, CA. December 15, 1994 and January 3, 1995 - telephone conversations.

Ballanti, Donald. Owner. Donald Ballanti, Certified Consulting Meteorologist, El Cerrito, CA. December 22, 1994 and March 16, 1995 - letters.

Balesteri, Manny. Engineer. Pacific Bell, Monterey, CA. January 3, 1995 - telephone conversation.

Bilse, Mary. Hydrologist. Denise Duffy & Associates, Monterey, CA. October 13, 1993 - memorandum to Mary Anne Dennis, Monterey County Environmental Health Department, regarding water demand factors.

Blaushild, Carol. Executive assistant. Community Hospital of the Monterey Peninsula, Monterey, CA. December 19, 1994 - telephone conversation.

Bloch, Sheri. Registrar. Santa Catalina School, Monterey, CA. January 9, 1995 - telephone conversation.

Breschini, Gary S. Archaeologist. Archaeological Consulting. January 23 and February 15, 1995 - telephone conversations.

Carmichael, Gary. Fire chief. Mid-Carmel Valley Fire District, Carmel, CA. December 14, 1994 - telephone conversation.

Cleary, J. Michael. Geotechnical engineer. Cleary Consultants, Los Altos, CA. March 14, 1995 - letter.

Clifford, Mark. Monterey County Public Works, Monterey, CA. January 6, 1995 - facsimile transmittal regarding sludge.

Cook, Jim. LAFCO executive officer. Monterey County Local Agency Formation Commission, Salinas, CA. December 14, 1994 - memorandum concerning conceptual county service area sphere of influence for the proposed Rancho San Carlos development.

Diehl, Jeff. Wildlife biologist. BioSystems Analysis, Santa Cruz, CA. December 13 and December 14, 1994 - meetings.

Downing, Bob. Manager. White Rock Club, Carmel, CA. January 13, 1995 - telephone conversation regarding the location of hunting boundary to Rancho San Carlos.

Duffy, Denise. Owner. Denise Duffy & Associates, Monterey, CA. December 22, 1994 -facsimile concerning economic data on the Santa Lucia Preserve project; January 5 and 9, 1995 - telephone conversations.

Finegan, Brian. Attorney. Brian Finegan and Michael D. Cling, Attorneys at Law. Salinas, California. March 15, 1995 - letter.

Franklin, Roger. Planner. Robert Lamb Hart. San Francisco, CA. January 3, 1995 - telephone conversation; February 2, 1995 - facsimile transmittal showing plans for Hacienda area buildings.

Froke, Jeff. Santa Lucia Preserve manager. Santa Lucia Conservancy, Monterey, CA. December 8, 1994 - telephone conversation about proposed cattle stocking rates. December 13 and December 14, 1994 - meetings; February 24, 1995 - facsimile transmittal.

Fuerst, Darby. Water resources manager. Monterey Peninsula Water Management District, Monterey, CA. February 6, 1995 - telephone conversation.

Gilgerd, Wendell. District conservationist. Glenn County Resource Conservation District, Willows, CA. January 12, 1995 - telephone conversation with Gus Yates.

Hageman, Brad. Water resources engineer. Regional Water Quality Control Board Central Coast Region, San Luis Obispo, CA. July 6, 1993 - letter.

Harlow, Katherina. Volunteer. All Saints Episcopal School, Carmel, CA. January 9, 1995 - telephone conversation.

Hecht, Barry. Principal. Balance Hydrologics, Inc., Berkeley, CA. December 14, 1994 - meeting with Gus Yates.

Josselyn, Mike. President. Wetlands Research Associates, Inc. San Rafael, CA. March 15, 1995 - letter to Jeff Froke and Brian Finegan.

Kearns, Gary. Engineering technician. Monterey County Public Works Department, Traffic Engineering, Salinas, CA. January 31, 1995 - facsimile transmittal of a figure depicting collisions at the intersection of Carmel Valley Road and Rancho San Carlos Road.

Kim, Douglas. Air quality planner. Monterey Bay Unified Air Pollution Control District, Monterey, CA. December 19 and 28, 1994; March 29, 1995 - telephone conversations.

Mayer, Betty. Bookkeeper. Carmel Unified School District, Carmel, CA. December 9, 1994 - telephone conversation.

Mazza, Sam. Battalion chief. Cypress Fire Protection District, Carmel, CA. December 14, 1994 - telephone conversation.

Miller, Howard. Service planning representative. Pacific Gas and Electric Company, Monterey, CA. December 19, 1994 - telephone conversation.

Mitchell, Anna. Assistant. York School, Monterey, CA. January 9, 1994 - telephone conversation.

Munic, Sue. Secretary. Junipero Sera, Monterey, CA. January 9, 1995 - telephone conversation.

Nolan, Jeffrey. Senior geologist. Weber, Hayes & Associates, Watsonville, CA. January 6, 1995 - letter regarding third-party review of Cleary Consultants report; April 13, 1995 - letter.

Oliver, Joe. Senior hydrogeologist. Monterey Peninsula Water Management District, Monterey, CA. December 19, 1994 - telephone conversation.

Panzer, Joel. Environmental planner. Santa Lucia Conservancy, Monterey, CA. December 5, 1994 - meeting regarding existing quarry activities and proposed aggregate extraction onsite; January 19, 1995 - meeting at Rancho San Carlos, memorandum, and maps showing locations of historical sites at Rancho San Carlos; February 1, 1995 - memorandum concerning Native American consultation; February 15 and 16, 1995 - telephone conversations.

Perkins, Roy. Fire consultant. December 15, 1994 - telephone conversation.

Robbins, Harry. Coordinator. Monterey County Office of Emergency Services, Salinas, CA. March 20, 1995 - telephone conversation.

Rutherford, Connie. Biologist. U.S. Fish and Wildlife Service, Ventura, CA. January 5, 1995 - telephone conversation.

Ryan, Deborah. Operations manager. Robert Louis Stevenson Lower and Middle School, Carmel, CA. April 4, 1995 - telephone conversation.

Sage, Orrin. Principal. Sage Associates, Montecito, CA. January 17, 1995 - telephone conversation with Gus Yates; undated letter, with comments on the Santa Lucia Preserve Project administrative draft environmental impact report.

Scalmanini, Joe. Principal. Luhdorff & Scalmanini Consulting Engineers, Woodland, CA. January 4, 1995 - memorandum to Gus Yates regarding fall 1994 pump test data.

Scoggins, Jackie. Battalion chief. California Department of Forestry and Fire Protection, Carmel, CA. December 9 and December 15, 1994 - telephone conversations.

Shedden, Rick. Civil engineer. Marina Sanitary Landfill, Marina, CA. December 15, 1994 - telephone conversation.

Smith, Brian. Manager. Carmel Regional Ambulance, Carmel, CA. December 15, 1994 - telephone conversation.

Tate, Gary. District manager. Monterey Peninsula Regional Park District, Carmel, CA. January 3, 1995 - telephone conversation.

Thelander, Carl. President. BioSystems Analysis, Inc., Santa Cruz, CA. December 13 and December 14, 1994 - meetings; March 14, 1995 - letter to Joel Panzer, Rancho San Carlos.

Walton, David. Director of engineering. Monterey Peninsula TV Cable, Monterey, CA. December 20, 1994 - telephone conversation.

White, Adam. Water resources engineer. Regional Water Quality Control Board, Central Coast Region, San Luis Obispo, CA. November 1993 - telephone conversation.

Williams, Stephen. Principal planner. Association of Monterey Bay Area Governments. Marina, CA. January 6, 1995 - facsimile transmittal *and September 7, 1995-telephone conversation.*

Wilcoxon, Don. Construction engineer. Rancho San Carlos Partners, Monterey, CA. December 14, 1994 - meeting with Gus Yates.

Wilson, Fred. Lieutenant. Monterey County Sheriff's Department, Monterey, CA. December 19, 1994 - telephone conversation.

Chapter 22. Report Preparation

This ~~draft~~ *final* EIR has been prepared by Jones & Stokes Associates under contract to Monterey County Planning and Building Inspection Department. The individuals, including two subconsultants, who contributed to this report are listed below. Jones & Stokes Associates also wishes to express gratitude to Wanda Hickman of the Monterey County Planning and Building Inspection Department for her rapid response to information requests.

JONES & STOKES ASSOCIATES, INC.

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Becky Rozumowicz	Soils
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Ken Schmidt	Geohydrological Technical Review

Appendix A. Notices of Preparation

This appendix contains the Notices of Preparation for the Combined Development Permit for the Santa Lucia Preserve (PC94067) and the Golf Trail (PC94218) and comment letters received on the Notices of Preparation.

Notice of Preparation for the Combined Development Permit for the Santa Lucia Preserve (PC94067)

MONTEREY COUNTY

PLANNING AND BUILDING INSPECTION DEPARTMENT

P.O. BOX 1208 SALINAS, CALIFORNIA 93902 (408) 755-5025

ROBERT SLIMMON, JR.

DIRECTOR OF PLANNING AND BUILDING INSPECTION

NOTICE OF PREPARATION DATE: August 2, 1994

Dear Sir/Madam

The County of Monterey will prepare an Environmental Impact Report (EIR) for Santa Lucia Preserve (EIR #94-05) to allow a Combined Development Permit.

The EIR will focus on the following items:

> See the attached initial study (attached as Exhibit A) and the Preliminary Scope of Work (attached as Exhibit B).

If you wish to have additional information discussed in the EIR, please submit your comments in writing within 30 days of receipt of this letter. Your response must include reasons why this information is necessary.

A project description and location map are included in the initial study. If you need more information, please contact us.

If we do not hear from you within 30 days we will assume that you agree with the County"s proposal regarding EIR. Thank you.

Sincerely,

Wanda A. Hickman,
Associate Planner

Attachments

EXHIBIT A

INITIAL STUDY

PROJECT NAME: *The Santa Lucia Preserve*

File #(s) PC 94067

MONTEREY COUNTY, CALIFORNIA

OWNER NAME: *Rancho San Carlos Partnership*
Address: P.O. Box 222707, Carmel, CA 93922

LOCATION:

157-121-005-000	239-011-001-000
157-121-014-000	239-011-002-000
157-121-015-000	239-011-003-000
157-131-001-000	239-011-004-000
157-131-003-000	239-011-005-000
157-131-005-000	239-011-006-000
157-131-006-000	239-011-007-000
417-011-006-000	239-011-008-000
417-011-010-000	239-011-009-000
417-011-011-000	239-011-010-000
417-011-012-000	239-011-011-000
417-021-008-000	239-011-012-000
417-021-014-000	239-011-013-000
417-031-008-000	239-011-014-000
417-031-009-000	239-011-015-000
417-031-010-000	239-011-016-000
417-031-013-000	239-011-017-000
417-041-001-000	
417-041-002-000	
417-041-003-000	
417-041-018-000	
417-051-001-000	

STATEMENT OF DETERMINATION/PREPARATION

The following study was prepared by the planner whose signature appears below on behalf of the County of Monterey, State of California.

On the basis of this initial study and any attached or referenced information:
(Check One)

The proposed project **WOULD NOT** have a significant effect on the environment (this includes mitigation measures to change the project to lower significant impacts), and a **NEGATIVE DECLARATION** should be prepared. [ ]

The proposed project **MAY** have a significant impact on the environment, and an **ENVIRONMENTAL IMPACT REPORT** should be prepared. [X]

Date: August 2, 1994

Signed: Project Planner
Wanda A. Hickman, Associate Planner

NOTE: ADDITIONAL INFORMATION MAY BE ATTACHED AS AN APPENDIX REFERENCED BY TOPIC HEADING AND NUMBER. ALSO, SEE COMMENT SECTION AT END OF INITIAL STUDY.

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1. **ENVIRONMENTAL SETTING:**

Describe site size and topography, natural waterways, flora and fauna, existing land use, historical or cultural significance for both the immediate and surrounding site characteristics.

The 20,000 acre parcel is located in Monterey County approximately 2 miles to 10 miles south of Carmel Valley and five miles east of the Pacific Ocean. Access to the site is currently provided by Rancho San Carlos Road, a 10-mile paved private rural road and Robinson Canyon Road, a 9-mile paved county road.

Rancho San Carlos is bounded by the Carmel Valley on the north and northeast, and by relatively undeveloped land on all other sides, except for recreational development of approximately 200 cabins at San Clemente Rancho and White Rock to the south and southeast. The site comprises a portion of the Santa Lucia Mountains southwest of the Carmel River. The property encompasses much of the drainage basins of Hitchcock Canyon, Las Garzas Creek, Potrero Canyon, Robinson Canyon, and San Clemente Creek, are all tributaries of the Carmel River, and San Jose Creek which flows into Carmel Bay just north of Point Lobos.

The site has a varied topography of valleys, flats, rolling hills, and steep slopes, with San Francisquito Flat, occupying the south-central portion. Topography on the ranch ranges in elevation from 3,000 feet along the southwest boundary to roughly 30 feet on the floor of the Carmel Valley in the north. The ridges and valleys generally trend northwest-southeast. Vegetation varies from low-growing grasses to dense groves of redwoods, riparian habitat, chaparral and perennial wetlands.

The site supports a diversity of plants and animal communities. Cattle grazing has occurred on the site for two centuries. There are 14 existing and approved dwelling units on the ranch. The ranch house and auxiliary buildings have 16 guest rooms, a dining room, kitchen, 2 meeting rooms, and approximately 1,000 square feet of office space which are used by employees and guests of the ranch.

---

2. **PROJECT DESCRIPTION:**

Describe the type of project by use, physical shape, supporting infrastructure/public facilities and the finished project's generation of employment, traffic and housing. Describe other project characteristics that relate to possible project impacts, positive or negative, on the environment. Use quantitative analysis if possible. Describe how project will affect the environmental setting. Attach an 8 1/2" x 11" site plan.

The Santa Lucia Preserve (aka. Rancho San Carlos) application for a Combined Development Permit consists of a comprehensive development

plan. The full plan proposes a maximum of 150 visitor serving units, 300 market rate homes, 50 inclusionary housing units, and commercial, equestrian and recreational uses on 2000 acres, and open space/preserve lands on 17, 815 acres.

The proposed Comprehensive Development Plan will consist of the following types of land uses.

- **Residential uses** - The ranch will contain a mix of market rate and inclusionary multi-family/duplex homes. The inclusionary housing will be occupied exclusively by ranch employees in order to minimize off-ranch commuting.

- **Visitor Accommodations** - A Lodge and an expanded Hacienda will be operated at the center of the ranch community. These facilities would provide lodging, meal service, meeting rooms and other guest services for lodge and ranch guest.

- **Neighborhood Serving Commercial** - The resident serving uses are designated to ensure a balanced ranch community that minimizes the need for residents or employees to travel off the ranch.

  Ranch Center - The Ranch Center would provide resident-serving uses such as: post office, retail, grocery, and offices.

  Conservancy - The conservancy would provide library, gallery, meeting rooms, multi-purpose, and administration.

- **Open Space**

  Recreational Facilities - Recreational facilities would consist of resident serving facilities such as a sporting (swim/tennis) club, employee recreation center, and equestrian center.

  Services/Operations - This use consists of ranch management, security, maintenance, and operations.

The Comprehensive Development Plan shows the potential Build-Out for Rancho San Carlos. Build-Out consists of the proposed CDP-GMPAP project uses identified above plus additional uses in the GMPAP area that may occur in later stages as well as other potential uses elsewhere on the ranch that would fall outside of the GMPAP area. The entire ranch is within three planning areas, the Greater Monterey Peninsula Area Plan, the Carmel Valley Master Plan and the Coastal Zone.

The later stage uses within the GMPAP area may consist of:

- **Golf Course and Golf Club**

Additional uses that would fall within the Carmel Valley Master Plan and Coastal Zone boundaries are:

- **Residential Uses** - Market rate single family homes, inclusionary multi-family units and employee housing.

These uses will require further Environmental review when specific permit applications are proposed.

A-7

Background Reports

The following provides a list of consultant reports prepared for the project.

1. Main Ranch House and Guest House Historic Resource Analysis, prepared by Daryl Allen for Gil Sanchez, FAIA, dated February, 1994.

2. Dairy Barn and Employee Housing Historic Resource Analysis, prepared by Greenwood and Associates, dated September 20, 1994.

3. Inventory of Prehistoric Cultural Resources, prepared by Archaeological Consulting, dated February 18, 1994.

4. Forest Management Plan, prepared by Ralph Osterling Consultants, Inc., dated February 18, 1994.

5. Traffic Report for Rancho San Carlos, prepared by Dowling Associates, dated April 22, 1994.

6. Comprehensive Hydrological Study, prepared by Camp Dresser & McKee, Balance Hydrolics, David Keith Todd Consulting Engineers, Geoconsultants, Inc., and Luhdorff & Scalmanini Consulting Engineer dated March, 1994.

7. Comprehensive Wastewater Disposal Plan, prepared by Camp Dresser & McKee Inc. Bestor Engineers, Inc., Clearly Consultants, Geoconsultants, Inc., dated February, 1994.

8. Preliminary Drainage and Erosion Control Report, prepared by Bestor Engineers, Inc., dated February 18, 1994.

9. Geological and Geotechnical Investigation, prepared by Clearly Consultants, Inc., dated February, 1994.

10. Noise Assessment Study, prepared by Charles Salter & Associates, dated February, 1994.

11. Air Quality Analysis, prepared by Donald Ballanti, dated February, 1994.

12. Visual Resource Analysis, prepared by Robert Lamb Hart, dated April, 1994.

13. Fire Safety Management Plan, prepared by Roy A. Perkins, dated February, 1994.

14. Biological Resources Report, prepared by Biosystems Analysis, Inc., dated February, 1994.

15. Grazing Plan, prepared by Sage Associates, dated February, 1994.

16. Mitigation Monitoring Plan, prepared by Denise Duffy & Associates, dated April 1994.

The project is specifically described as follows:

The Combined Development permit which would allow a Vesting Tentative Map for standard subdivision of 16,541 acres into 266 lots including 239 lots ranging in size from 2 - 100 acres for single family residential development, 15 lots ranging in size from 1.88 - 4.64 acres for 39 units of employee and inclusionary housing, 12 lots ranging is size from 2.88 - 228.64 acres for non residential use; and 31 open space parcels ranging in size from 18.96 - 1642.72 acres in size; General development plan for commercial development on lots 255 and 256 to allow 110 room hotel; general development plan for commercial development on lot 257 to allow a 40 room hotel (remodel); general development plan for commercial and public-quasi public uses on lot 258 to allow retail, gas station, employee housing, conservancy offices and sales offices; general development plan for commercial development on lot 259 to allow a sporting center; general development plan for employee recreation center on lot 262 to allow multi purpose building, sporting court, play fields and swimming pool; general development plan for ranch operations center on lot 263 to allow operations office, equipment repair,warehouse, fuel storage, employee housing, and emergency services; major use permit for tree removal ; major use permit and design approval for waste water treatment facility; major use permit for development on 30% slope; 425,000 cubic yards of grading, zoning reclassification from RC/40-D-S (resource conservation 40 acres per unit - design control - site plan review) to LC-D (light commercial - design control) or some other classification on lots 258 and 259; zoning reclassification from RC/40-D/S (resource conservation 40 acres per unit - design control - site plan review) to HC-D (heavy commercial - design control) or some other classification on lots 262 and 263; zoning reclassification from RC/40-D-S (resource conservation 40 acres per unit design control - site plan review) to VO-D (visitors serving professional office - design control) or some other classification, on lots 255, 256, and 257; zoning reclassification from RC/40-D-S (resource conservation 40 acres per unit - design control site plan review) to MDR-B-6-D (medium density residential - building site-design control) or some other classification on lots 28 thru 32, lots 62, 63, 64 and 93; reclassification from RC/40-D-S (resource conservation 40 acres per unit - design approval - site plan review) to LDR-B-6-D (low density residential - building site - design control) or some other classification for all other residential lots; reclassification to add a combining height restriction on lots 28, 29, 30, 31, 32, 65, 76, 77, 83, 84, 134, 224, 225, 226, 251, 253, 254.

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3. **PROJECT CONSISTENCY WITH OTHER APPLICABLE LOCAL AND STATE PLANS AND MANDATED LAWS:**

Use the list below to verify project related plans and their consistency or non-consistency with project implementation.

General Plan/Area Plans __X__ Air Quality Mngmt.Plan _____

Specific Plans _____ Airport Land Use Plans_____

Water Quality Control Plan _____ Local Coastal Program-LUP_____

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4. **PROJECTS THAT HAVE LITTLE OR NO POTENTIAL FOR SIGNIFICANT ENVIRONMENTAL IMPACT:**

Some proposed applications that are not exempt from CEQA review may have little or no potential for adverse environmental impact related to most of the topics in the Environmental Checklist; and/or potential impacts may involve only a few limited subject areas. These types of projects are generally minor in scope, located in a non-sensitive environment, and are easily identifiable and without public controversy. For these types of projects the following finding can be made using the project description, environmental setting, or other information as supporting evidence.

__X__ **CHECK HERE IF THIS SECTION IS NOT APPLICABLE: The project does not meet the criteria in this section. Complete the full Environmental Checklist (Sections 5 - 21) contained in the following pages.**

FINDING: For the following topics (that are checked off and are also listed in the Environmental Checklist) there is no potential for significant environmental impact to occur from either construction, operation or maintenance of the proposed project.

5. EARTH ___ 6. AIR ___ 7. WATER ___ 8. PLANTS ___ 9. ANIMALS ___

10. NATURAL RESOURCES ___ 11. ENERGY ___ 12. LANDUSE ___

13. POPULATION ___ 14. HOUSING ___ 15. TRANSPORTATION ___

16 PUBLIC SERVICES ___ 17. UTILITIES ___ 18. NOISE ___

19. HAZARDS ___ 20. AESTHETICS ___ 21. CULTURAL RESOURCES ___

Topics not checked above must be addressed further in the Environmental Checklist (Sections 5 - 21) on the following pages. For all projects, complete Sections 22 thru 25.

CONCLUSIONS/EVIDENCE TO SUPPORT FINDING ABOVE: _____

_____

_____

_____

_____

_____

_____

_____

_____

ENVIRONMENTAL CHECKLIST
ENVIRONMENTAL IMPACTS/NON IMPACTS

NOTE:

* Summarize conclusions for each section (EARTH, AIR, etc.) with supporting evidence: why there is the potential for (POT.), why there is (YES), or why there is not (NO) -- a significant environmental impact. Use the space provided at the end of each section, or add an attachment with a clear reference.
* Use information such as other reports, plans or studies as supporting evidence. Add persons/agencies contacted.
* Include mitigation measures. Include a mitigation monitoring program as an appendix.

5. EARTH: Significant Impact?

Will the proposal result in:

		NO	POT.	YES
5.1	Unstable earth conditions or in geologic substructures?	___	_X_	___
5.2	Disruptions, displacements, compaction or overcovering of the soil?	___	_X_	___
5.3	Change in topography or ground surface relief features?	_X_	___	___
5.4	The destruction, covering, of modification of any unique geologic or physical features?	_X_	___	___
5.5	Any increase in wind or water erosion of soils, either on or off-site?	___	___	_X_
5.6	Changes in the deposition or erosion of beach sands, or changes in siltation which may modify the channel of a river or stream, or the bed of the ocean or any bay, inlet or lake?	_X_	___	___
5.7	Exposure of people and property to geologic hazards such as earthquakes, landslides, mudslides, ground failure, or similar hazard?	___	_X_	___

EARTH: Conclusions w/evidence - Persons contacted. Monitoring/Mitigation Measures?

A Geological and Geotechnical Investigation, dated February 15, 1994, was prepared for the Vesting Tentative Map of the Santa Lucia project. The report included review of surface and subsurface investigation of faulting and landsliding, laboratory testing and a geologic and engineering analysis. The EIR consultant will be expected to work with a third party consultant (Geologist on Monterey County lists of Consultants) to review and comment on the geological and geotechnical investigation prepared by Clearly Consultants.

Will the proposal result in:

		NO	POT.	YES
6.1	Substantial air emissions or deterioration of ambient air quality?	___	_X_	___
6.2	The creation of objectionable odors?	_X_	___	___
6.3	Alteration of air movement, moisture, or temperature, or any change in climate, either locally or regionally?	_X_	___	___

AIR: Conclusions w/evidence - Persons contacted. Monitoring/Mitigation Measures?

Per the Air Quality Impact Analysis of the proposed project, dated February, 1994 and prepared by Donald Ballanti. Construction activities will be phased over a 10 to 20 year period which will be a minor source of organic gas emissions. Additionally project fugitive dust will be generated at construction sites, and along haul roads and access roads, from borrow pit operation and use of a portable asphalt batch plant.

On the local scale the greatest interest is carbon monoxide from traffic and congestion along streets and intersections. Vehicle trips generated by the project would result in air pollutant emissions affecting the entire North Central Coast air basing. Additional assessment will be required in the Draft EIR.

7. WATER: Significant Impact?

Will the proposal result in:

		NO	POT.	YES
7.1	Changes in currents, or the course of direction of water movements, in either marine or fresh waters?	_X_	___	___
7.2	Changes in absorption rates, drainage patterns, or the rate and amount of surface runoff?	___	___	_X_
7.3	Alterations to the course or flow of flood patterns?	_X_	___	___
7.4	Change in the amount of surface water in any water body?	_X_	___	___
7.5	Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen, or turbidity?	_X_	___	___
7.6	Alteration of the direction or rate of flow of ground waters?	_X_	___	___

		NO	POT.	YES
7.7	Change in the quantity of groundwaters, either through direct additions or through interception of an aquifer by cuts or excavations?	___	_X_	___
7.8	Substantial reduction in the amount of water otherwise available for public water supplies?	___	_X_	___
7.9	Exposure of people or property to water related hazards such as flooding or tidal waves?	_X_	___	___

WATER: Conclusions w/evidence - Persons contacted. Monitoring/Mitigation Measures?

A Comprehensive Hydrological Study was prepared in March, 1994 by Camp Dresser & McKee, Balance Hydrologics, David Keith Todd Consulting Engineers, Geoconsultants, Inc., and Luhdorff & Scalmanini Consulting Engineers. Policies of the Greater Monterey Peninsula Area Plan requires that development shall be permitted on Rancho San Carlos to a level consistent with safe yield of the proven water resources, provided that the level of development has no adverse impact on off-site water resources. A separate third contract has been established for the third party review of the water report. The EIR Consultant will be expected to work with the third party consultant and analyze the conclusions of the consultants work for the EIR for consistency with this policies.

Runoff from the project has been calculated on a watershed by watershed basis. The project application proposes management guidelines for erosion and sediment control during home site and road construction and wildland management for dust, erosion and sediment control during and after project buildout.

A-10

8. PLANT LIFE: Significant Impact?

Will the proposal result in:

		NO	POT.	YES
8.1	Change in the diversity of species, or number of any species of plants (including trees, shrubs, grass, crops, and aquatic plants)?	___	_X_	___
8.2	Reduction of the numbers of any unique, rare or endangered species of plants?	___	_X_	___
8.3	Introduction of a new species of plants into an area, or result in a barrier to the normal replenishment of existing species?	___	_X_	___

PLANT LIFE: Conclusions w/evidence - Persons contacted. Monitoring/Mitigation Measures?

Biosystem Analysis, Inc. Prepared a special-status Biological Report, dated February 1994.

Wetlands: One percent of the land area of the site - 196 acres - has been identified as wetlands in a resource survey. Wetland Research Associates identified 98 wetland patches, ranging in size from less than one acre to over 60 acres.

Redwoods: Two redwood trees will be removed; one is an unsafe redwood tree that poses an existing hazard; the second is a small 9-inch diameter redwood. No existing redwood groves will be lost to development. there are approximately 545 acres of redwood dominant habitats in 121 individual patches, ranging in size from less than one acre to over 60 acres. This represents 2.75 percent of the land area of Rancho San Carlos. New redwood plantings and management of the existing redwood resources to encourage regeneration is included in the Resource Management Plan.

Forest Management: The Forest Management Plan report projects that the removal of 1,480 of the estimated 550,000 trees on the ranch is required. Of the trees scheduled for removal, coast live oak, which actively regenerates in Monterey County, is the predominant species and accounts for 71 percent of the total. Ten (10) percent of the trees to one for trees less than 24-inch in diameter and five to one for trees larger.

Biosystems documented six special-status plant species:

- Douglas spineflower
- Pinnacles buckwheat
- Small-leaved lomatium
- Gairdner's yampah
- Monterey pine
- Lewis's clarkia

None of these were found in areas proposed for development and none are state or federally listed; Gairdner's yampah is a federal Category 2 Candidate species.

9. ANIMAL LIFE Significant Impact?

Will the proposal result in:

		NO	POT.	YES
9.1	Change in the diversity of species, or numbers of any species of animals (birds, land animals including reptiles, fish, and shell fish, benthic organisms or insects)?	___	_X_	___
9.2	Reduction in the numbers of any unique, rare or endangered species of animals?	___	_X_	___
9.3	Introduction of new species of animals into the area, or result in a barrier to the migration or movement of animals?	___	_X_	___
9.4	Deterioration to existing fish or wildlife habitat?	___	_X_	___

ANIMAL LIFE: Conclusions w/evidence - Persons contacted. Monitoring/Mitigation Measures?

BioSystems Analysis, Inc. Prepared a Special-Status Biological Resources Report dated February 1994. The plan proposes placing 18,000 acres of ranch in permanent open space. More than 2,000 special habitat features and incidental wildlife observations were found. The Monterey County Board of Supervisors' Resolution No. 93-115, which amended the Greater Monterey Peninsula Area Plan (GMPAP) required a Resource Management Plan (RMP) as part of an application. A RMP that establishes the framework and principles for managing the natural resources on the 20,000-acre Santa Lucia Community Preserve has been submitted as a part of the comprehensive development plan.

No significant impacts are expected to result from project development on the following special-status wildlife species: Smith's blue butterfly, California tiger salamander, California red-legged frog, foothill yellow-legged frog, southwestern pond turtle, Cooper's hawk, golden eagle, long eared owl, burrowing owl, California spotted owl, California horned lark, purple martin, yellow warbler, yellow-breasted chat, Townshend's western big-eared bat, pallid bat, American Badger, bald eagle, peregrine falcon, marbled murrelet, willow flychatcher, sharp-spinned hawk, northern harrier, black-shouldered kite, merlin, prairie falcon, and tricolored blackbird.

10. NATURAL RESOURCES	Significant Impact?		
	NO	POT.	YES
10.1 Will the proposal result in the increased in rate of use of Natural Resources.	___	_X_	___

NATURAL RESOURCES: Conclusions w/evidence - Persons contacted. Monitoring/Mitigation Measures?

The proposal includes use of on-site quarries for paving materials. The use of these quarries for road paving could potentially have a significant on natural resources.

11. ENERGY	Significant Impact?		
Will the proposal result in:			
11.1 Use of substantial amounts of fuel or energy?	NO _X_	POT. ___	YES ___
11.2 Substantial increase in demand upon existing sources of energy, or require the development of new sources of energy?	NO _X_	POT. ___	YES ___

ENERGY: Conclusions w/evidence - Persons contacted. Monitoring/Mitigation Measures?

The proposal will not have a significant impact on energy or create a demand upon existing sources of energy or require new sources of energy.

12. LAND USE	Significant Impact?		
12.1 Will the proposal result in a substantial alteration of the present or planned land use of an area?	NO ___	POT. _X_	YES ___

12.2 Reduction in acreage of any agricultural crops?	NO _X_	POT. ___	YES ___

LAND USE: Conclusions w/evidence - Persons contacted. Monitoring/Mitigation Measures?

The Greater Monterey Peninsula Area Plan allows for the proposed development. The alteration of the present or planned land use was assessed in EIR 87-013.

13. POPULATION	Significant Impact?		
13.1 Will the proposal alter the location, distribution, density, or growth rate of human population of an area?	NO ___	POT. _X_	YES ___

POPULATION: Conclusions w/evidence - Persons contacted. Monitoring/Mitigation Measures?

See EIR 87-013 which assessed an amendment to the Greater Monterey Peninsula Area Plan to allow increased density on the Rancho San Carlos property.

14. HOUSING	Significant Impact?		
14.1 Will the proposal affect existing housing, or create a demand for additional housing?	NO ___	POT. _X_	YES ___

HOUSING: Conclusions w/evidence - Persons contacted. Monitoring/Mitigation Measures?

The proposed commercial Development may potentially create a demand for additional housing.

15. TRANSPORTATION/CIRCULATION	Significant Impact?		
Will the proposal result in:			
15.1 Generation of substantial additional vehicular movement?	NO ___	POT. ___	YES _X_
15.2 Effects on existing parking facilities, or demand for new parking?	NO ___	POT. _X_	YES ___
15.3 Substantial impact upon existing transportation systems?	NO ___	POT. _X_	YES ___
15.4 Alteration to present patterns of circulation or movement of people/goods?	NO ___	POT. ___	YES _X_
15.5 Alterations to waterborne, rail, or air traffic?	NO _X_	POT. ___	YES ___
15.6 Increases in traffic hazards to motor vehicles, bicyclists or pedestrians?	NO ___	POT. _X_	YES ___

TRANSPORTATION/CIRCULATION: Conclusions w/evidence - Persons contacted. Monitoring/Mitigation Measures?

A Traffic Report for Rancho San Carlos was prepared by Dowling Associates dated April 22, 1994. The report focuses on four primary roads: Carmel Valley Road, Highway One, Rancho San Carlos Road and Robinson Canyon Road. When completed (estimated to be accomplished over a 20-year period), the Santa Lucia Community Preserve would potentially add a total of 218 daily trips onto and off the ranch during the PM peak commute hour.

A Trip Reduction Program (TRP) and a Traffic Management Association (TMA) will provide for on-site employee housing, consolidation of deliveries, van-pooling of employees and school children, and shuttle services, as well as onsite services such as a general store and postal services, and recreational opportunities.

Key findings contained in the traffic report with recommended mitigation:

Carmel Valley Road

Carmel Valley Road currently carries between 1,000 and 2,400 vehicle trips during the PM peak hour. (1992 numbers were used throught the traffic report because they were higher than recorded 1993 volumes). Completion of the Santa Lucia Community Preserve would have these impacts on the critical segments of Carmel Valley Road:

- Add 28PM peak hour vehicle trips to the current 1,590 trips on segment six of Carmel Valley Road between Schulte Road and Robinson Canyon Road, a 1.7 percent increase over existing conditions.

- Add 19 PM peak hour vehicle trips to the current 1,140 trips on segment three of Carmel Valley Road between Laureles Grade Road and Ford Road, a 1.7 percent increase over existing conditions.

- Add 42 PM peak hour vehicle trips to the current 1,600 trips on segment seven of Carmel Valley Road between Schulte Road and Rancho San Carlos Road, a 2.6 percent increase over existing conditions.

None of the projected traffic from the Santa Lucia Community Preserve would cause a change in the current level of service or future cumulative level of service on any segment along Carmel Valley Road, according to the traffic report.

Monterey County is studying plans for safety improvements along the entire length of Carmel Valley Road and for construction of passing lanes on Carmel Valley Road between Rancho San Carlos Road and Robinson Canyon Road. Monterey County has adopted an ordinance which establishes traffic impact fees to fund improvements to Carmel Valley Road. Rancho San Carlos will be required to make substantial contributions toward these improvements.

State Highway One

State Highway One currently carries between 2,100 and 6,100 vehicle trips a day at the PM peak hour.

Completion of the Santa Lucia Community Preserve would add 100 PM peak hour vehicle trips to Highway One between Carmel Valley Road and Ocean Avenue, a 3.4 percent increase over the 2,942 PM peak hour vehicle trips that were present in 1992. The existing level of service on Highway One and its intersections, except for Carpenter Street, would not be lowered by the addition of traffic from the completed project. The intersection of Carpenter Street would have a lower LOS unless ap proposed employee shuttle program to reduce traffic during peak hours is instituted.

A number of operational improvements for Highway One between Rio Road and Carpenter Street have been recommended to the California Transportation Commission (CTC) for approval by the Transportation Agency of Monterey County (TAMC) and Caltrans.

Rancho San Carlos Road/Carmel Valley Road

Rancho San Carlos is an existing 10 mile private, paved rural road that carries 10 PM peak hour vehicle trips within Rancho San Carlos and 180 PM peak hour trips a day between Valley Green Drive and Carmel Valley Road. The intersection of Rancho San Carlos Road and Carmel Valley Road was reconstructed in October 1993 as part of the mitigation requirements imposed by Monterey County on the Quail Meadows development. Additional striping and reflectors have been installed by the County to improve safety.

The existing Rancho San Carlos Road bridge across Carmel River has a paved width of 20 feet. Pedestrians must currently walk in the traveled way to cross the bridge. to improve safety, the project proposes to add a pedestrian bridge tot be existing structure.

Completion of the Santa Lucia Community Preserve would add 198 peak PM vehicles to Rancho San Carlos Road. When combined with existing traffic plus approved and proposed projects in the vicinity, the total traffic will exceed the left turn capacity at the intersection.

As a result, Rancho San Carlos proposes to construct these improvements as part of the project:

- A long left turn lane refuge on Carmel Valley Road for vehicles turning left out of Rancho San Carlos. This lane would extend west to the existing four-lane section.

- An extended right turn exit lane for eastbound traffic on Carmel Valley Road at Rancho San Carlos Road.

Robinson Canyon Road

Robinson Canyon Road is a nine-mile long, two lane public rural road which varies in paved width from 16 to 22 feet within Rancho San Carlos. About seven miles of the road run north to south through the easterly third of the ranch. Robinson Canyon Road carries 200 PM peak hour trips a day where it crosses the Carmel River and between 10 and 17 PM peak hour trips a day on the section within Rancho San Carlos. These volumes vary by season.

Completion of the Santa Lucia Community Preserve may add 20 vehicles per hour (total for both directions) to Robinson Canyon Road between the ranch's northern boundary and Carmel Valley Road during the standard PM weekday peak hour (4:30 to 5:30 p.m.). These peak hour trips are not expected to travel at the same time as the current early afternoon peak hour trips on the portion of the road within the ranch. As calculated under the federal Highway Capacity manual, the addition of this traffic will not cause Robinson Canyon Road to exceed or approach the capacity of the road.

The Board of Supervisors has required that the design and improvement for the Santa Lucia Community Preserve minimize the amount of traffic using Robinson Canyon Road. The Board suggested several methods to achieve this result, including improvements of interior roads and alternative access that deter and discourage the use of Robinson Canyon Road.

Rancho San Carlos Road will be widened and realigned. Also internal road circulation of the Santa Lucia Community Preserve is designed to feed traffic from east of Robinson Canyon Road onto this preferred route.

16. PUBLIC SERVICES — Significant Impact?

Will the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas:

	NO	POT.	YES
16.1 Fire protection?	___	___	_X_
16.2 Police protection?	___	___	_X_
16.3 Schools?	___	_X_	___
16.4 Parks or Other Recreational facilities?	___	_X_	___
16.5 Maintenance of public facilities, including roads?	___	_X_	___
16.6 Other governmental services?	___	_X_	___

PUBLIC SERVICES: Conclusion w/evidence - Persons contacted. Monitoring/Mitigation Measures?

Fire Protection: A comprehensive Fire Safety Management Plan is part of the application. The plan provides for on-site firefighting equipment and trained personnel; development and maintanance of a water distribution system with the needed capacity to protect homes and the natural landscape; an extensive system of maintained emergency access roads and firebreaks providing loop extensions to the paved circulation systems; and provision for "fire safety zones" at key locations along the circulation system to provide refuge in the event of a fire.

The increased residential and visitor use of the area may create increased Sheriff's beat area patrols as well as more patrols on trails in regional parks. Residential use will ultimately have some impact upon schools in the Carmel Unified School District.

17. UTILITIES — Significant Impact?

	NO	POT.	YES
17.1 Will the proposal result in a need for new systems, or substantial alterations to the area utilities?	___	_X_	___

UTILITIES: Conclusions w/evidence - Persons contacted. Monitoring/Mitigation Measures?

New Development in areas currently without utilities will require a need for new systems.

18. NOISE — Significant Impact?

	NO	POT.	YES
18.1 Increases in existing noise levels?	___	_X_	___
18.2 Exposure of people to severe noises?	_X_	___	___

NOISE: Conclusions w/evidence - Persons contacted. Monitoring/Mitigation Measures?

Charles M. Salter Associates prepared a Noise Assessment Study for Rancho San Carlos dated February 1994. The greatest noise impact to the project site is from short-term construction activities. Construction activities after the first year will diminish and generally be localized at home sites and central facilities as they are constructed. The indirect noise impacts are those associated with project generated transportation and project-related construction.

19. HAZARDS/HUMAN HEALTH — Significant Impact?

	NO	POT.	YES
19.1 A risk of an explosion or the release of hazardous substances (including, but not limited to, oil, pesticides, chemicals or radiation) in the event of an accident or upset conditions?	_X_	___	___
19.2 Possible interference with an emergency evacuation plan?	_X_	___	___
19.3 Creation of any health hazard or potential health hazard?	_X_	___	___
19.4 Exposure of people to potential health hazards?	_X_	___	___

HAZARDS/HUMAN HEALTH: Conclusions w/evidence - Persons contacted. Monitoring/Mitigation Measures?

Based upon review of project description by Agencies of Monterey County and review of Monterey County Environmental Department. The project will not have a significant effect on hazards/human health.

20. AESTHETICS

	Significant Impact?		
	NO	POT.	YES
20.1 Will the proposal result in the obstruction of any scenic vista or view open to the public, or will the proposal result in the creation of an aesthetically offensive site open to public view?	___	___	_X_

AESTHETICS: Conclusions w/evidence - Persons contacted. Monitoring/Mitigation Measures?

Robert Lamb Hart prepared a Visual Analysis dated April, 1994. Staff field review indicates that development will be visible from Robinson Canyon Road which is designated as an existing scenic route on figure 10 of the GMPAP.

21. CULTURAL RESOURCES

	Significant Impact?		
	NO	POT.	YES
21.1 Will the proposal result in the alteration of, or the destruction of, a prehistoric or historic site?	___	_X_	___
21.2 Will the proposal result in adverse physical or aesthetic effects to a prehistoric or historic building, structure or object?	___	_X_	___
21.3 Does the proposal have the potential to cause a physical change which would affect unique ethnic or cultural values?	___	_X_	___
21.4 Will the proposal restrict existing religious or sacred uses within the potential impact area?	_X_	___	___

CULTURAL RESOURCES: Conclusions w/evidence - Persons contacted. Monitoring/Mitigation Measures?

A Historic Resources Analysis for the Main Ranch House and Guest House dated February, 1994 was prepared by Daryl Allen for Gil Sanchez. A Historic Resource Analysis for the Dairy Barn and Employees Housing dated September 20, 1991 was prepared by Greenwood and Associates. An Inventory of Prehistoric Cultural Resources dated February 18, 1994 was prepared by Archaeological Consulting.

Historic Sites & Archaeology: An earlier County study identified four historic sites at Rancho San Carlos. With the exception of portions of the San Francisquito area where the ranch house is located, all sites will be in the undeveloped Preserve Lands. The Ranch House, and historic structure, requires improvements, including seismic and Americans with Disabilities Act (ADA) upgrades.

In the archaeological study submitted as part of the application reports, 45 prehistoric archaeological sites were identified and recorded, ranging from small isolated bedrock mortars to large semi-permanent village sites.

These reports will be analyzed in the recommended EIR.

22. CUMULATIVE/GROWTH INDUCING IMPACTS

NOTE: Describe any cumulative/growth inducing impacts that may occur due to implementation of the project. Identify checklist topic related to the impact and provide adequate evidence.

The Environmental Impact Report will address cumulative/growth inducing impacts.

23. FEASIBLE PROJECT ALTERNATIVES:

NOTE: If there are significant environmental impacts caused by the project that are unmitigable below significance, describe below any possible project alternatives that would have less environmental impacts.

The Environmental Impact Report will evaluate alternatives such as Residential Only Alternative, Reduced Density Alternative, and Reduced Commercial Alternative.

24. STATEMENT OF MANDATORY FINDINGS OF SIGNIFICANCE

NOTE: If there are significant environmental impacts which cannot be mitigated and no feasible project alternatives are available, then complete the mandatory findings of significance and attach to this initial study as an appendix. This is the first step for starting the environmental impact report (EIR) process.

Items checked "yes" in this Initial Study include 4.5 erosion, 6.2 surface runoff, 6.7 groundwater usage, 14.1 vehicular movements, 15.1 fire protection, 15.2 police protection, 16.1 new utility systems, 19.1 obstruction of scenic views.

The applicants/subdividers have agreed to prepare an EIR for this project, on April 25, 1994.

25. FISH AND GAME ENVIRONMENTAL DOCUMENT FEES

Assessment of Fee:

For purposes of implementing Section 735.5 of Title 14, California Code of Regulations: If based on the record as a whole, the Planner determines that implementation of the project described herein, will result in changes to resources A-G listed below, then a Fish and Game Document Filing Fee must be assessed. Based upon analysis using the criteria A-G, and information contained in the record, state conclusions with evidence below.

A) Riparian land, rivers, streams, water courses, and wetlands under state and federal jurisdiction;

B) Native and non-native plant life and the soil required to sustain habitat for fish and wildlife;

C) Rare and unique plant life and ecological communities dependent on plant life, and;

D) Listed threatened and endangered plant and animals and the habitat in which they are believed to reside.

E) All species of plant or animals as listed as protected or identified for special management in the Fish and Game Code, the Public Resources Code, and the Water Code, or regulations adopted thereunder;

F) All marine terrestrial species subject to the jurisdiction of the Department of Fish and Game and the ecological communities in which they reside;

G) All air and water resources the degradation of which will individually or cumulatively result in the loss of biological diversity among plants and animals residing in air or water.

De minimis Fee Exemption: For purposes of implementing Section 735.5 of the California Code of Regulations: A De minimis Exemption may be granted to the Environmental Document Fee if there is substantial evidence, based on the record as a whole, that there will not be changes to the above named resources 24.A-G caused by implementation of the project. Using the above criteria, state conclusions with evidence below, and follow Planning and Building Inspection Department Procedures for filing a de minimis exemption.

Conclusions:

There is no diminimis fee execption. Items 7, 8, and 9 in this Initial Study indicate that there may well be impacts which do not qualify as deminimis dven though they may not be significant.

Evidence:

See backgound reports #s 14) Biological Resources Report by Biosystems Analysis; 4) Forest Management plan by Ralph Osterling Consultants Inc.

26. ADDITIONAL COMMENTS

NOTE: Include topic heading and number.

_____

_____

_____

_____

_____

_____

_____

_____

_____

27. ATTACHED APPENDICES

1) _____ 2) _____ 3) _____

4) _____ 5) _____ 6) _____

FIGURE 1-20

Comprehensive Development Plan

Land Use Summary	GMPAP	CVMP	Coastal Zone	TOTAL
The acreage shown in this table are approximate.				
PRESERVE LANDS — Total Grazing, Recreation, and Resource Conservation Use	15,055 [1]a	2,057a	703a	17,815a
SETTLED LANDS — Total Commercial, Visitor Accomodation, Recreation and Residential Uses	1,486 [2]a	487a	27a	2,000a
Ranchettes	517a	65a	—	582a
•Commercial	14a	16a	—	30a
•Visitor Accomodation	121a	—	—	121a
•Recreational Open Space	382a	49a	—	431a
Homesites •Residential	969a	422a	27a	1,418a
TOTAL ACRES	16,541a	2,544a	730a	19,815a

Unit Summary	GMPAP	CVMP	Coastal Zone	TOTAL
RESIDENTIAL UNITS	283	62	5	350 [3]
VISITOR ACCOMODATION UNITS	150	0	0	150 [4]

Notes:
1. 14,467 acres minimum per Board Resolution 95-115.
2. Not to exceed 2,500 acres per Board Resolution 95-115.
3. Not to exceed 350 per Board Resolution 95-115.
4. Not to exceed 150 per Board Resolution 95-115.

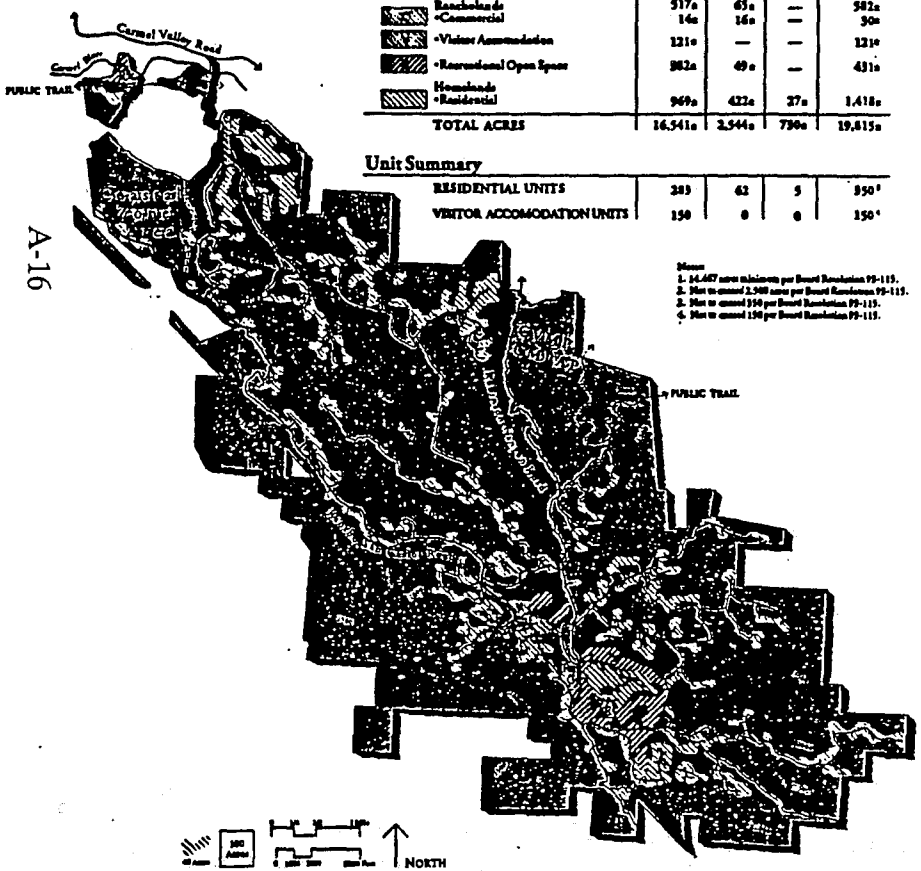
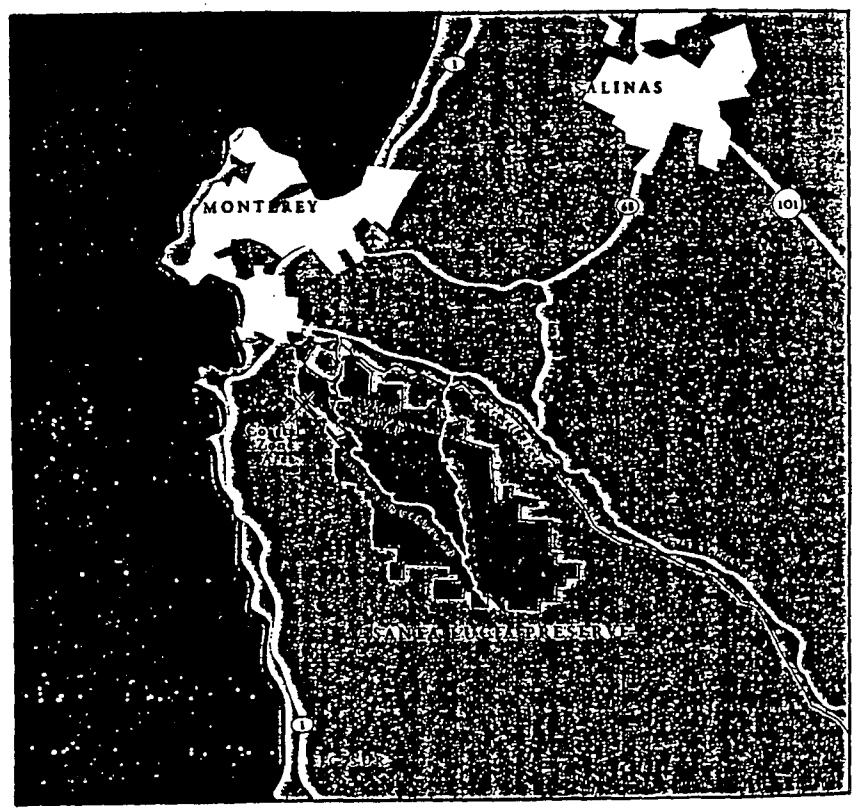


FIGURE 1-1

Regional Context Map



0 1 2 4Mile NORTH

EXHIBIT A-1

EIR SCOPE OF WORK

COMBINED DEVELOPMENT PERMIT

RANCHO SAN CARLOS
(PC94067)

1. GEOLOGY

___ Review and incorporate the geological and geotehnical investigation prepared for the project by Cleary Consultant, Inc. dated February, 1994. This investigation shall be summarized and major points emphasized with the format of the EIR. Provide a third party review by a qualified geologist of this report for the EIR. Reference the report as an appendix to the Environmental Impact Report.

___ The geology report shall be consistent with "Guidelines for Geologic/Seismic Reports" of the California Division of Mines and Geology(CDMG Notes #46).

This information shall be summarized and major points emphasized within the format of the Environmental Impact Report.

Setting - Description - Impacts

Using the Geological and Geotechnical Report, include the following in the EIR:

___ Describe regional geologic setting.

___ Describe geologic conditions including soil, sediment, rock types and characteristics.

___ Review and incorporate additional information which appears in Section 3 of the Comprehensive Wastewater Disposal Plan. A 1:400 scale map showing the location and type of soils investigations is part of the additional information. Also available from Cleary Consultants are the water levels of 100 shallow monitoring wells which may also have some bearing on the geotechnical impacts of the development.

___ Describe geologic structural features including bedding, joints and faults.

___ Describe evidence of past or potential landslide conditions.

Describe the implications of these conditions and the proposed development(on/offsite) to include impacts by the development on landslides or the impact of possible landslides on development.

___ Describe the effects of roadcuts on slopes in excess of 30 percent. Include effects on slope stability, erosion and increase runoff.

___ Describe ground and surface water conditions, natural variations, and their impact on geologic conditions. Describe possible or probable changes in ground/surface water hydrology and subsequent geologic changes caused by completion/construction of the project. Examples could include:

- Introduction of sewer effluent or irrigation water to groundwater system.
- Alterations in surface water flow patterns.
-

___ Discuss the maximum credible earthquake in the area to include the subsequent seismic forces and resulting possible damage.

___ Describe impacts from project siting, design, the septic system, landscaping, drainage, grading and construction practices with regards to geologic stability of the project site.

___ Discuss the possible destabilizing effect of deep water pumping in fractured bedrock along or near faults systems and the impacts they would have on the fault systems that either a conduit or barrier to water movement.

___ Include other on/off site factors that might contribute to slope instability.

___ Discuss erosion and the project site to include existing and possible/probable future conditions on/off site because of conditions relating to site development or natural causes.

Mitigation Measures-Geology

___ Suggest alternatives locations to road and or development to avoid geological hazards.

___ Suggest possible engineering alternatives to stabilize landslide conditions exposed during the geologic study.

___ Suggest best engineering practices to protect structures during a maximum credible earthquake.

___ Provide measures to mitigate possible hydrologic changes caused by completion or during construction of the project.

___ Provide measures to alleviate erosion caused by completion or construction of the project on/offsite. Examples might include:

- Best Management Practices during construction.
- Landscaping and both on/offsite drainage improvements.
- Other possible recommended mitigation measures.

Responsible/Concerned Agencies-Institutions

California State Resources Agency-
Division of Mines and Geology
United States Geological Service
Monterey County Department of Environmental Health

2. MINERALS

Setting, Description, Impacts

___ Discuss the relationship of the project to any known mineral deposits and how the project might impact those deposits.

___ Discuss utilization of on-site quarries for road and building materials. Discuss locations and associated impacts, such as noise, erosion, dust, viewshed and traffic. How quarries will be managed and how they will be reclaimed.

___ Show how the project uses are compatible with the current or future processes of mineral extraction.

___ If the project includes mineral extraction, include impacts of this particular project on future supplies and availability of this mineral resource within Monterey County and the State.

___ If the project significantly impairs future mineral extraction, or if the level of mineral extraction is deemed to cause a significant impact on existing County resources, include possible alternative projects and show the availability of mineral resources in these locations.

Mitigation Measures-Minerals

___ Discuss alternative sites and locations that provide mineral resources that are depleted or made inactive by the project.

Responsible/Concerned Agencies-Institutions

California State Resources Agency-
Division of Mines and Geology

3. SOILS

Description, Setting, Impacts

___ Review and incorporate the geological and geotechnical investigation prepared for the project by Cleary Consultants, Inc. dated February 1994 and revised/updated information. This investigation shall be summarized and major points emphasized with the format of the EIR. Reference the report as an appendix to the Environmental Impact Report.

___ Review and incorporate the Preliminary Drainage and Erosion Control Report prepared for the project by Bestor Engineers dated February 1994. This investigation shall be summarized and major points emphasized with the format of the EIR. Reference the report as an appendix to the Environmental Impact Report.

___ Discuss the potential erosion and drainage impacts from the proposed development.

___ Discuss the amount of land disturbance or bare ground created or reduced as a result of the proposed development.

___ Discuss whether the project is located in a Watershed Restoration Area and the particular impacts associated with this sensitive environment.

Mitigation Measures - Soils

___ Consult the "Erosion Control Plan" to identify specific mitigation measures for the project.

A summary of theses measures is provided below:

- Provide detailed plans for surface and sub-surface drainage devises.
- Provide measures to retain stormwater run-off resulting from a "20 year" occurrence.
- Provide site management including landscape and revegetation plans. Include monitoring programs to ensure the long-term success of these plans.

___ Discuss different methods of erosion control for the site including grading techniques, landscaping techniques and site planning techniques.

___ Require site landscaping - plans to be included on a recorded map and approved by the Director of Planning and Building Inspection (PD12).

___ Require maintenance of landscaping (PD13).

___ Require landscaping plans for road cuts to include bonding to be approved by the Director of Planning and Building Inspection (PD8).

___ Require cut/fill slopes to be preserved through coverage, seeding to control erosion during construction (PD14).

___ Require restoration of natural materials per approved plan (PD 18).

___ Require the conveyance of a scenic easement to the county for slopes over 30% (PD1).

___ Provide for restoration/clean up of, and or contingency plans for soil contamination for construction or maintenance of project.

___ Submit plans for surface and subsurface drainage improvements for review and approval to the Director of Environmental Health to determine potential septic system impacts.

Responsible/Concerned Agencies-Institutions

California Department of Conservation
USDA Soil Conservation Service
Monterey County Department of Environmental Health

4. AIR QUALITY

Description, Setting, Impacts

___ Review and incorporate the Air Quality Impact Analysis prepared for the project by Donald Ballanti, dated February 1994. This analysis shall be summarized and major points emphasized within the format of the EIR. Reference the report as an appendix to the Environmental Impact Report. (Monterey Bay Unified Air Pollution Control District's guidelines for the Assessment of Environmental impact documents are attached as an addendum)

___ The project proposes as a meanas to reduce off-site traffic impacts, an asphalt batch plant, include plant location and impact on air quality.

___ Discuss Federal and State Ambient Air Quality Standards.

___ Summarize ambient air quality data for ozone and Particulate Matter 10 (P.M.10) for the Tri County Basin.

___ Discuss the project consistency with the Air Quality Management Plan for the Monterey Bay Region in accordance with Chapter 13 of the Plan. Compare the population generated by the project by percentage to the population forecasts in the Air Quality Management Plan.

___ Direct an indirect source emissions from all proposed activities should be quantified and their impact on air quality assessed. If the project would significantly affect an intersection, modeling should be undertaken to determine if carbon monoxide standards would be violated.

___ **Analyzing Emissions by Phase-Construction and Operation**

___ Discuss construction phase emissions including dust, construction worker traffic, and exhaust from heavy duty gasoline and diesel powered vehicles. Source: Air Pollution Emissions Factors Manual AP 42 - U.S. EPA September 1988.

___ Discuss emissions to be generated directly from the operations of the project. Emissions estimates shall be provided for all the pollutants regulated under the Rules and Regulations of the Monterey Bay Unified Air Pollution Control District. Methodology will vary depending on source and pollutant.

___ Discuss airborne hazardous or toxic pollutants expected to be generated by the project. MBUAPCD Rule 1000 permit guidelines and requirements for sources emitting toxic air contaminates shall be consulted for standards and possible mitigation measures.

___ Discuss secondary sources of air pollution from implementation of the project. Emissions from motor vehicles used during the ongoing operation of the project or emissions related to growth inducing impacts caused by the project.

___ Discuss reactive organic gasses (ROX) and oxides of

nitrogen (NOX) which would be generated by motor vehicles associated with the subject project. Carbon Monoxide is also related to traffic generation. If the project will contribute to significant levels of traffic congestion at intersections, roadway links, and places of ingress/egress, then (CO) should be measured. ROG, CO, and NOX shall be measured in tons per year or tons per day.

Source: Two models are available from the California Air Resources Board for estimating emissions: 1) URBE MIS #2, and 2) Supplement to Procedure Basis for Estimating ON-Road-Vehicle-Emissions.

Source: A suitable micro-scale model for CO emissions measuring concentrations vs. tons per day is the computer model Caline $, available from the California Air Resources Board.

Mitigation Measures - Air Quality

___ The EIR shall identify those mitigation measures necessary to reduce significant air quality impacts to an acceptable level. The following information shall be provided for each mitigation measure:

- Emission reduction effectiveness of these measures should be quantified and their feasibility addressed.
- Agency responsibility for measure implementation.
- Cost and time frame for implementation of measure.
- Monitoring identified

Responsible/Concerned Agencies-Institutions

Environmental Protection Agency
California State Air Resources Board
Monterey Bay Unified Air Pollution Control District
Monterey County Department of Environmental Health

5. HYDROLOGY

___ Utilize existing ground water studies available from the Monterey County Water Resources Agency, County Environmental Health Division, Monterey Peninsula Water Management District and Comprehensive Hydrological Study, prepared for the project by Camp Dresser and McKee Inc., Balance Hydrologics, David Keith Todd Consulting Engineers, Geoconsultants, Inc., and Luhdorff and Scalmanini Consulting Engineers dated March 1994, Supplement to Comprehensive Hydrological Study dated July 1994, and additional supplements to be submitted by the applicant during the preparation of the

EIR. A third party review of this report is being conducted under a separate contract. The results and conclusions of the study and the results of the third party review shall be summarized and major points emphasized within the format of the EIR. (The incompleteness/EIR issues that were addressed in the June 2 and 9, 1994 meetings between the developer and the County agencies and responses to Notice of preparation are attached to the scope of work as addendum explaining additional analyses that are to be addressed by the project developer.)

note: See attachment dated October 21, 1994 regarding comments, concerns, roles of EIR consultants and proposals from the Water Agencies.

___ In the following assessment and analysis of hydrology include both surface and sub-surface conditions. Be sure to describe their relationship separately and together and how an impact to one may be a direct/indirect impact to the other surface and subsurface streams, seeps, springs underflow and groundwater.

___ Discuss consistency with Greater Monterey Peninsula Area Plan Amendment (Resolution 93-115)

Description, Setting, Impacts

___ Utilize the Comprehensive Hydrological Study, Supplements thereto, and comments from the third party review, summarize and analyze; the project's description, conclusions of the hydrological information submitted, localized impacts, off-site impacts, and the following:

___ Describe the hydrologic setting and drainage system to include cultivated/non-cultivated areas.

___ Discuss the location of floodplains in the area and their relationship to the project. Discuss the effects of a 10 and 100 year event.

___ Describe the regional source of water for the project and how it is supplied to the site. Provide description of off-site hydrology.

___ Discuss both on-site and off-site potential surface and ground water impacts from project.

___ Provide an assessment of existing and proposed water usage. The assessment of water usage should be appropriate to the style and level of development reasonable foreseen for the project. Divide usage among landscap-

ing, fireflow requirements and domestic/commercial/agricultural use.

___ Indicate the amount of run-off to be generated by the project and the methods of onsite/offsite collection.

___ Describe the aquifer system. Include aquifer characteristics and identify recharge areas within the project area. The discussion of aquifer characteristics should also include a discussion of those wells installed at the site that were deemed not to be usable for water production.

___ Discuss both the existing and future water balance and safe yield of the basin and sub-area both with and without the proposed project. Incorporate adequate background information on climate conditions, surface water supplies and water demand affecting the balance.

___ Describe any known water supply problems in the area.

___ Discuss the water demands of the existing land use and compare to the proposed project demands. This discussion should be conducted for each watershed within the project and evaluate the relationship between the water supply demands and the potential depletion in groundwater storage that could occur on a seasonal basis, accounting for seasonal and yearly variations in rainfall that occurs in the region.

___ Recognize cumulative impacts created by this project and other similar projects that intensify ground or surface water use.

___ Consider anticipated water demand for construction and maintenance of the proposed project.

___ Discribe the off-site hydrologic setting in relation to baseline and future impacts and associated mitigation measures. Include surface water and ground water connections between the project site and surrounding hydrologic systems, especially the Carmel River Valley. Also include, the Monterey Peninsula Water Management District's Water Allocation Program EIR and 5-year Mitigation Program.

Mitigation Measures - Hydrology

___ Discuss alternative project design and location including density reductions to mitigate adverse project impacts.

___ Provide recommendations from the hydrologic report concerning water conservation measures to include water reclamation and retention methods.

___ Submit plans for hydrology/drainage improvements to the Director of Environmental Health for review and approval. All improvements shall comply with Chapter 15.20 Monterey County Code and the Basin Plan, RWQCB.

___ Determine the potential for employing methods to enhance the percolation of stormwater as recharge for local groundwater supplies.

___ Provide recommendations for monitoring actual water usage, and well yields, and water levels during project construction and phasing.

___ Provide recommendations for locations and distribution of future wells, well construction designs, pumping modes, water distribution patterns to minimize the impacts (if any) of on and off-site local and cumulative impacts.

___ Discuss phasing of project development as a means of (1) verifying proven water resources and (2) comparing projected and actual water supply impacts based on the on-going monitoring program.

___ Provide recommendations for the establishment of a project-wide water management system to track groundwater usage, rainfall, stream flows, an available water. Include measures such as recommended streamflow measurements, the use of reserve water wells for water level measurements and water quality observations necessary to provide continuing assessment of the water supply and the potential for off-site impacts. Include discussion of the role of the water management system to monitor or initiate feasible mitigation measures.

Responsible/Concerned Agencies/Institutions

Monterey County Water Resources Agency
Association of Monterey Bay Area Governments
Monterey Peninsula Water Management District
California Regional Water Quality Control Board
Monterey County Health Department

6. WATER QUALITY

___ Utilize existing ground/surface water studies available from the Monterey County Water Resource Agency and the County

Environmental Health Division, and Monterey Peninsula Water Management District. Review and incorporate the Water Quality sections of the Comprehensive Hydrological Study, and the Comprehensive WasteWater Disposal Plan dated February 1994, and the Supplemental Nitrogen Loading Study dated May 1994 prepared for the project by Camp Dresser and McKee Inc. Balance Hydrologics, David Keith Todd Consulting Engineers, Geoconsultants, Inc. and Luhdorff and Scalmanini Consulting Engineers, the Comprehensive Wastewater Disposal Plan prepared by Camp Dresser and McKee Inc., Bestor Engineers, Inc. Cleary Consultants, Inc. and Geoconsultants, Inc. dated March 1994 and third party review. The applicable sections from each study shall be summarized and all pertinent points emphasized within the format of the EIR.

Description, Setting, Impacts

___ Describe the proposed quality and quantity of wastewater and/or sewage discharged by the proposed project. Quantity figures should include both daily average and peak wastewater/sewage flows. Quality figures should include estimated nitrate concentrations, and all other constituents as determined by the Division of Environmental Health and the RWQCB.

___ Describe the average daily and peak nitrate loading rate per acre.

___ Describe the method of wastewater/sewage disposal, i.e., spray field, irrigation, leachfields, etc.

___ Briefly describe the type and extent of wastewater/sewage treatment.

___ Identify any aquifer recharge areas in the project's vicinity.

___ Identify and discuss all existing and future sources of nitrate loading within the study area including lots of record, all agricultural activities, and commercial wastes.

___ Identify and describe the aquifer impacted by the wastewater and/or sewage discharge in terms of existing and future water balance both with and the without the project (see "Hydrology").

___ Discuss other potential contaminants such as non-point sources include urban runoff, pesticides/herbicides and fuel tanks.

___ Describe the long term nitrogen/nitrate balance of the impacted aquifer.

___ Summarize the existing nitrate levels within the affected study area. Identify any trends or historical nitrate problems, and compare to the calculated nitrate balance.

___ Examine and document any ground/surface water studies in the project area and highlight conclusions or recommendations.

___ Describe the relationship between surface water quality and ground water quality, include the future golf course.

___ Determine the potential for surface water contaminants to enter aquifers and surface waters in the vicinity of the proposed development area.

___ Discuss potential, direct and indirect impacts on off-site water resources in the Las Garzas watershed.

Mitigation Measures-Water Quality

___ Provide recommendations for the establishment of a project-wide water quality reporting and management system.

Responsible/Concerned Agencies-Institutions

Monterey County Water Resources Agency
Monterey Peninsula Water Management District
California State Department of Resources
Monterey Regional Water Pollution Control Agency
California Regional Water Quality Control Board
Monterey County Department of Environmental Health

7. & 8. PLANT LIFE/ANIMAL LIFE

Description, Setting, Impacts

___ Review and incorporate the Special-Status Biological Resources Report prepared for the project by Biosystems Analysis, Inc. dated February 1994 and the Forest Management Plan prepared by Ralph Osterling Consultants, Inc. dated February 1994. These studies shall be summarized and major points emphasized within the format of the EIR. Reference the report as an appendix to the Environmental Impact Report.

___ Describe the surrounding affected plant/wildlife environments. Describe any supporting environments that may be

affected by the project including wildlife, fisheries, and climate.

___ Follow the, "Guidelines For Assessing Effects of Proposed Developments On Rare and Endangered Species", published by the State Department of Fish and Game(5/4/84)

___ Use the Biological Analysis prepared for the site and summarize findings in the following detail and format:

- Identify plant/wildlife habitats and delineate on map.
- Identify plant/wildlife species. Include rare, threatened, or endangered species.
- Identify areas of potential public access and determine the level of use which is acceptable to allow for the long term maintenance of the habitat.
- Describe short/long/cumulative impacts on habitats by project development.

___ Use the Forest Management Plan and summarize important information into the following format:

- Native/non-native tree species located on the project parcel using a plot plan.
- Describe the native/non-native trees affected by the project and describe specific impacts.
- Identify and evaluate the impacts of tree removal and tree root disturbance for septic system installation on selected lots. Contact the Division of Environmental Health for list of affected lots.

Mitigation Measures-Plant Life/Animal Life

___ Provide as mitigation to project impacts to plant life the Foresters Assessment and Recommendation which should be summarized to include the following:

- Recommendation as to the proposed tree removal.
- Recommendation as to actual tree removal/replacement.

___ Design a mitigation program for Plant Life/Animal Life based on assessments and recommendations contained in the Biological Report, all impact analysis and landscape criteria, regulations, and standards for the particular planning area and region.

Example measures include the following:

- Setbacks from the habitat(s).
- Limits on the building envelope.

- Modifications to project siting, location, size, and design.
- Modifications to grading and landscape plans.

___ Assess the level of mitigation these measures will have on the short/long term impacts imposed by the project.

___ Include a statement on mitigation monitoring and the importance of such a program on the level of mitigation achieved against impacts imposed by the project.

___ Require the conveyance of a scenic easement to the County for slopes over 30% (PD1).

___ Require a limited building envelope to preserve flora and fauna resources (PD9).

Responsible/Concerned Agencies-Institutions

U.S. Fish and Wildlife
California State Department of Fish and Game
California Native Plant Society
United States Army Corp of Engineers
California State Lands Commission

9. NATURAL RESOURCES

Description, Setting, Impacts

___ Describe the project in terms of those natural resources that will be consumed during construction/operation of the project.

___ Describe the project in terms of those natural resources whose use or long term availability will be impaired by the placement of the project.

___ Describe the natural resources impacted, and the availability of that resource either locally or nationally.

___ Develop alternatives for the project to avoid use or coverage of valuable natural resources.

Responsible/Concerned Agencies-Institutions

10. ENERGY

Description, Setting, Impacts

___ Discuss the energy requirements of the particular project and compare as a percentage to total annual County energy consumption.

___ Discuss the feasibility of an alternative project that might consume less energy.

Mitigation Measures-Energy

___ Mitigation measures for the project should include site specific and management methods to decrease energy consumption. Examples might include:

- Project siting for increased efficiency in energy consumption for heating and cooling.
- Landscaping methods to conserve heating and cooling energy.
- Use of building materials and techniques to increase building energy efficiency.
- Providing alternative transportation methods for the project to lessen fuel consumption.

Responsible/Concerned Agencies-Institutions

Pacific Gas and Electric

11. LAND USE

Description, Setting, Impacts

___ Describe the project in the following terms:

- Existing land use designation
- Change in land use designation to accommodate the project. (See EIR 87-013)
- Existing zoning designation
- Change in the existing zoning designation to accommodate the project.

___ Discuss historical, present, and future uses expected to be included in the project area.

___ Discuss how the project will affect adjacent land uses:

- Describe complementary uses of the project compared to the surrounding area uses.
- Describe conflicting uses of the project compared to the surrounding area.
- Describe long term impacts on surrounding uses and changes in surrounding uses that may be anticipated by project approval.

Mitigation Measures-Land Use

___ Discuss alterations in project plans, specifications and daily operations, or added measures that would make the project more complementary to the surrounding land use.

___ The location of antennas, towers, and similar appurtenances must be approved by the Director of Planning and Building Inspection (PD7).

___ The design of all structures, signs and fences be approved by the Planning Commission (PD19).

___ The exterior colors and roofing material shall be subject to approval by the Director of Planning and Building Inspection (PD19A).

Responsible/Concerned Agencies-Institutions

Monterey County Planning and Building Inspection Department
Monterey County Local Agency Formation Commission

12. POPULATION

Description, Setting, Impacts

___ Describe historical, current, and future population projections for Monterey County. Also include any local district or city adjacent to the project.

___ Describe how the project may affect population levels: (See the Economic Topic)

___ Include primary and secondary generators of population including:

- Basic Industry
- Non-Basic Industry

___ Include housing projects that accommodate population.

___ Describe how housing projects may be secondary generators of population, including the need for providing goods and services to additional housing, and therefore generating additional housing.

___ Include a discussion of compounding impacts on population provided by the forces of housing, commercial, and industri-

al activity.

___ Compare the population increase generated from the project (net immigration) to the overall expected growth rate of Monterey County (Overall net immigration + net natural growth), or the adjacent local city or district growth rate, measured on an annual basis. (Annual = year project is completed)

Mitigation Measures-Population

___ Discuss appropriate services or needs for any additional population generated by the project. Direct the reader to the related service topics located in the services section of this document.

Responsible/Concerned Agencies-Institutions

Monterey County Planning and Building Inspection Department-
Association of Monterey Bay Area Governments

13. HOUSING

Description, Setting, Impacts

___ Describe how the project will impact the housing supply in Monterey County.

___ If the project includes housing, describe the number of units that will be available to low or moderate income families.(Refer to Monterey County Inclusionary Housing Ordinance for criteria.)

___ If the project requires employees, describe the number needed and their respective income bracket(s). Further describe the number of net housing units needed (Discounting the vacancy rate) to accommodate those new employees and their families.

___ Describe any apparent present or future projected housing shortages in the countywide area surrounding the project, and show existing public or private programs available to alleviate the shortages.

Mitigation Measures-Housing

___ Consult the Monterey County Housing Element to identify countywide housing programs that alleviate housing shortages for the affected income group. Identify those programs that could be incorporated into the project.

___ Identify existing and future housing projects that will alleviate demand for housing that will be created by the project.

___ Describe project alternatives that might either require less housing or provide housing to lessen impacts on the local housing supply.

___ The applicant shall comply with the requirements of the Inclusionary Housing Ordinance (PD5).

Responsible/Concerned Agency-Institution

Monterey County Planning and Building Inspection Department
Housing Coordinator
Monterey County Housing Authority.

14. TRANSPORTATION/CIRCULATION/TRAFFIC ANALYSIS

Description, Setting, Impacts

___ Review and incorporate the Traffic Report prepared for the project by Dowling Associates dated April 22, 1994. This report shall be summarized and major points emphasized with the format of the EIR. Reference the report as an appendix to the Environmental Impact Report.

___ Discuss transportation and circulation both separately and collectively when assessing project impacts. Most projects have some significant impacts on transportation or circulation aspects of environment. Be sure to include a comprehensive evaluation of these important issues.

___ The current operational improvements proposed by CalTrans between Rio and Carpenter should be discussed and the status of the Hatton Canyon Freeway.

___ The EIR should be analyzed for the adequacy of the existing Rancho San Carlos Bridge across the Carmel Valley River for travelway width, for handling pedestrian and bicycle traffic, and for the weight of truck traffic. Is existing width to narrow?

___ The intersection of Rancho San Carlos Road and Carmel Valley Road needs to be re-analyzed with the discussion centering on the need for a traffic signal and/or grade separated structure. Include Dowling and Associates signal warrant analysis of existing conditions in appendix. Detailed

discussion of the existing intersection accident problems must be included with a plan for mitigation proposed. If an acceleration lane is the proposed mitigation in lieu of a traffic signal or grade separated structure, provide documentation that it will handle future traffic volumes safely.

___ Provide up to date traffic counts on Rancho San Carlos Road.

___ Discuss how travel on Robinson Canyon Road will be limited, since it is a shorter route to Carmel Valley Road than Rancho San Carlos Road.

___ Development standards should be included to ensure that adequate grades and sight distance will be provided at all driveways and or intersections within the project.

___ Include a discussion of proposed bicycle and pedestrian trail systems.

___ Describe the various transportation systems and services available in the project area. These might include the following:

- Inter City Bus and Train systems.
- Local bus system.
- Services for the elderly and the handicapped/disabled.
- Neighborhood Van systems.
- School bus system.

___ Describe how the project would impact the system by demanding increased services. Show what services are affected and the numerical and percentage increase in services required.

___ Discuss proposed trip reduction plan.

___ Detail how the project will meet the Carmel Valley Master Plan policies as they relate to traffic issues.

___ Describe project consistency with the Monterey County Agency Congestion Management Program (CMP) to include conflicts and impacts. Include the land use and transportation modeling requirements. The project must be reviewed for its Level of Service (LOS) impacts on the CMP network. The Impact Area of a project would include all impacted CMP segments and all arterial and collector streets to freeway interchanges or other Impact Areas as directed by future fee ordinances, assessment districts, or the County Public Works Department.

___ The EIR should include a discussion of road maintenance standards including traffic control devices and whether a CSA could provide such services. The EIR should evaluate

the need for on-site quarries for road construction and maintenance materials, how the quarries would be managed and how they will be reclaimed.

Circulation - Traffic Analysis

___ Describe how the project will affect the circulation system in terms of either a Site Specific or Program project.

___ Provide a clear site plan with a regional location map.

___ Identify interior circulation and parking design, including pedestrian and bike facilities.

___ Describe existing and proposed uses for the site.

___ Define the "Impact Area" through consultation with the traffic engineer for the Monterey County Department of Public Works using the following criteria:

- The "Area" should include all surrounding arterial streets, including those not necessarily contiguous to the project site, which extends to include the nearest freeway interchanges.

- Include critical intersections operating at LOS C or below which will be impacted by the project.

___ The defined "Impact Area" shall be <u>described and evaluated</u> using the following criteria:

The description shall include:

- Existing annual average daily trip counts.
- Peak Hour volumes.
- Volume to capacity ratios.
- Level of service.

___ The descriptive data shall be supplied for roadways within the "Impact Area" as predetermined by consultation with the County Traffic Engineer. These may include:

- All arterial streets.
- Impacted connector streets.
- Local streets.
- Critical intersections.
- Interchanges and State Highways

Other descriptive information that should be included:

- Traffic control devises.

- Transit services-routes, schedules, facilities.
- Bicycle facilities, bikeways, parking facilities.
- Pedestrian facilities, sidewalks, and paths.

___ Using the above descriptive information, develop the following descriptive analysis:

___ **Travel Demand and Trip Generation**

Estimate the increase in travel demand by model split with trip generation for proposed project according to:

- Present land-use category.
- Buildout for land-use category for both daily and peak hour conditions.

***NOTE: Model splits shall be approved by the Monterey County Traffic Engineer.

Provide trip generation rates and sources. (Acceptable sources are Cal-Trans Studies and ITE Studies)

Provide a summary table: "Travel Demand and Trip Generation", that indicates the following:

*Trip generation by each type of Land-use.
*The units involved.
*Total daily A.M.-P.M. peaks,
*Rates used.

___ **Trip Distribution**

Estimate the existing distribution of trips from the "Impact Area" to the surrounding region using maps showing the impact area boundary, affected intersections, and directions of trip distributions.

Estimate the effect of the purposed development on trip distribution for the "Impact Area " and the surrounding region, and distribute trips generated from the proposal over the existing distribution of trips by travel mode.

___ **Trip Assignment**

Assign proposed trips(typical 24 hour, AM Peak, And P.M. Peak) to existing circulation system. Include the proposed changes to the existing system identified by the Public Works Department.

Present results on maps showing the project site, impact

area boundary, and affected intersections.

___ **Traffic Impact Evaluation**

A thorough evaluation shall be provided indicating the impacts of the proposed development on the circulation system using the previous descriptive information and by providing the following items analysis:

- Show the existing street network utilizing current traffic volumes.
- Show future street network utilizing the 20 year traffic volume projection. (Derived through consultation with the Monterey County Traffic engineer)
- Evaluate all project site access points to the existing system.
- Estimate and evaluate the effect of increased ridership of transit and the effect on pedestrian and bicycle facilities.
- Analyze interior circulation and parking design for safety, circulation, and standards which should include the following:
- Review street geometry (turning radii, street width).
- Parking Areas (Design, size, number of spaces).
- Pedestrian and bicycle circulation.
- Deviations from County Standards.

Mitigation Measures-Transportation, Circulation

___ Discuss methods to provide additional required transportation services because of increased demand from the approval of the project.

___ Identify funding instruments either existing or needed to fund improvements to the transportation system to accommodate the new project.

___ Identify transportation management measures to reduce travel demand. Make recommendations

___ Identify measures to increase pedestrian, bicycle and transit travel and to lessen demand for auto travel space.

___ Recommend measures/improvements to mitigate impacts of the proposed development to bring all locations within the "Impact Area" to Level of Service C or better.

___ Identify locations where new traffic signals or other traffic control devices would be warranted, or recommend to mitigate impacts.

___ Discuss the feasibility of implementing the various mitigations.

___ Improve the 60' right of way per approval of the Director of Public Works (PW3).

Responsible/Interested Agencies-Institutions

Monterey County Public Works Department
California Department of Transportation District 5
Association of Monterey Bay Area Governments

15. PUBLIC SERVICES

Description, Impacts, Mitigation Measures and Monitoring should only be assessed for those services for which the project may have some direct, indirect, or cumulative impacts.

___ Discuss the proposed trail alignments, class of trails, as well as who would be allowed to use them.

___ Discuss the consistency of the proposed trails in the application as well as the six proposed public trails alignments on the attached map with policies of the Greater Monterey Peninsula Area Plan.

___ Local Agency Formation Commission (LAFCO) has adopted a conceptual sphere designation for The Santa Lucia project indicating that future services should be provided by a new County Service Area (CSA). LAFCO will act as a Responsible Agency when considering approval of the proposed CSA. The following issues need to be addressed in the EIR:

1. The EIR should explain LAFCO's previous actions of December 14, 1993 establishing a conceptual sphere of influence of the formation of a County Service Area for the proposed development. A CSA could facilitate coordinated service delivery for development on the property, with the ability to provide water, wastewater, fire protection, open space maintenance and other services. The conceptual sphere designation gives formal recognition of a preferred service delivery option that should be analyzed in the EIR. A copy of the LAFCO staff report is attached for additional reference.

2. The EIR should include a thorough discussion of the proposed County Service Area, including the formation process, how the CSA would operate, the relationship with private entities serving the site, the likely services to be provided, and how services would be maintained and funded.

3. The EIR should contain a discussion of project consistency with relevant local agency policies. LAFCO's standards for the Evaluation of Proposals have been attached for your use. These policies guide the Commission's decisions in such areas as water use, phasing of development, preservation of open space and provision of services.

Responsible/Interested Agencies-Institutions

Monterey County Sheriff's Department
California Department of Forestry
Inter-Governmental Affairs

DRAINAGE

Description, Setting, Impacts

___ Review and incorporate the Preliminary Drainage Report prepared for the project by Bestor Engineers, Inc. dated February 18, 1994. This report shall be summarized and major points emphasized within the format of the EIR. Reference the report as an appendix to the Environmental Impact Report.

___ Describe the existing and proposed drainage system for the project site, and if needed, the comprehensive areawide (adjacent and distant trunklines, pumping stations) drainage system including capacities and condition.

___ Show how the project will/will not impact the drainage system as a numerical increase in volume and as a percentage increase both compared to existing and future capacity of adjacent and downline trunklines and infrastructure.

Mitigation Measures-Drainage

___ Describe drainage system improvements needed to accommodate project related drainage.

___ Identify funding instruments either existing or needed to fund improvements to the drainage system to accommodate the new project.

___ Enter into an agreement to construct curb, gutter, and pavement per Public Works standards (PW22).

___ On parcel map locate area of inundation by 100 year frequency as shown on enclosures from U.S. Army Corp. of Engineers

flood plain reports (PW21).

___ Place a notation on parcel map that the floor level of all habitable dwellings shall be at least one foot above the level of the 100 year frequency flood (PW4).

Responsible/Interested Agencies-Institution

Monterey County Department of Public Works
Monterey County Water Resources Agency

WASTEWATER TREATMENT

Description, Setting, Impacts

___ Review and incorporate the Comprehensive Wastewater Disposal Plan dated February 1994, and the Supplemental Nitrogen Loading Study dated May 1994 prepared for the project prepared for the project by Camp Dresser & McKee, Bestor Engineers, Cleary Consultants, and Geoconsultants dated March 1994. This report shall be summarized and major points emphasized within the EIR. Reference the report as an appendix to the Environmental Impact Report.

___ Describe the existing wastewater treatment system that serves the project site in terms of maximum capacity, existing demands, and future demands (with and without project).

___ Describe any physical improvements required for the project including expansions, enlargements, and appurtenant installations for both volume expansions and increased treatment levels.

___ Describe the existing/proposed wastewater system in terms of extent and type of wastewater treatment. Compare this treatment level to the specific treatment requirements of the State Department of Health Services, the RWQCB, and the Monterey County Health Department.

___ Describe any legal procedures and/or agreements necessary to facilitate treatment improvements and/or to serve the subject property such as: easements, service districts, Public Utilities Commission approval, incorporations, annexation procedures, spheres of influence, etc.

Mitigation - Wastewater Treatment

___ Submit an application and nitrate-nitrogen discharge monitoring plan for review and approval as per Chapter 15.23 of

the Monterey County Code.

___ The chlorine storage unit at the treatment plant shall be designed with a ventilation/filter and alarm system to prevent release of chlorine gas into the atmosphere. Comply with Title 19 of California Code of Regulations Subchapter 3 and Health and Safety Code Chapter 6.95, as approved by the Director of Environmental Health.

___ Storage of treated wastewater shall be provided for a period of 120 days. All wastewater storage ponds (including surge pond) must be lined with watertight lining. Quality of stored water shall meet the standards of Section 60317 (treatment consisting of oxidation, coagulation, sedimentation, filtration and disinfection prior to storage). Storage ponds shall be posted at frequent intervals around the periphery to indicate that they contain treated wastewater and should not be entered. An emergency storage pond with a capacity for at least three days raw sewage flow shall be provided.

___ The design shall include redundancies and emergency power as required to eliminate the potential for public health hazards.

___ Water supply for makeup irrigation water, if any, over that available quantity of treated wastewater shall be adequately separated from domestic water supplies by appropriate backflow prevention devices. There shall be no cross-connection between the irrigation system and any domestic water system.

___ The treatment plant shall comply with the County Noise Ordinance and the Monterey County General Plan subject to review by the Director of Environmental Health.

___ Sludge shall be trucked off site to a suitable location approved by the Director of Environmental Health.

Responsible/Interested Agencies-Institution

Monterey County Division of Environmental Health
State Department of Health Services
California Regional Water Quality Control Board

WASTEWATER DISPOSAL

Description, Setting, Impacts

___ Review and incorporate the Comprehensive Wastewater Disposal Plan dated February 1994, and the Supplemental Nitrogen

Loading Study dated May 1994 prepared for the project by Camp Dresser & McKee, Bestor Engineers, Cleary Consultants, and Geoconsultants dated March 1994. This report shall be summarized and major points emphasized within the EIR. Reference the report as an appendix to the Environmental Impact Report.

___ Describe all types of sewage disposal methods that would be used to serve the proposed development. The EIR should include how implementation and maintenance would occur under CSA management, and how reclamation can be used to the maximum extent possible.

___ Describe the amount of wastewater available daily and seasonally for each phase of the development plan in comparison to the proposed landscaping plan. Identify any surplus or deficit in amount of irrigation water available during the buildout of the project. Identify the need (if any) for additional disposal areas.

___ Evaluate the potential groundwater contamination due to proximity to groundwater and/or waterways.

___ Evaluate the use of the wastewater disposal system's potential constraints on the proposed project. Include:

- o Maximum discharges allowed by State and County regulations.
- o Maximum area available for disposal meeting State and County setback criteria.
- o Proposed drainage, hydrology, and grading improvements required for the project and subsequent disposal impacts.
- o Vegetation or tree removal necessitated by the system's installation.
- o Maximum allowed design rates and effluent loading rates based on type of use.
- o Special buffer zones or setbacks from treatment facilities, disposal areas, and adjacent properties.

Mitigation - Wastewater Disposal

___ Describe alternative measures that can lessen adverse impacts associated with the approval of the projects disposal system, i.e., lower loading/design rates, alternative locations, shallow installations, alternative designs, etc.

___ Wastewater shall not be permitted to flow, seep or drain into any natural waterway, pond or lake.

___ All reclaimed wastewater for spraying or irrigation shall be maintained in the designated irrigation areas at all times.

___ The storage pond and the reclaimed wastewater usage area shall be fenced and posted and not accessible to the public.

DOMESTIC/COMMERCIAL WATER DELIVERY SYSTEM

Description, Setting, Impacts

___ Review and incorporate the Comprehensive Hydrological Study prepared for the project by Camp Dresser & McKee, Bestor Engineers, Cleary Consultants, and Geoconsultants dated March 1994, Supplement to Comprehensive Hydrological Study dated July 1994, and additional supplements to be submitted by the applicant during the preparation of the EIR. This report shall be summarized and all pertinent points emphasized within the EIR. Reference the report as an appendix to the Environmental Impact Report.

___ Describe the existing water supply and delivery system to the project site including area wide aspects.

___ Describe proposed water distribution system and associated operating plan, location of storage tanks, including production well locations, pumping schedules, and percent utilization of individual wells during average and peak demand periods.

___ The Comprehensive Hydrological Study suggest that an local subsystem of an overall water system could be constructed. It is recommended that the ability to distribute water throughout the system from the better producing wells be integrated into the systems design. The ability to distribute groundwater once it is extracted from the aquifer will largely allay concerns about aquifer transmissivity and whether the groundwater is hydraulically continuous and able to move through the aquifer with relative ease. Based upon this discussion the following issues need evaluation:

Discuss the need to provide integrated water system design to provide for maximum operating flexibility and easy access

o the better producing wells, both for water supply and fireflow.

Discuss the need to construct standby wells to provide immediate replacement of wells that could fail during drought periods.

Determine the potential for capturing stormwater at peak runoff periods during the winter, to provide for irrigation needs during the summer, and possible riparian and waterfowl habitat.

___ Include a preliminary design of the water system along with proposed locations for the storage tanks and standby wells.

___ Include an analysis of the LAFCO groundwater standards contained in the attached Standards for the Evaluation of Proposals. A five-year history of water use and review by the appropriate water resources agency would satisfy the requirements in the standards.

___ Show how the project will impact the system by describing the expected short term/long term demands imposed by the project. These demands should be expressed in terms of numerical volume, fire flows, and as a percentage both compared to existing and future capacity of adjacent and area wide delivery systems.

___ Discuss temporary water capacity (storage facility) and demand for long term capacity (stream flows, reservoirs, groundwater capacity). Link these issues and the delivered water supply, and discuss cumulative and indirect impacts (see Hydrology).

___ Describe how increased demand from the project might degrade existing and future conditions, maintenance and operation of the water system.

___ Discuss alternative water supply options including expansion of adjacent water systems, forming or annexing to water districts or service areas, etc.

___ Describe and discuss any legal requirements necessary to provide water service for the project including acquiring and recording easements, water agreements, incorporations, annexing to service districts, spheres of influence, PUC regulations, etc.

___ Where water treatment will be required to comply with drinking water standards of Title 22, CCR, describe any additional improvements, easements, service agreements, etc., required.

___ Describe proposed locations and sizes of existing and proposed well, tank, and access easements.

___ Describe water delivery system facility/infrastructure improvements for the short term/long term necessary to provide adequate supplies to the project.

Mitigation - Domestic/Commercial Water Delivery System

___ Design the water system to meet the standards as set forth in Title 22 of the California Code of Regulations and as contained in the Residential Subdivision Water Supply Standards.

___ Install or bond the water system improvements and any appurtenances needed to and within the project area. Submit final improvement designs and any associated fees for review and approval prior to installation or bonding.

___ Provide a letter from the local fire district prior to installation or bonding that the proposed improvements meet fire flow standards.

___ Submit evidence that all necessary easements, dedications, legal agreements have been properly recorded and/or executed.

___ Design and construct the water system to meet the standards as set forth in Title 15 of the Monterey County Code, or in Title 22 of the California Administrative Code as contained in the Residential Subdivision Water Supply Standards (W1).

___ Provide fire flow as required by the Residential Subdivision Water Supply Standards unless otherwise approved by the local fire protection agency (W4).

Responsible/Interested Agencies - Institution

Monterey County Division of Environmental Health
State Department of Health Services
Monterey Peninsula Water Management District
Cal-Am

SCHOOLS

Description, Setting, Impacts

___ *Describe the existing school systems that serve the project area. Include issues relating to size, conditions, and existing and projected future enrollment.*

___ *Describe how the project might directly or indirectly produce more school children. Numerically estimate impacts on the following school systems:*

- *K-8*
- *8-12*
- *College*

___ *By numerical comparison, show how the project will affect capacity and conditions at the impacted schools.*

Mitigation Measures - Schools

___ *Consult Section 65996 of the California Government Code(California Planning and Zoning Law) when developing mitigation measures for project impacts on schools. This section provides a listing of "exclusive methods" to mitigate impacts on schools. These methods include impact or development fees which are now collected and administrated by the Monterey County School Districts.*

Responsible/Interested Agencies-Institution

Monterey County Office of Education
Carmel Unified School District

POLICE SERVICE

Description, Setting, Impacts

___ *Describe existing sheriff services that are available in the project area and to the specific project site. Express in terms of manpower and equipment.*

___ *Discuss existing crime rates in the area in terms of major eight offenses.*

___ *Describe how the project will impact police services in terms of:*

- *needed additional basic police services required for the site.*
- *attracting elements of crime that will require higher levels of police services or special facilities or equipment.*
- *Special protection for sensitive environments/persons*

Mitigation Measures - Police Services

___ *Describe measures that need to be implemented to maintain existing local and state standards of police protection in the project area. Discuss methods such as manpower and equipment.*

___ *Identify funding instruments that are either existing or needed to fund improvements to the police department to accommodate the new project.*

Responsible/Interested Agencies-Institution

Monterey County Sheriffs Department
Crime Prevention Officer
California Highway Patrol

FIRE SERVICES/AMBULANCE SERVICE

Description, Setting, Impacts

___ *Review and incorporate the Fire Safety Management Plan prepared for the project by Roy Perkins dated February 1994. This report shall be summarized and major points emphasized within the EIR. Reference the report as an appendix to the Environmental Impact Report.*

___ *Describe how fire safety services will be provided, including an evaluation of the various agencies that could serve the proposed development.*

___ *Describe existing fire services that are available in the project area and services to the specific project site. Express in terms of local standards(Response Times)(ISO Rating), manpower and equipment.(See fireflows - water service)*

___ *Describe how the project will impact fire service in terms of:*

- *additional basic fire services required to serve the project site.*
- *special requirements and equipment needed to service the project.*

___ *Describe Ambulance Service that is available to the project site and area. Describe in terms of response times, life support systems aboard ambulances, and return times to the hospital.*

Mitigation Measures - Fire Service/Ambulance Service

___ Describe measures that need to be implemented to maintain existing local and state standards for fire protection in the project area. Discuss items such as additional manpower, equipment and fireflows.

___ Identify funding instruments either existing or needed to fund improvements to the fire protection service to accommodate the new project.

___ Project must conform to local Fire Code Requirements, and Chapter 18.56 of the County Code for those projects located in State Responsibility Areas.

___ Provide fire flow per Ordinance 3600 or subdivision water supply standards.

___ Discuss methods to address increased demand for ambulance service caused by completion of the project. Compare levels of service before and after project completion and to what extent mitigation measures will address project impacts on service.

Responsible/Interested Agencies-Institution

Monterey County Emergency Services Coordinator
California Department of Forestry

HEALTH SERVICES

Description, Setting, Impacts

___ Describe the existing realm of health services that are available to residents/employees that frequent the project area. Divide services between public and private providers.

___ Describe the level of service standard that is acceptable within the community for hospital services. This may be expressed in the following terms:

- Hospital beds/1000 population
- Specialized equipment/1000 population
- General Practioners-Surgeons/1000 population

___ Describe the direct/indirect impacts that the project will have on local hospital services. Express expected project induced demand in terms of the previous standards for both public and private providers.

Mitigation Measures - Health Services

___ Describe methods to offset project impacts on local health services.

___ Explain methods of providing specialized health services that may be required because of this specific project.

___ Show how health services will be financed beyond normal tax revenues and benefit zones if these tools are not available or if they will not cover project impacts.

Responsible/Interested Agencies-Institution

Monterey County Health Department

16. UTILITIES

Description, Setting, Impacts

___ Describe existing and planned facilities and operations for the following utilities:

- Gas and Electric
- Telephone
- Cable - television/radio

___ Detail site specific standards for these utilities as they relate to the project.

___ Describe project impacts as they relate to infrastructure requirements, facilities and capacity.

___ Discuss consistency with policies of the Title 19 (Subdivision Ordinance) requiring underground utilities.

Mitigation Measures - Utilities

___ Describe measures that need to be implemented to maintain acceptable levels of service of the previous utilities.

Responsible/Interested Agencies-Institution

Pacific Gas and Electric Co
Pacific Telesis
Monterey Peninsula Cable Television Co

17. NOISE

Description, Setting, Impacts

___ Review and incorporate the Noise Assessment prepared for the project by Charles M. Salter Associates, Inc., dated February 1994. This report shall be summarized and major points emphasized within the EIR. Reference the report as an appendix to the Environmental Impact Report.

___ Describe the project and its relation to noise; either as a generator of noise or as a receptor of existing noise, or a receptor of existing or future noise generated by other sources in the area.

___ Locate sensitive receptors to noise within the community and their relationship to the project. These may include:

- Hospitals
- Schools - Colleges
- Day-care Centers
- Convalescent Homes
- Religious Facilities.

___ Consult the Monterey County General Plan(Section 22) and the County Noise Ordinance (County Code Title 10.6) for County Noise Standards and Policies.

Mitigation Measures-Noise

___ Match degree of impact with mitigation measure to provide adequate protection from noise to the project inhabitants or from noise generated by the project onto surrounding inhabitants. Project specific measures might include:

- Sound proofing during construction.
- Double pane glass and special design to reflect sound.
- Re-design of operating facilities to lessen sound.
- Sound proof exterior noise generators contained within the project: air conditioners, pumps, fans.
- Provide sound walls - landscaping.
- Provide effective mufflers for operating machinery.
- Limit operating hours.

___ Complete and submit a follow-up noise study quantifying the projects noise impacts as related to applicable conditions and regulations. Propose mitigations as necessary based on the study to comply with State and County regulations.

Responsible/Interested Agencies-Institution

Monterey County Health Department
Monterey County Airport Land Use Commission

18. HAZARDS/HUMAN HEALTH

Description, Setting, Impacts

___ Summarize other topics already describing hazards and reference them for the reader. This section is especially presented to address hazards to human life and property.

___ Describe current and historical hazard conditions surrounding and including the project site and operating conditions. Describe, in the order of scale, both direct and indirect - primary and secondary hazards. Examples might include:

- Seismic
- Flood
- Fire
- Toxic Wastes

___ Describe project impacts on the surrounding area in terms of possible/probable project induced hazards.

Hazards/Human Health - Mitigation

___ Identify methods for proper siting, construction, or planning which will reduce conditions of surrounding hazard.

___ Identify project operation methods that will reduce hazard.

___ Discuss existing services and County/City operations that are available to respond to the variety of hazardous conditions. Examples could include:

- Toxic spill response and clean up.
- Wildfire response.
- Response to catastrophic event.

___ Match possible project hazards to services provided and describe those services needed.

___ Comply with Title 19 of the California Administrative Code Subchapter 3, and Health and Safety Code Chapter 6.95 (Hazardous Material Registration and Business Response Plans) as approved by the Chief of Environmental Health (HW1).

___ Comply with Title 23 of the California Administrative Code and Monterey County Code 10.65 (underground tank require-

ments) as approved by the Chief of Environmental Health (HW2).

___ Comply with Title 22 of the California Administrative Code and Chapter 6.50 of the Health and Safety Code(hazardous waste management) as approved by the Chief of Environmental Health (HW#).

Responsible/Interested Agencies-Institution

Monterey County Emergency Services Coordinator
Monterey County Health Department

19. AESTHETICS

Light and Glare

Description, Setting, Impacts

___ Describe physical attributes surrounding and within the project site to include current and proposed:

- Areas of sensitive visual resources
- constructed and natural environments
- vista and color
- daytime glare and night time lighting

___ Describe project consistency with county policies regarding ridgeline development and development within sensitive visual resource areas.

___ Include possible singular and cumulative impacts such as:

- ridgeline development
- substantial changes to the viewshed
- light and glare
- view disruption
- discontinuity of current surrounding design or aesthetic use.

Aesthetics - Light and Glare - Mitigation

___ Describe methods to lessen project impact on surrounding environments by making the project more physically and aesthetically agreeable. These might include the following:

- Design and project placement
- Color coordination
- Sineage

- Exterior materials
- Non-reflective window placement
- Focused lighting fixtures

___ All exterior lighting be unobtrusive, harmonious with the local area, and constructed or located so off-site glare is fully controlled. Approval of a lighting plan to be approved by the Director of Planning and Building Inspection (PD17-18).

___ Exterior colors and reroofing shall be subject to the approval of the Director of Planning and Building Inspection prior to final building permit sign-off (PD19A).

___ Tanks to be painted an earth tone color to be consistent with surrounding area colors per approval of the Director of Planning and Building Inspection (PD23).

___ The applicant shall record a deed restriction indicating that all exterior design changes, including color changes associated with repainting, reroofing, and exterior lighting changes be approved by the Planning Commission. The deed restriction shall be subject to approval by the Director of Planning and Building Inspection (PD60).

Responsible/Interested Agencies-Institution

Monterey County Planning and Building Inspection Department

20. HISTORICAL/ARCHAEOLOGICAL

Description, Setting, Impacts

___ Review and incorporate the inventory of Prehistoric Cultural and Preliminary Mitigation Plan prepared for the project by Archaeological Consulting, dated February 1994; Historical Analysis, dated February 1994 and September 1991, prepared by Gil Sanchez and Greenwood and Associates This report shall be summarized and major points emphasized within the EIR. Reference the report as an appendix to the Environmental Impact Report. (Location maps should not be included or attached within reports)

___ All reports, studies, and recommendations concerning archaeological issues and impacts related to the project shall be made in accordance to standards of the Society of Professional Archaeologists.

___ Describe areawide historical features and events as a summary and reference one or more good historical compilations

on Monterey County.

___ Consult the archaeological report, if required for the project, included in the appendix. Summarize findings and recommendations.

___ Describe project site specific historical events and features, and any known archaeological or historical artifacts in the area.

___ Consult the Northwest Information Center, Department of Anthropology, Sonoma State University in Rohnert Park CA. to access their archaeological data base to determine known archaeological resources in the area.

Historical/Archaeological - Mitigation

___ Consult the "Archaeological Impacts" section located in the appendix of the CEQA Guidelines to identify methods and alternatives for Historical/Archaeological resources preservation. Sections included are:

- Avoiding damaging effects on Archaeological resources.
- Determining archaeological significance and applying an appropriate mitigation program.
- Special rules, regulations, and circumstances concerning archaeological resources.
- Discovery of archaeological resources/human remains during project construction or operation. Consult, "A Professional Guide for the Preservation and protection of Native American Remains and Associated Grave Goods" when dealing with a possible site discovered remains of a native American. Published by the Native American Heritage Commission.

___ If Archeological resources or human remains are discovered during construction, work shall be halted with 50 meters (150 feet) of the fins until it can be evaluated by a qualified professional archaeologist. If the find is determined to be significant, appropriate mitigation measures shall be formulated and implemented (PD59).

Responsible/Interested Agencies-Institution

Northwest Information Center - Department of Anthropology
Sonoma State University. Sonoma CA.
Native American Heritage Commission
Sacramento, CA.
National Register of Historic Places
Monterey County Historical Coordinator

Society of Professional Archaeologists

21. SOCIAL

Description, Setting, Impacts

___ Describe the social setting of the project area. This might include:

- A Demographic profile the existing and future neighborhood, community, and region.
- Ethnical backgrounds of residents and related important traditions.
- Neighborhood income levels compared to community/state levels.
- Important community religious centers
- Important Recreational facilities/activities.
- Important meeting places and social events.
- Senior citizens activities

___ Describe how the project might change or enhance any of the previous conditions.

___ Discuss the physical structure of the neighborhood that either encourages / discourages neighborhood interaction.

Social - Mitigation Measures

___ During the initial study process, if it is shown that there are long term/short term social impacts that will exist upon project approval, a series of public meetings should be conducted to clarify important social issues within the project impacted neighborhood or community.

___ Project induced physical obstructions to existing social patterns should be mitigated using site and design planning and by considering development/plan alternatives.

___ Citizen participation in the planning process should help describe how project planned services and activities would best serve the adjacent neighborhoods as primary users.

Responsible/Interested Agencies-Institution

Monterey County Department of Social Services
Monterey County Community Services Department

22. ECONOMIC

Description, Setting, Impacts

___ Economic impacts need to be addressed for the following circumstances:

- the economic impact is an indirect impact caused by a physical change in the environment.
- the economic impact itself causes a physical change in the environment.

___ Describe the project in terms of its economic scale and characteristics. Include the following aspects:

- Employment - part time, full time, construction, operation, maintenance. Payroll and income levels.
- Value of services and materials required for construction, operation, and maintenance(subtract prior employment figures).
- Funding instruments and origination of capital for the project.
- Describe existing jobs/housing balance in the community and the potential impacts to that balance through implementation of the project.

___ Identifying economic impacts related to the proposed project and measuring them are major tasks that need to be completed for this topic.

Identifying Economic Impacts

___ Describe the project in terms of its economic appropriateness or compatibility with the existing local economy. Show the availability locally of goods and services needed for the construction , operation, and maintenance of the proposed project.

___ Identify economic issues which are most important to the surrounding community and address those issues and their impacts. Example issues might include:

- Importance of job creation.
- Comparison of proposed projects with existing or alternative projects.
- The importance of non-quantifiable(qualifiable) factors in the project analysis.
- The question of project impact versus the flow of funds that a community will need to provide to make the project successful.

___ **Measuring and Refining Economic Impacts**

Using the description provide an economic analysis scenario using common methodology that matches to the size and complexity of the project. Confer with the project planner during the scoping meetings to ensure that the breadth and detail are acceptable.

Be sure to address direct, indirect, or induced effects of the project.

Identify impacts as either costs or benefits leading to the final impact analysis.

Assess the financial and market viability of the project within the surrounding economic environment.

Economic Issues - Mitigation

Using the impact analysis, identify costs to the community and the related benefits.

If costs are greater than benefits, identify their significance and provide measures to offset the difference.

Methods might include:

- Local, State, or Federal funding programs provided to offset direct or related project costs.
- Changes in operation or management programs to decrease costs.
- Changes in project acquisition and employment practices to benefit the community.
- The development of alternative projects that provide a more favorable cost to benefit ratio for the community.

Responsible/Interested Agencies-Institution

Overall Monterey County Economic Commission - IGA

5.HYDROLOGY

Summary of Comments/Concerns on Water Related Issues by Monterey County Water Agencies

The project development application for the Santa Lucia Preserve submitted to the Monterey County Planning and Building Inspection Department (Planning) in April 1994 included a Comprehensive Hydrological Study. The study addresses the proposed water supply for the development and summarizes the investigations which evaluated the water supply. Since the project application was filed, Planning has received comments from Monterey County water agencies in June 1994 and September 1994. The June 1994 comments related to the completeness of the application. The September 1994 letters were sent in response to the Notice of Preparation and these comments addressed the scope for the EIR, as well as questions and concerns regarding the Comprehensive Hydrological Study (CHS). Monterey County has hired Ogden Environmental and Energy Services (Ogden) to provide third-party review for the CHS, supplements thereto, the EIR and other water-related issues. Following agreement by the County and Rancho San Carlos (RSC), Ogden also provided comments on the scope of the EIR. RSC prepared a supplement to the Comprehensive Hydrological Study, dated July 1994, to provide additional information on completeness issues and the application was deemed complete on September 21, 1994. RSC is currently preparing a second supplement to provide additional information on EIR issues, as identified below.

Because letters from Ogden and the water agencies received to date have covered a number of topics and, have many similar comments, this hydrology section of the scope of work was revised to consolidate those comments related to the EIR scope.

The following attachment to this revised scope also identifies the additional information requested by the agencies to be provided for inclusion in the Comprehensive Hydrological Study. This additional information will be prepared as a supplement to the CHS by the RSC Water Team, independently reviewed by Ogden, reviewed by the water agencies, and all pertinent points summarized in the EIR.

The time-line for the circulation of the Draft EIR may be affected by the need for the supplement to the CHS. The supplement will need to be reviewed and approved for incorporation into the Administrative Draft EIR.

Roles of EIR and Third Party Water Consultants and Proposals

The EIR consultant will draft the water supply/water impacts

sections of the Administrative Draft EIR, including the impact analysis and recommendations for mitigation measures, and the responses to the agencies' and public comments on the applicable sections of the Administrative Draft and Draft EIRs. The EIR consultant will use the available water reports and supporting documentation (the Comprehensive Hydrologic Study ["CHS"], the CHS supplement dated July 1994, and the further supplement to be submitted by the applicant), and any other documentation provided by Ogden and/or the water agencies, to prepare the water sections of the EIR. The amount and detail of the existing and supplemental hydrology/hydrogeology information is extensive, detailed and complex.

Both Ogden and the water agencies will provide review, comments, and evaluation of the CHS, supplements thereto, and the EIR. The EIR consultant will be expected to provide their own evaluation, impact analysis and recommendations for mitigation measures as they see fit. The EIR consultant can communicate directly with Ogden Environmental during the preparation of the water sections of the EIR. The EIR consultant should ensure that qualified project staff be available to make such evaluations, impact analysis, and recommendations or consider contracting with sub-consultants to provide this service for the water quality and quantity sections of the EIR.

The amount and detail of the existing and supplemental water quality and quantity information is extensive, detailed, and complex. Proposals should reflect the amount of time needed to evaluate this information.

Scope of Work

Utilize existing ground water studies available from the Monterey Water Resources Agency, County Environmental Health Division and comprehensive hydrological study dated March 1994 and supplemental studies and information prepared for the project by Camp Dresser & McKee Inc., Balance Hydrologics, David Keith Todd Consulting Engineers, Geoconsultants, Inc., and Luhdorff and Scalmanini Consulting Engineers. A third party review of this report and supplemental reports is being conducted under a separate contract. The results and conclusions shall be summarized and all pertinent points emphasized within the format of the EIR.

A list of information to be prepared by RSC water consultants and provided in the supplements to the CHS is attached.

In the following assessment and analysis of hydrology include both surface and sub-surface conditions. Be sure to describe their relationship separately and together and how an impact to one may be a direct/indirect impact to the other.

Attachment List of Supplemental Information

This list of supplemental information compiles the comments on the CHS, and considers the letters received from the County Water Agencies listed below. Comments are coded by agency, numbering if provided in the original letter, or page and paragraph or comment number.

- •Letter from James Cofer, Monterey Peninsula Water Management District (WMD) to Wanda Hickman, dated June 15, 1994.
- •Memorandum from Mark Dias, Division of Environmental Health (DEH) to Wanda Hickman, dated June 16, 1994. (DEH1)
- •Memorandum from Own Stewart, Monterey County Water Resources Agency (WRA) to Wanda Hickman, dated September 8, 1994.
- •Memorandum from Mark Dias, Division of Environmental Health to Wanda Hickman, dated September 12, 1994. (DEH2)
- •Letter from Ogden Environmental and Energy Service to Wanda Hickman, dated September 26, 1994.

This Supplemental Information to be provided by the RSC water consultants and reviewed by Ogden and the water agencies. This information will be provided to the EIR consultant to allow all pertinent points related to CEQA issues and long term yield for the project to be incorporated in the EIR, and is summarized below:

1. Further Discussion of Proposed Water System:

•Discuss specific water system configuration alternatives (WRA, page 3, paragraph 3, comment 1)

•Discuss long-term reliability of the project, especially during drought and measures, such as standby wells, to increase the long-term reliability of the project. (WRA, page 3, paragraph 3, comment 2) (WMD, page 8, paragraph 3)

•Provide recommendations for monitoring during project construction and phasing to evaluate project impacts. (DEH2, page 3, comment 1) (Ogden, page 4, paragraph 6) (WMD, page 8, paragraph 4)

2. Further Discussion/Analysis of These Miscellaneous Other Issues:

•Discuss variations in well yields at the site, including wells installed at the site that were deemed not to be usable for water production (Ogden, p. 4, paragraph 2)
•Discuss water quality issues including urban runoff and pesticides/herbicides. Also see section 6 of EIR scope of work. (Ogden, p. 4, paragraph 7)

3. Provide additional discussion of the proposed operational pumping modes at RSC.

•Provide more information to address the proposed cyclical operation of wells, and the impacts of operational pumping. (DEH2 - page 1, comment 1) (WMD, page 3, paragraph 1)

4. Provide additional data to verify assumption of fractured rock treated as "an equivalent porous medium" at the scale of a pumping test (DEH2 - page 1, comment 2) (WMD, page 3, paragraph 2)

•Address the issue of anisotrophy based upon the scientific literature and available investigations at the Ranch. (WMD, page 4, paragraph 5) (WMD, page 6, paragraph 6)

5. Answer specific concern/questions over storativity value of 1 percent used as a ranch-wide average.

•Provide additional discussion of the calculated 0.5% storativity values and 1% storativity values and the rationale for using 1% storativity across the ranch. (DEH2, page 1, comment 3) (WMD, page 3, paragraph 5) (WMD, page 4, paragraph 2)

•Clarify the use of 3% storativity to compute groundwater level fluctuations rather than 1% storativity. (DEH2, page 1, comment 4) (WMD, page 3, paragraph 5 and page 4, paragraph 1)

•Provide a sensitivity analysis of off-site groundwater flows with different storativity values. (DEH2, page 1, comment 5)

•Provide a sensitivity analysis of different storativities and saturated thicknesses in storage underlying the ranch. (DEH2, page 1, comment 6, Ogden, page 2, paragraph 2) (WMD, page 5, paragraph 2)

•Discuss usable groundwater storage versus total groundwater storage. (DEH2, page 1, comment 7) (WMD, page 5, paragraph 2)

•Discuss why only some well pairs were used for storativity calculations. (DEH2, page 1, comment 8) (WMD, page 3, paragraph

5)

•Discuss the relationship of the surface geophysics and well drilling program and wells which weren't cased to address Health Department concern that storativities are based on the most favorable hydrogeologic environments at the ranch. (DEH2, page 1, comment 9)

6. **Well performance during drought.**

•Provide additional discussion of well yields and their relation to drought (DEH2, page 1, comment 10) (WMD, page 5, paragraph 3)

•Clarify why the analysis for the report was done and why it is appropriate for calculating well yields (DEH2, page 1, comment 10).

7. **Impacts of wells on surface waters.**

•Add a qualifier to Table 6-7 (well yield table) indicating that well T-11 may have a potential impact and will be reviewed in the EIR. (WMD page 6, paragraph 3)

•Provide additional discussion regarding the 380 acre-feet per year used by the project. Address where this water is likely to come from and provide more discussion on the assumption that water would be derived from recharge during wet periods. Relate this to the water balance findings. (WMD, page 7, paragraph 2, paragraph 3, paragraph 4)

•Specifically address the use of the E-3 well, both pre- and post-project use and potential localized and off-site impacts (WMD, page 5, paragraph 4)

8. **Proposed Water System Configuration**

•Provide information on future well locations and discuss cumulative impacts including future wells. (DEH2, page 1, comment 12) (WMD, page 6, paragraph 5)

9. **Water Balance**

•Present additional discussion on the monthly groundwater recharge factor and how the conversion is made from the 1.28 inches/month factor used and the estimated 6,800 acre-feet per year of recharge. (DEH2, page 1, comment 14) (WMD, page 6, paragraph 4)

•Clarify how groundwater outflows were assessed in the water balance evaluation (Ogden, page 2, last paragraph)

•Meet with the WMD to review water balance methodology in more detail (WMD, page 8, paragraph 1).

10. **Groundwater Contour Map**

•Provide a map showing the water level data used to construct the groundwater elevation map in the report. (DEH2, page 1, comment 14) (WMD, page 4, paragraph 6 and page 5, paragraph 1)

•Discuss how the water level map was developed and the conclusions based on the groundwater map. (DEH2, page 1, comment 16) (Ogden, page 2, last paragraph)

11. **Miscellaneous Other Issues**

•Quantify the amount of existing and proposed water supply provided by alluvial wells. (WMD, page 2, paragraph 4)

•Provide median streamflow values in addition to average annual streamflow values presented in the report. (DEH2, page 1, comment 14) (WMD, page 2, paragraph 5)

•Provide calculations supporting off-site flow calculations presented in Section 9 of the report. (DEH2, page 1, comment 14) (WMD, page 5, paragraph 7)

•Clarify how average seasonal groundwater fluctuation of 10 feet was estimated for the groundwater storage estimate. (WMD, page 4, paragraph 1)

•Provide additional clarification of boundary conditions observed during pump tests, evaluation of recovery data and calculations of storativity. (Ogden, page 2, last paragraph)

•Provide a copy of the reference (Bedinger, et al., 1986) which discusses storativities. (WMD, page 4, paragraph 2).

Additional Studies/Evaluation which have been Requested

1. **Water System Design**

•Provide a more complete description of the water extraction, distribution and management program. The description should contain sufficient detail to determine the likely placement of

water wells, and associated water distribution facilities. The anticipated reserve capacity requirements, operational requirements and system reliability should also be addressed. (DEH2, page 1, comment 12) (DEH2, page 3, comment 2) (Ogden, page 1, last paragraph) (WRA, page 3, paragraph 4). (WMD, page 8, paragraph 2).

•Evaluate the potential for capturing stormwater at peak runoff periods during the winter, to provide for irrigation needs during the summer, and possible riparian and waterfowl habitat. (WRA, page 3, paragraph 3, comment 3)

2. Additional Evaluation of Groundwater Resources

•Evaluate localized groundwater impacts based on distribution of wells and pumping patterns. (DEH2, page 1, comment 13).

•Prepare a numerical model of the site to evaluate the effects of groundwat withdrawal at the site. (Ogden, page 2, paragraph 3).

•Establish a field-based water resources evaluation program to assess proj impacts. (Ogden, page 2, paragraph 2).

•Evaluation of safe yield of the watersheds incorporating supply versus de calculations, including seasonal and yearly variations. Use of a transient based groundwater flow model should be considered, including its use as a on-going water management tool. (Ogden, page 4, paragraph 4).

BS294.2

OGDEN ENVIRONMENTAL AND ENERGY SERVICES

5510 Morehouse Drive San Diego, CA 92121 (619) 458-9044 Fax Number (619) 458-0943

FACSIMILE TRANSMITTAL

We have 13 pages to send, including this page

Date: 26 SEPT 94

To: Wanda Hickman, cc: Lynn Monday
Walter Wong, cc: Mary Anne Dennis, Mark Dias
Al Mulholland, cc: Owen Stewart
Joe Oliver, cc: Darby Fuerst
Rod Jueng

Location: Monterey County Planning and B.I. Department
Monterey County Dept. of Health
Monterey County Water Resources Agency
Monterey Peninsula Water Management District
Ogden EES

FAX Number: 408 755-5487 (MCP&BI)
408 755-8929 (MCDoH)
408 424-7935 (MCWRA)
408 649-3678 (MPWMD)
415 227-4376 (Ogden/ SFO)

From: Jay Jones

Enclosed is a copy of the third party review and suggestions for the EIR scope of work. The comments reiterate some of the issues discussed within agency reviews of the scope of work, but the comments are not intended to replace the agency comments. Overall, the comments submitted by the agencies are quite appropriate for the scoping of the EIR.

Originals will follow by mail.

A-42

OGDEN ENVIRONMENTAL AND ENERGY SERVICES

5510 Morehouse Drive
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619 458 9044
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94-272-3171
September 26, 1994

Ms. Wanda Hickman
Monterey County Planning and
Building Inspection Department
P.O. Box 1208
Salinas, California 93902

Subject: Comments and Third Party Suggestions Regarding the Preliminary Scope of Work for the Environmental Impact Report for the Santa Lucia Preserve (EIR 94-05)

Dear Wanda:

I have had the opportunity to review the Preliminary Scope of Work for the Santa Lucia Preserve Environmental Impact Report (EIR), and comments regarding the Scope of Work prepared by the Monterey County Department of Health, the Monterey County Water Resources Agency, and the Monterey Peninsula Water Management District. In addition, reviews of the Comprehensive Hydrologic Study (CHS, Comprehensive Hydrologic Study, dated March 1994, prepared by the Rancho San Carlos Partnership) and the CHS supplement (Supplement to Comprehensive Hydrologic Study, dated July 1994, prepared by Rancho San Carlos in response to the June 21, 1994, completeness memorandum) are in progress. Written comments on the CHS will be submitted in mid-October.

Overall, the CHS is an informative, well-written document and provides an extensive data base and analysis for the evaluation of water resources for the project. However, a number of issues remain regarding the analysis present in the CHS. The agency comments focus upon a number of relevant issues and are generally well-based with regard to the CHS. This review and commentary is not intended to replace the comments that have been submitted to your office by the water agencies.

The following discussion includes both general and specific comments regarding the scope of work and the relationship between the scope, the EIR consultant, and the efforts proposed to be conducted by the developer with regards to additional water resources investigations. In general, the scope and details of the impact assessment to be contained in the EIR require additional explanation and detail.

General Comments

While the overall quality of the CHS is quite good, a number of water resources issues will require further analysis in the EIR. A copy of the relevant portion of the Scope of Work is attached. These include but are not limited to:

- A more complete description of the water extraction, distribution, and management program is required. The project description should contain sufficient detail to determine the likely placement of private water wells, community water wells, and associated water distribution networks. A

description of anticipated reserve capacity requirements and system reliability should also be included.

- Review of the water balance components indicates that surface water flow within each basin and offsite comprises a significant portion of the available water and the majority of waters that flow into the Carmel River valley. An ongoing water resources evaluation program will likely be required to determine if significant impacts will occur. The field-based evaluation of recharge/discharge along stream channels (by establishing additional stream gauging stations and possibly shallow piezometers along stream channels) is critical to determination of potential project impacts by groundwater withdrawal. These data would also be needed to evaluate and monitor enhanced recharge programs if conducted as part of an EIR mitigation measure or water management strategy.

- The seasonal storage, discharge, and recovery of groundwater is extremely critical to the evaluation of impacts to phreatophytes and to the viability of the water resources for the project. A groundwater storage coefficient of 1.0 percent is used for the entire project area, and the withdrawal of groundwater is assumed to occur evenly over the entire extent of the ranch. The aquifer test analyses, and field observation of the rock properties suggest that the hydraulic conductivity and storativity of the rock decreases with depth. The Vesting Tentative Map and existing project descriptions indicate that development will be concentrated in a number of localized areas. The potential for decreased hydraulic conductivity and storage with depth in combination with potentially high pumping stresses indicates that the safe yield of the fractured rock aquifer may potentially be exceeded within an individual watershed, and that water transfers may be necessary within or from neighboring watersheds.

Because of the complex spatial and temporal relationships among rainfall evapotranspiration streamflow, recharge, groundwater withdrawal, surface water/groundwater interaction, return flows (reclaimed and irrigation water), groundwater storage, and the change in aquifer properties with depth, it is recommended that a transient-based numerical model of groundwater flow be prepared for the project site. The concept of a single hydrologic unit potentially simplifies the modeling effort, but does not reduce the complexities involved in the assessment of water movement and local mass balance of water for the proposed project. The potential also exists that discrete features such as fault zones may need to be incorporated into the model. This effort would also be of future use in groundwater management at the site and can be revised as the project develops and additional data are collected and analyzed during the development of the water resources program. Model calibration would provide the best estimates of groundwater storage at the regional scale and the model calculations provide a visualization of the groundwater system for the EIR scenarios and proposed mitigation measures. A three-dimensional public domain model such as the USGS MODFLOW model is recommended under the assumption that an equivalent porous medium (continuum) approach is valid and can be supported by the match of the numerical results with the field data. A minimum spatial discretization on the order of 20 acres and monthly time steps are suggested. This type of effort is consistent with and can be performed within the accuracy of standard hydrologic practice.

- Review of the CHS indicates that a number of hydrologic analyses may require additional refinement. These include the water balances (groundwater outflows are not included in the calculations), the groundwater contour map (it reflects an interpretive surface derived from mixed data obtained from shallow and deep wells that do not represent a true potentiometric surface-perhaps the results of the water depths from the septic investigations can be incorporated into the analysis), and the pumping tests (the existence and location of boundaries need to be substantiated.

recovery data were collected but typically not analyzed, and storativity calculations from observation wells are not consistently presented).

- Following refinement of water balances within watersheds, the seasonal nitrate loadings can be re-assessed. Yearly, long-term averages are used and do not reflect temporal variations that can lead to both increased and decreased nitrate loadings. The potential for localized impacts to occur in the more highly developed areas of the project should be assessed.

Specific Suggestions

The following comments/suggestions are provided in reference to the Preliminary Scope of Work and are referenced by Section and Page. In general, the CEQA requirements are addressed in terms of identifying mitigation measures necessary to evaluate the potential environmental impacts of the proposed project. It is recognized that an ongoing water resources management program will be required and that the initial estimates of project impacts will require ongoing observations of site conditions and the implementation of mitigation measures as warranted. In addition, no other potential water quality impacts such as urban runoff, fuel tanks, or other cultural impacts are addressed in the scope.

Section 1. Geology

Setting- Description-Impacts

page 1, fifth item. Comments are included in Section 5, Hydrology. Change "affluent" to "effluent".

Section 5. Hydrology

page 6, first item. It is not clear if the EIR consultant will be scoped to perform additional analysis. As written, the scope states that existing efforts will be summarized. A second CHS supplement is also likely based upon discussions with the water agencies. The role and timing of the second CHS supplement needs to be explicitly stated. The incompleteness/ EIR issues that were addressed in the June 2 and 9, 1994 meetings between the developer and the County agencies should also be attached to the scope of work as an addendum explaining additional analyses that are to be addressed by the project developer.

page 6, first item. Reference should also be made to the Greater Monterey Peninsula Area Plan (GMPAP), the EIR performed for the Plan, and Monterey County Board of Supervisors Resolution No. 93-115. In addition, it should be noted that the GMPAP does not cover the entire project area and that reference should be made to the Carmel Valley Master Plan and Coastal Zone requirements.

Description, Setting, Impacts

page 7, first item. See prior comment regarding project description.

page 7, fourth sub-item. Per public comments verbally received at the public meeting held August 29, 1994, the assessment of water usage should be appropriate to the style and level of developmer

reasonably foreseen for the project. It would be expected that the estate-sized lots would have above-average water requirements.

page 7, fifth sub-item. The discussion of aquifer characteristics should also include a discussion of those wells installed at the site that were deemed not to be usable for water production. Fractured/crystalline rock aquifers are typically of low permeability as indicated by the CHS. It is not unreasonable to expect that a low percentage of wells drilled at the site will not produce sufficient water. Similarly, a small percentage of wells will produce above-average quantities of water. The statistics of well yield require discussions. This discussion could be placed here or in the seventh item regarding known water supply problems.

page 7, sixth sub-item. Further explanation of "safe yield" (definition and requirements) is necessary and would be appropriate in the project description. The suggested groundwater model could be a key component to the evaluation of safe yield.

page 7, eighth sub-item. The analysis of demands is both spatially and temporally defined. Suggest to add: "This analysis should be conducted for each watershed within the project, and evaluate the relationship between the water supply demands and the potential depletion in groundwater storage that could occur on a seasonal basis, accounting for seasonal and yearly variations in rainfall that occurs in the region. Because of the potentially complex temporal and spatial relationships among rainfall, streamflow, evapotranspiration, recharge, and groundwater storage a transient-based groundwater flow model should be considered. It would serve as an ongoing groundwater management tool and be useful for the evaluation of potential impacts and EIR mitigation measures." See general comment above.

page 7, suggested addition. The description of the off-site hydrologic setting is important to establish a baseline to evaluate potential impacts and associated mitigation measures. Reference should be made to addressing the surface water and groundwater connections between the project site and surrounding hydrologic systems, especially the Carmel River Valley. In particular, the Monterey Peninsula Water Management District's Water Allocation Program EIR and 5-year Mitigation Program should be included in the discussion.

Mitigation Measures- Hydrology

page 8. Suggested addition: "Provide recommendations for the establishment of a project-wide water management system to track groundwater usage, rainfall, streamflows, and available water. Include measures such as recommended streamflow measurements, the use of reserve water wells for water level measurements, and water quality observations necessary to provide continuing assessment of the water supply and the potential for offsite impacts. Include discussion of the role of the water management system to monitor or initiate feasible mitigation measures."

Section 6. Water Quality

Mitigation Measures- water Quality

page 9, general comment. The discussion included in hydrology includes both water quantity and quality. The only potential contaminant specifically discussed is nitrate. Other non-point sources include urban runoff and pesticides/herbicides. Potential point sources such as fuel tanks are not discussed either

page 10. Suggested addition: "Provide recommendations for the establishment of a project-wide water quality reporting and management system."

Summary

Overall, the CHS provides for much of the large-scale detail required in the EIR and supports the viability of the proposed groundwater supply. The next step in the water resouce evaluation is to examine water-shed and smaller level scale components of the proposed project. Thus a more detailed project description is absolutely necessary to the scoping and implementation of the EIR. With regards to the water supply and potential developmental impacts, a more complete description of anticipated water extraction, storage, and distribution systems is required.

Additional analyses of data contained in the CHS have been recommended during the course of the EIR scope preparation; however, the scope of work is not clear regarding the proposed interaction between the water agencies, the developer, and the EIR consultant group. The process describing the expectations for the EIR consultant needs to be better explained. It is recognized that a water management strategy will need to be documented in the EIR and likely used to incorporate mitigation measures brought forth during the EIR process.

Thank you for the opportunity to provide third party review of the proposed project. These comments are intended to provide support to the water agencies' reviews and do not serve to replace their comments. A more detailed review of the CHS will be provided in mid-October.

Thank you for your time and attention.

Sincerely,

Jay W. Jones, R.G., Ph.D.
Senior Hydrogeologist

JWJ/crk

cc: Monterey County Dept. of Health
Walter Wong, cc: Mary Anne Dennis, Mark Dias
Monterey County Water Resources Agency
Al Mulholland, cc: Owen Stewart
Monterey Peninsula Water Management District
Joe Oliver, cc: Darby Fuerst
Monterey County Planning and B.I. Department
Wanda Hickman, cc: Lynn Monday
Dr. Leslie Smith, University of British Columbia
File #313161000-0001-3171

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September 6, 1994

Ms. Wanda A. Hickman
Monterey County
Planning and Building Inspection Department
P.O. Box 1208
Salinas, California 93902

Subject: **Comments on the Preliminary Scope of Work for the Environmental Impact Report for the Santa Lucia Preserve (EIR #94-05)**

Dear Wanda:

Enclosed are our comments on the Preliminary Scope of Work for the Environmental Impact Report that will be prepared for the Santa Lucia Preserve (*aka* Rancho San Carlos). At this time, our comments are limited to the Hydrology, Water Quality, and Public Services sections in the Preliminary Scope. As was discussed with Darby Fuerst last week, we will pick up copies of the technical reports that address selected water-related resources in the Preserve area - - Preliminary Drainage and Erosion Control Report, Geological and Geotechnical Investigations, and Biological Resources Report – on September 6, 1994, from your office for District review and possible comment.

Our comments are based on our review of the Comprehensive Hydrological Study (CHS) that was prepared for Rancho San Carlos in March 1994 and the Supplement to the CHS that was prepared in July 1994, and reflect the District's concerns about the impacts to the surface and ground water resources in the Carmel River Basin from the level of development proposed in the Combined Development Permit (CDP) application for the Santa Lucia Preserve (PC94067). In this regard, the District requests that additional information be developed and discussed in the EIR that adequately assesses the impacts on the water resources in the Carmel River Basin from the proposed development of the Santa Lucia Preserve. This information should address both direct and indirect impacts on off-site water resources. In addition, this information should correspond to a specified water distribution system with a specific operating plan.

The District's technical concerns regarding the adequacy of the analysis in the CHS regarding potential off-site impacts were detailed in our letter dated June 15, 1994 (Enclosure 1). These concerns were not considered relevant to the "completeness" of the CDP application and, as a result, were not addressed in the July 1994 Supplement to the CHS. It was indicated that a separate supplement would be prepared "at a later date to address EIR-related issues". In this regard, the District requests that its comments on the CHS be reviewed and incorporated into the Preliminary Scope.

With respect to the proposed Preliminary Scope, the District suggests:

Section 5. HYDROLOGY	Add "County" between Monterey and Water in the first sentence (page 6).
	Add "Monterey Peninsula Water Management District" after Health Division in the first sentence (page 6).
	Add item, "Discuss both on-site and off-site potential surface and ground water impacts from project", under "Description, Setting, Impacts" (page 7).
	Add item, "Discuss phasing of project development as a means of (1) verifying "proven" water resources and (2) comparing projected and actual water supply impacts based on the ongoing monitoring program" under "Mitigation Measures - Hydrology" (page 8).
Section 6. WATER QUALITY	Add "Monterey Peninsula Water Management District" after Health Division in the first sentence (page 8).
	Change "Conservation" to Management under "Responsible/Concerned Agencies-Institutions" (page 10).
Section 15. PUBLIC SERVICES	Add item, "Describe proposed water distribution system and associated operating plan, including production well locations, pumping schedules, and percent utilization of individual wells during average and peak demand periods" under "DOMESTIC/COMMERCIAL WATER DELIVERY SYSTEM" (page 24).

Thank you for the opportunity to review and comment on the Preliminary Scope of Work for the EIR for the Santa Lucia Preserve. If you have any questions regarding our comments or concerns, please contact Darby Fuerst or Joe Oliver of my staff.

Sincerely,

James R. Cofer

James R. Cofer, P.E.
General Manager

/enclosures

cc: Owen Stewart, Monterey County Water Resources Agency
Mark Dias, Monterey County Health Department
Board of Directors, Monterey Peninsula Water Management District
Jay Jones, Ogden Environmental and Energy Services

/u/darby/wp/rm/mcpd.090694

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June 15, 1994

Ms. Wanda Ann Hickman
Monterey County
Planning and Building Inspection Department
P.O. Box 1208
Salinas, California 93902

Subject: Comments on Combined Development Permit Application for the Santa Lucia Preserve (No. PC94067)

Dear Wanda:

Enclosed are our review comments on the Combined Development Permit (CDP) application for the Santa Lucia Preserve. Our comments are limited to the Comprehensive Hydrological Study for Rancho San Carlos (CHS) that was included as part of the application and focus on the off-site impacts from the proposed project. Our comments are based on a review of the CHS and discussions with technical representatives from Rancho San Carlos, Monterey County Health Department, and Monterey County Water Resources Agency at meetings on June 2 and 9, 1994. Based on our review, the District believes that additional information is needed to accurately assess the potential impacts on off-site water resources from the level of development proposed in the CDP application. It is the District's understanding that this information will be provided in the environmental impact report (EIR) that will be prepared for the Santa Lucia Preserve and that the direct and indirect off-site impacts will be fully analyzed.

These comments are similar to our draft comments that were discussed with the applicant's consultants at the technical meetings on June 2 and 9, 1994. It should be noted that all of the District comments were addressed by the applicant's consultants during the meetings and, in many cases, specific information needs were identified. It is expected that this information will answer many of the questions raised by District staff.

The District comments are provided in accordance with the standards[1] that were added to the Greater Monterey Peninsula Area Plan (GMPAP) when the portion of Rancho San Carlos within the GMPAP was designated as a "Comprehensive Planned Use" area. This designation was made in March 1993 when the Monterey County Board of Supervisors adopted Resolution No. 93-115. The District received the CDP application materials, including the Comprehensive Hydrological Study, on May 11, 1994.

[1] Section V.1.h.(2)

The District is committed to ensuring that a comprehensive understanding of the surface and ground water resources of Rancho San Carlos is developed so that a sound factual basis is available for analyzing the potential adverse impacts to the water resources and water-dependent resources within the Carmel River basin. This commitment stems from the fact that the District has initiated a number of programs to manage and protect the natural resources within the Carmel River basin. Specifically, as part of its Water Allocation Program EIR, the District has implemented a comprehensive 5-Year Mitigation Program that is designed to protect the steelhead fishery and riparian vegetation along the Carmel River. The 5-Year Mitigation Program was begun in 1991 and has expended over $3,400,000 to date, with an additional $1,500,000 budgeted for fiscal year 1994-1995. These comments are provided because of this investment and the District responsibility to protect the community's water supply.

Based on our review to date, we feel that the application materials provided represent a commendable effort at condensing and assimilating the vast quantity of water resources data that have been collected throughout the course of the project. The District recognizes that the project encompasses an enormous area characterized by complex geologic and hydrogeologic relationships.

Our review comments are divided into two sections. In the first section, specific comments on the CHS are provided and ordered by page number. In the second section, our comments are summarized and other issues not addressed in the CHS are discussed.

Specific Comments

Page 2-13, first paragraph. The statement that "The great majority of the project water supply will be extracted from bedrock with a modest amount to be derived from the alluvium" needs to be clarified. In previous discussions of the interim results from the ground water exploration program (Memorandum from Cliff Wallman, Todd Engineers, November 1992), it was stated that ground water pumpage for the project would be from deep wells and no shallow ground water resources would be impacted. Accordingly, the volume of water that will be derived from alluvial sources should be quantified and the wells that would produce this water should be identified. If production capacity from existing alluvial wells (e.g. E-3; see Table 6-7) will be used for the proposed project, the amount of production that will be in excess of historical production should be quantified.

Page 3-1, fifth paragraph. The use of average annual values to characterize hydrologic phenomena, such as streamflow, should be qualified. Because average values can be influenced disproportionately by high values, other measures should be included to provide information on the frequency that particular values are expected to occur. As a minimum, median values should be provided for comparison.

Page 4-9, second paragraph. As described, the estimated daily pumping capacity requirement (or maximum day water demand) for the Combined Development permit application is 350 gpm. On page 6-12, it is stated that pumping cycles are planned on the order of 12 hours per day to meet maximum day water demand. If total current well yield for the ranch is 527 gpm (page 6-26), and these wells were pumped for 12 hours a day, actual well yield would be one-half of 527 gpm, or approximately 264 gpm, which would not be sufficient to meet the maximum day water demand of 350 gpm. If the pumping cycles were extended to 24 hours to meet the maximum day demand, it is not clear how subsequent day water demand requirements (which would be at or near the maximum day water demand) would be met given that the well yields are based on an analysis that assumes recovery time is equal to each pumping cycle (page 6-26). This should be clarified.

Page 6-2, sixth paragraph. The assumption that the fractured rock aquifer system underlying Rancho San Carlos can be treated as "an equivalent porous medium at the scale of a pumping test" requires further explanation and substantiation. One approach to verify this assumption would be to collect empirical data from pumping tests utilizing multiple, appropriately spaced observation wells (See item (3) of the enclosed letter to Todd Engineers dated December 16, 1992). Without this site-specific data, additional information from the literature should be provided that addresses the validity of this assumption regarding scale.

Page 6-3, Table 6-1. In this table, it is noted that discharge boundary conditions were observed in the pumping test data from at seven sites. The discharge boundaries encountered during two of the 30-day tests (wells T-18 and T-26) are briefly discussed in Section 6.10. The significance of the discharge boundaries with respect to projected pumping declines and the ability of the wells to sustain the estimated well yields during peak demand periods should be evaluated and discussed in the report. This discussion should focus on the cause (i.e. hydrogeologic versus topographic) of each of the discharge boundaries that were observed and, where appropriate, distinguish between "apparent" and real boundaries.

Page 6-5, third paragraph. The analysis describing how the storativity values for wells T-17 (Chamisal Formation) and T-18 (Porphyritic Granodiorite) were calculated should be provided and should be further clarified. More specifically, the justification for extending the effective saturated thickness 50 feet below the bottom of the wells needs to be explained. By assuming that this magnitude of vertical flow would be induced, the storativity values are doubled from 0.005 to 0.01. Because the storativity values are critical in calculating available storage and assessing off-site impacts, it is important that the values be accurate and defensible. Also, additional discussion should be provided that explains why only two estimates of specific yield were discussed from the well testing program.

Page 6-5, fourth paragraph. The "cross check" of the storativity estimate should be qualified given the ranch-wide, average values for annual recharge and seasonal water table fluctuations that were used. The annual recharge value (6,800 AF) was not measured directly, but was

derived in the water balance calculations. In fact, the "recharge rate" (page 8-6) was used as a correction factor in the water balance calibrations and was varied "so that the residual of the water balance equation over the 1961 through 1990 period would approach zero". In addition, it is not clear how the average seasonal fluctuation across the ranch (10 feet) was estimated.

Page 6-5, fifth paragraph. As discussed above, the conclusion that "a value of one percent appears to be appropriate as an average value for the full saturated thickness" needs further clarification. It is unclear why the "best estimates of specific yield", which were empirically-derived and are site-specific, are not used. To assist our review, the District requests a copy of the reference (Bedinger, et al., 1986) that is cited as support for the selection of this storativity value.

It is recommended that the consultants review the Monterra Ranch Water Supply Study that was prepared by Anderson-Nichols & Company in July, 1985, as an example of a fractured media analysis in a nearby site (i.e. Jenkins-Prentice and Papadopulos methods). This report was provided to the applicant's consultants for their records and review for the June 2 meeting.

Page 6-7, second paragraph. The suggestion that the concept of a "single hydrogeologic unit beneath and immediately surrounding the ranch" is supportable because the mean hydraulic conductivity values for the four geologic units on Rancho San Carlos are within one order of magnitude of each other and the overall average needs further clarification. In reviewing Figure 6-1 and Table 6-3, it is unclear at this time whether the observed similarity is due to the computations used (i.e. geometric mean of log hydraulic conductivity) or the intrinsic hydrogeologic properties of the units. If this logic is applied to the K values for the Porphyritic Granodiorite in Table 6-3, the argument could be made that there are separate units within the Granodiorite because the range of values (0.03-13.6) is greater than one order of magnitude.

Page 6-7, fifth paragraph, Radius of Direct Pumping Influence. This section discusses the anticipated radii of influence around pumped wells at the ranch. The approach used assumes that the cone of depression around a pumped well propagates outward in a symmetrical fashion with continued pumping. However, as discussed elsewhere in the document, it is believed that flow to wells at the ranch is primarily controlled by bedrock fractures. Therefore, the radii of influence from pumped wells could be considerably different from those given in this section, particularly if a predominant directional orientation exists in the fracture system. The role of fractures and resultant anisotropic behavior in the aquifer system needs further evaluation and discussion in the report.

Page 6-14, sixth paragraph. In discussing the ground water contour map of the ranch (Figure 6-4), the lack of any impermeable boundaries and abrupt changes in ground water levels that might indicate isolation or separation between adjacent geologic units is noted. Further, the "general smoothness and continuity of groundwater contours" is used to suggest that the ground water beneath the ranch is hydraulically continuous and able to move across geologic contacts

and faults. To verify this "smoothness" and lack of abrupt changes, a map showing the actual water level data used to construct the ground water contours should be provided.

Page 6-17, second paragraph. The ground water storage estimate beneath the ranch (199,000 AF) is based on an average specific yield value of one percent and an average saturated thickness of 1,000 feet. As discussed above, the appropriateness of using the one percent value is not clear. In addition, it is unclear from the data presented how the average saturated thickness of 1,000 feet was determined. If the unadjusted specific yield value (0.005) is used and the saturated thickness associated with the optimum well depth (650[2] feet) is used, total extractable storage beneath the ranch would be 65,000 AF. The derivation of the average saturated thickness (1,000 feet) should be provided and discussed with respect to the saturated thickness associated with the optimum well depth that is described on page 6-7. In this regard, a distinction between total and extractable ground water storage beneath the ranch should be made.

Page 6-26, third paragraph. As discussed, the individual well yields for wells included in Table 6-7 are the product of the 24-hour specific capacity and the available drawdown at each well. This analysis has resulted in a total estimated well yield of 527 gpm. Both the specific capacity and available drawdown results for most wells are based on test results and conditions during near average or above average rainfall periods. However, both specific capacity and available drawdown would be expected to decrease during extended drought periods. Accordingly, the well yields for the project should also be evaluated with respect to the occurrence of a drought of record at the ranch.

Page 6-27, Table 6-7. The well yield estimates for the ranch shown here include well E-3, which is an alluvial well in the Garzas Creek drainage. Until the potential impacts to off-site water resources from project-level production at well E-3 are more fully discussed, production from this well should be qualified in the well yield estimates for the proposed project.

Page 6-28, fourth paragraph. The discussion regarding ground water quality needs to be expanded. Specifically, the conclusion that the ground water chemistry results for each of the different geologic units are similar should be substantiated. As an example, the twofold difference between the average TDS values for the Chamisal Formation (494 mg/l) and for the Hornblende-Biotite Granodiorite Unit (242 mg/l) should be explained. The discussion should specify which statistical tests were used to measure similarity and include trilinear diagrams.

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[2] The 650 feet of saturated thickness represents the difference between the 800 feet associated with the optimum well depth and the 150 feet assumed as the average depth to static water.

Page 6-33, second paragraph. In the discussion of the 30-day test for well T-18, it is noted that a "discharge boundary condition was encountered at 30,000 minutes (20.8 days)". This section should be expanded to include a discussion of the nature of the discharge boundary and its implication with respect to hydraulic continuity across the ranch.

Page 6-33, sixth paragraph. Similar to the comment above, the significance of the discharge boundary that was encountered at approximately 6,000 minutes (4.2 days) into the well T-26 test should be explained.

Page 6-35, second paragraph. In the discussion of the 30-day pumping test at well T-11, it is stated that streamflow monitoring data and water quality data provided conflicting information regarding whether a stream-aquifer interaction exists, and that further testing is required at this location. However, the calculated well yield for well T-11 (35 gpm) has been included in the total well yield available for the ranch in Table 6-7. Because the stream-aquifer interconnection is inconclusive at this location, the production from well T-11 should be qualified in the well yield estimate for the ranch, until further testing can more conclusively address this issue.

Page 8-7, first paragraph. The conversion from the monthly ground water recharge factor of 1.28 inches/month to 6,800 acre-feet/year is unclear. It should be clarified how the 1.28 inches/month recharge factor was determined and used in the water balance evaluations.

Page 8-14, second paragraph. The estimated additional fluctuation in ground water due to net project buildout demand of 400 acre-feet/year is estimated to be 0.7 feet/year. This estimate assumes a storativity value of 0.03. If the smaller, empirically-derived storativity value of 0.005 is used, the additional fluctuation would be 4.0 feet. It should be noted that in both of these estimates the drawdown is averaged across the ranch. This logic assumes that the demand and drawdown are uniformly distributed across the ranch. Based on the concentration of wells in the Las Garzas watershed (Figure 5-1, page 5-8), it is likely that the demand and associated drawdown will be more localized in this area. The discussion of the impacts due to drawdown on the ranch should be expanded to account for this spatial concentration of wells. In addition, the discussion should address the cumulative impact of the cyclical pumping that is planned for these areas.

Page 9-3, last paragraph. Regarding the location of future wells to avoid direct impacts of pumping on adjacent streams, seeps, and springs, the anisotropic nature of the aquifer system in the vicinity of these features will need to be considered in addition to the other factors discussed.

Page 9-7, fourth paragraph. The calculations used to estimate the reductions in ground water flow to the Carmel Valley alluvium due to changes in ranch-wide water levels from project pumping are unclear and should be provided.

Page 9-10, second paragraph. In discussing the impacts from supplying the net project water demand of 400 AF/year at buildout, it is stated that under pre-project conditions this water would have gone to ground water recharge and subsequent off-site ground water flow, dry-season phreatophyte ground water use, or ground water that would have become streamflow.

Of this total, ground water flow off the ranch due to the project water demands is estimated to be reduced by approximately 10 AF/year and the reduction in ground water use by phreatophytes on the ranch is also estimated as 10 AF/year. The remainder, i.e. 380 AF/year, is water that under pre-project conditions would have become streamflow. Therefore, under project conditions, 380 AF/year will not be available as streamflow in tributaries to the Carmel River or San Jose Creek. This annual reduction in streamflow should be broken down by watershed and analyzed over time, including the drought of record.

Page 9-10, fourth paragraph. The assertion that "the overall impacts on streamflow will be small, because groundwater inflow will be reduced primarily during the wet season when most streamflow is derived from runoff" needs further explanation. In addition, this reduction in streamflow should be corroborated by the monthly water balance estimates.

Also, the calculation that the 380 AF/year reduction in streamflow represents three percent of the average annual streamflow (12,000 AF/year) should be contrasted with the percent reduction expected in specific dry years. For example, during Water Year 1990, would the reduction be 25 percent based on the streamflow value shown in Table H-4? Similarly, what would the percent reduction be in Water Year 1977 when only 270 AF of streamflow is available?

Appendix E. Based on preliminary review of the pumping test recovery data plots that have been provided, it appears that complete or near complete recoveries did not occur in a number of wells tested, most notably wells T-3 (3-day), T-9 (3-day), T-14 (30-day), T-29 (3-day), R-1 (3-day), R-3 (3-day), and R-9 (3-day). Given these incomplete recoveries, the ability of these wells, and possibly others for which recovery plots are not available in the report, to sustain the planned cyclic pumping is not clear. Specifically, the length of time that an individual well could be pumped on a planned 12-hour daily cycle before encountering a limiting condition (e.g. drawdown reaching the top of well screen) needs to evaluated and discussed. Preliminary District calculations for estimating drawdown from intermittent (i.e. cyclic) pumping schemes suggest that field verification of well performance under the proposed operating conditions is warranted.

Appendix E. Recovery plots are provided for some, but not all of the 3-day and 30-day pumping tests that were conducted in 1993. Specifically, no recovery plots are shown from pumping tests on wells T-10 (3-day), T-17 (30-day), T-21 (3-day), T-24 (3-day), R-6 (3-day), and R-11 (3-day). If recovery data are available from these tests, plots of the data should be provided. If no recovery data are available from these tests, this should be stated. In either case, the criteria that was used to determine whether or not to collect recovery data from the pumping tests should be described.

Appendix H. Given the limited time available, District staff was unable to rigorously review the water balance analysis shown in Appendix H. Prior to preparation of the scope of work for the EIR, staff would like the opportunity to meet with the applicant's consultant to review the methodology and assumptions used for the water balances.

Summary

The District is concerned with the documentation in the Rancho San Carlos Comprehensive Hydrological Study that relates to the concept of treating the ground water resources underlying Rancho San Carlos as a single fractured rock aquifer system and the assumptions made in estimating a single storativity value for this system. More importantly, the District believes that additional information regarding the operating plan for the proposed water supply system needs to be provided to accurately evaluate the direct and indirect off-site impacts on water resources in the Carmel River basin. This information should include the location, planned pumping capacities, and planned pumping cycles for each production well.

Other Issues

Water System Reliability In addition to the issues raised in the specific comments, the District is concerned about the long-term reliability of the proposed water supply system and questions what contingency plan exists for supplementing the water supply to Rancho San Carlos in the event of failure of all or part of the water supply system (See items (3) and (4) of the enclosed letter to Monterey County Board of Supervisors regarding proposed plan amendments to the GMPAP relative to Rancho San Carlos dated March 25, 1993). In assessing the reliability of the proposed water system under maximum day demands, the possibility that a major production well or a specified percentage of total production capacity will be out of service should be included in the analysis. This assumption is consistent with standard practices and is likely be required by the California Department of Health Services.

Phasing Because of the uncertainty associated with the proposed use of the water in the fractured rock aquifer system underlying Rancho San Carlos, the District supports the concept of phasing the development on the ranch based on proven water supplies. This approach conforms with the language in the County Resolution No. 93-115 which specified that "development shall be permitted on Rancho San Carlos to a level consistent with safe yield of the proven water resources, provided that the level of development has no adverse impact on off-site water resources". The District recommends that development on Rancho San Carlos be phased according to proven water resources. This "proof" should be based on results from a ongoing surface and ground water monitoring program that is in place during the early phases of the project. The monitoring program should include key reference features (i.e. wells, creeks, and springs) and predetermined trigger values.

Third Party Review Resolution No. 93-115 specifies that the Division of Environmental Health or the Water Resources Agency may, at their discretion, request a third party review of the hydrology report prepared by the applicant's consultant. The District supports the concept of a third party review of the CHS at this time or as part of preparation of the EIR for the project. In either case, the District recommends that the third party reviewer possess a strong background in the concepts and characterization of fractured rock aquifer systems.

If you have any questions regarding these review comments or the District's recommendation, please contact Darby Fuerst or Joe Oliver of my staff. Thank you for your opportunity to comment on the Comprehensive Hydrological Study for Rancho San Carlos.

Sincerely,

James R. Cofer

James R. Cofer, P.E.
General Manager

/enclosures

cc: Owen Stewart, Monterey County Water Resources Agency
Mark Dias, Monterey County Health Department
Board of Directors, Monterey Peninsula Water Management District
Denise Duffy, Denise Duffy & Associates

/u/darby/wp/rsc/mchd.061594

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December 16, 1992

Mr. Clifford G. Wallman
Project Hydrogeologist
David Keith Todd Consulting Engineers, Inc.
2914 Domingo Avenue
Berkeley, CA 94705

Subject: Memorandum Report entitled, "Interim Results of Rancho San Carlos Groundwater Exploration Program"

Dear Mr. Wallman:

This letter is in response to your November 30, 1992 letter, transmitting copies of the above-referenced report. We appreciate the opportunity to review this interim report. The report is intended to provide a brief overview of the findings from the ground water exploration program conducted at Rancho San Carlos to date. The report indicates that this work is continuing and that a complete discussion of the testing and analysis program will be presented as part of the project application report. Accordingly, we are not providing detailed comments on this interim report, but would like to provide several general comments related to the analysis of ground water supply potential and associated impacts. These comments are listed below.

(1) The interim report discusses "safe yield" in relation to individual wells that have been tested to date. It will also be important to consider production from individual wells in a cumulative fashion and relate this to the long-term sustainable yield of each of the water production zones at Rancho San Carlos.

(2) To assist in understanding the occurrence of ground water within the various water production zones and the relationships with local surface water systems and ground water within the Carmel Valley alluvial aquifer, we recommend the construction of detailed geologic cross sections. The cross sections should depict the lithologies encountered, interpretations of geologic structure between control points, well completion information including screened intervals, strata seals and sanitary seals, and ground water levels.

(3) Since the occurrence of ground water in some zones tapped by the wells may be controlled primarily by fractures in the rock, ground water drawdowns may display anisotropic behavior (i.e. drawdowns would vary directionally at a given distance from the pumping well). Therefore, analysis of aquifer test data may not be appropriate by standard methods which assume homogeneous, isotropic conditions. Recognition and valid analysis of such anisotropic conditions may require the use of multiple, appropriately spaced observation wells at some locations.

(4) The testing program as described in the interim report includes long-term constant rate pumping tests for periods of 24 to 72 hours. Given the occurrence of ground water in low permeability and/or fractured, limited ground water zones, we believe aquifer tests of longer duration would be more appropriate to effectively understand the supply capabilities and limitations from these zones.

(5) The interim report discusses production from existing wells to meet anticipated low and high annual demand for the potential project; however, it will also be important to analyze the ground water supply capability and potential impacts during peak demand periods.

(6) The interim report does not include a discussion of the plans for wastewater treatment; however, it will be important to consider possible impacts from the wastewater treatment upon the local surface and ground water systems.

We look forward to review of the more detailed results from the ground water exploration program at Rancho San Carlos. We would recommend that when this information becomes available, each of the local agencies that is involved in the review process be contacted to organize one group meeting so that comments and concerns can be more efficiently coordinated and communicated. In the meantime, if you have any questions regarding this matter, please do not hesitate to call. Thank you for your cooperation.

Sincerely,

Joseph W. Oliver
Senior Hydrogeologist

pc: Owen Stewart, Monterey County Water Resources Agency
Linda Weiland, Monterey County Planning & Building Inspection Department
Walter Wong, Monterey County Health Department
Mary Anne Dennis, Monterey County Health Department

File.

MEMORANDUM

MONTEREY COUNTY HEALTH DEPARTMENT
Division of Environmental Health

DATE: June 16, 1994

TO: Wanda Hickman, Project Planner

FROM: Mark Dias, Division of Environmental Health MD

SUBJECT: PC 94067; GDP, CDP and VTM for Santa Lucia Preserve

The above referenced application has been reviewed by the Health Department and has been considered incomplete. This memo lists additional information which is required prior to the scoping of the EIR, prior to considering the application complete, or prior to making a recommendation for the project to the Planning Commission and Board of Supervisors. A separate memorandum will be prepared at the time the application is considered complete to identify all issues that will be addressed in the DEIR. This DEIR information shall be submitted and reviewed prior to incorporation into the DEIR and prior to public circulation.

A-52

SEPTIC/SEWAGE DISPOSAL

As per the General Plan, and Greater Monterey Peninsula Area Plan (Board of Supervisors Resolution 93-115 Section 1.h.5.a) and the Subdivision Ordinance Title 19 Section 19.03. 015 K, the following additional information and reports shall be provided:

1. Please contact Mark Dias at 755-4964 to arrange on-site visits to determine septic system feasibility of the outstanding lots (list to be provided) as per CH 15.20 MCC (Septic Ordinance), and Basin Plan of the RWQCB. As necessary, complete additional soils and percolation testing and submit a supplemental soils and percolation testing report for review and approval by the Division of Environmental Health as per Ch. 15.20 MCC (Septic Ordinance), and Prohibitions, Central Coast Basin Plan, RWQCB. Contact the Division prior to proceeding to determine the scope of work and to oversee soil testing.

2. Compile and submit a complete addendum of the most updated soils investigation logs, groundwater monitoring and percolation test results for review and approval.

3. Following the determination of which lots do not meet the standards as per Chapter 15.20 MCC and Prohibitions, Basin Plan of the RWQCB, submit a list of which lots shall be sewered, merged, deleted, or reconfigured prior to considering the application complete.

4. If necessary, submit a revised Vesting Tentative Map to the Director of Environmental Health for review and approval meeting the septic system standards above.

Comprehensive Hydrological Study

As per the General Plan, and Greater Monterey Peninsula Area Plan (Board of Supervisors Resolution 93-115 Section 1.h.1.) and the Subdivision Ordinance, Title 19, Section 19.03.015 L, the following additional information and reports shall be provided subject to the review and approval of the Director of Environmental Health:

5. **Section h.1.(e):** Provide additional discussion and documentation on the 30 day pump tests and their relationship to the shorter term tests to document that the 24-72 hour tests are adequate. The discussion should specifically address the following issues:
   - -Why the selected wells T-9 and T-29 were not pump tested for 30 days.
   - -The difference between the 200 GPM production rate reported in Nov 1992, the 41 and 50 GPM pump test rates, and the calculated 30 GPM safe yield pumping rate reported in the Study for well T-29,
   - -The discharge boundary conditions observed during the 24 and 72 hr. pump tests in well T-29,
   - -The recovery slope and rate observed in well T-29,
   - -provide discussion and documentation for the recovery of well T-17A,
   - -discharge boundary conditions found in at least six other wells,
   - -slow or incomplete recoveries in a significant number of wells, most notably the wells pump tested for 72 hrs, 30 days,
   - -Provide additional discussion and documentation for the hydrographs for wells T-6 and T-6A.

   If necessary, provide additional pump test information as proof that the shorter 24-72 hour tests are valid.

6. **Section h.1.(a):** For each boundary condition observed or suspected, provide additional discussion and provide additional discussion for tests documentation as necessary as to what may be the source or geological conditions causing the boundary. Provide additional discussion for well T-26 and others where topography is not considered to be an issue.

7. **Section h.1.(a):** Following the discussion of boundaries in item 6, discuss the relationship between the observed boundary conditions and the Study's conclusions that the ranch is a single aquifer unit (versus distinct hydrogeological units). The discussion of shall also specifically address the information found in the earlier results of groundwater exploration indicating that many of the inactive faults on site act as groundwater barriers rather than groundwater conduits.

WATER SUPPLY, Title 22 Standards (as per General Plan and Subdivision Ordinance)

8. Submit additional quality analysis information for the following wells and constituents or submit documentation stating that these wells will not be used for domestic supply until subsequent testing indicates the sources meet Title 22 requirements;

   Well T-6A aluminum
   Well R-11 aluminum

9. Following the discussion of the items above, provide a revised summary of Table 6-7 indicating the amount of water available for domestic use (if necessary);

   1) if necessary, remove all wells from the list that do not meet Title 22 standards for primary constituents or propose specific irrigation uses for these wells,
   2) if appropriate, revise well yields based on further analysis of boundary effects and recovery data.

10. Provide evidence that the water sources meet the minimum source capacity criteria as found in Title 22, Chapter 16, C.C.Rs: A) submit documentation from the State Department of Health Services that the water demand estimates as calculated in Table 4-5 are consistent with demand criteria, B) once demand figures have been provided, the demand shall be compared to the source capacity figures found in Table 6-7 to determine consistency with Title 22. C) if necessary, submit additional well capacity information to meet the minimum requirements above.

cc: Walter Wong, Director, Division of Environmental Health
Mary Anne Dennis, Chief, Resource Protection Branch
Sam Karas, Supervisor, District 5
Douglas Holland, County Counsel
Darby Fuerst, MPWMD
Joe Oliver, MPWMD
Al Moholland, MCWRA
Mike Powell, Land Use Specialist
Brian Finegan, Esq., Representative

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March 25, 1993

Ms. Judy L. E. Pennycook, Chair
Monterey County Board of Supervisors
P.O. Box 1728
Salinas, CA 93902

Subject: **Proposed Plan Amendments to the Monterey County General Plan and the Greater Monterey Peninsula Area Plan Relative to Rancho San Carlos**

Dear Ms. Pennycook:

This letter is to express the concerns of the Monterey Peninsula Water Management District (District) regarding the evaluation of the water resources on Rancho San Carlos. The District is interested in ensuring that a comprehensive understanding of the surface and ground water resources of Rancho San Carlos is developed, as well as a thorough analysis of the potential adverse impacts to water resources and water-dependent resources within the Carmel River basin. The District has submitted written comments on the Draft Supplemental EIR and Subsequent Draft EIR for the Rancho San Carlos Plan Amendments. At this time, the District's concerns are focused on answering four key questions:

(1) What is the potential for impacts to surface waters draining from Rancho San Carlos to the Carmel River,

(2) What is the potential for impacts to ground water in the Carmel Valley aquifer,

(3) What is the reliability of the proposed water supply system for Rancho San Carlos, and

(4) What is the contingency plan for supplementing the water supply to Rancho San Carlos in the event of failure of all or part of the water supply system?

To address these concerns, the District has been in close communication with representatives of the responsible Monterey County agencies and Rancho San Carlos on the water resources issue.

We concur with the language in Section V. 1. H. of the proposed plan amendments regarding the development of a "comprehensive hydrological study" for Rancho San Carlos. Further, we concur that this study should be submitted for review and approval before any discretionary development application is deemed complete. In this regard, the District's role and responsibilities in the review process should be made clearer. Specifically, the District suggests

MEMORANDUM — WATER RESOURCES AGENCY

County of Monterey

DATE: September 8, 1994

TO: Wanda Hickman, Project Planner
Planning & Building Inspection Dept.

FROM: Owen Stewart, Assoc. Water Resources Engineer

SUBJECT: Santa Lucia Preserve, EIR Scope of Work

The Monterey County Water Resources Agency has followed the development of a very extensive and detailed hydrogeologic study and analysis on the Rancho San Carlos, and has participated in the formulation of the study guidelines and parameters. It was acknowledged from the outset of the studies that development of a number of reliable wells in the "fractured rock" aquifer underlaying the Rancho lands might require specific methods unique to this type of aquifer. Also, it was recognized that well tests could yield other than usual results. Therefore, much emphasis was put on the well testing program to verify the reliability of the wells that are to provide water to the planned development.

A statement appears on page E-8 of the Comprehensive Hydrological Study, Summary, that succinctly summarizes the results of the studies. "The aquifer characteristics suggest that pumping capacities from individual wells will not be large. However, the relative impacts of any groundwater pumping will be small and very local to the individual well site." The latter statement suggests a relative insignificance for the impacts on the immediate environment, while the former statement illuminates the potential problems associated with developing a reliable water supply. Agency staff believes that if dependence is placed on relatively low producing wells, the most significant factor for the long term reliability of these wells is the ground water in storage around the wells. The hydrology studies have demonstrated that there is substantial water in storage, given the very large recharge area. However, the accessibility of the individual wells to this water in storage is difficult to predict with accuracy. This becomes particularly important during drought periods.

The California Department of Water Resources has recommended that in areas where the sole source of water is hard-rock wells, pumping rates versus consumption rates should include a large safety factor. This might be done by initially providing standby wells, by providing maximum operating flexibility in the water system design, and constructing large storage tanks. On page 4-11 of the Comprehensive Hydrological Study there is a suggestion that local subsystems of an overall water system could be constructed.

The Water Resources Agency would strongly recommend that the ability to distribute water throughout the system from the better producing wells be integrated into the systems design. The ability to distribute groundwater once it is extracted from the aquifer will largely allay concerns about aquifer transmissivity and whether the groundwater is hydraulically continuous and able to move through the aquifer with relative ease.

Based on the above discussion the Water Resources Agency believes that the following issues need evaluation in the EIR:

- The need to provide integrated water system design to provide for maximum operating flexibility and easy access to the better producing wells, both for water supply and fireflow requirements.
- The need to construct standby wells to provide immediate replacement of wells that could fail during drought periods.
- Determine the potential for capturing stormwater at peak runoff periods during the winter, to provide for irrigation needs during the summer, and possible riparian and waterfowl habitat.

Based on discussions with other County staff, we believe that these items should be subject to feasibility level analysis in the EIR, including a preliminary design of the water system along with proposed locations for the storage tanks and standby wells.

A procedure should be established by the EIR consultant to allow input to the EIR by the third party hydrology consultant.

OS\sntlucia.mem
cc: Jay Jones
Mark Dias
Joe Oliver

EXHIBIT B

List of Consultant Reports Prepared for Rancho San Carlos and available for review at the Monterey County Planning Department

Consultant shall make use of existing studies prepared by the applicant. Existing studies on file at the County which the Consultant shall use include:

1. Main Ranch House and Guest House Historic Resource Analysis, prepared by Daryl Allen for Gil Sanchez, FAIA, dated February 1994.
2. Dairy Barn and Employee Housing Historic Resource Analysis, prepared by Greenwood and Associates, dated September 20, 1991.
3. Inventory of Prehistoric Cultural Resources, prepared by Archaeological Consulting, dated February 18, 1994.
4. Forest Management Plan, prepared by Ralph Osterling Consultants, Inc., dated February 18, 1994.
5. Traffic Report for Rancho San Carlos, prepared by Dowling Associates, dated April 22, 1994.
6. Comprehensive Hydrological Study, prepared by Camp Dresser & McKee, Balance Hydrolics, David Keith Todd Consulting Engineers, Geoconsultants, Inc., and Luhdorff & Scalmanini Consulting Engineer dated March, 1994.
7. Comprehensive Wastewater Disposal Plan, prepared by Camp Dresser & McKee Inc. Bestor Engineers, Inc., Cleary Consultants, Geoconsultants, Inc., dated February, 1994.
8. Preliminary Drainage and Erosion Control Report, prepared by Bestor Engineers, Inc., dated Februarary 18, 1994
9. Geological and Geotechnical Investigation, prepared by Cleary Consultants, Inc., dated February 1994.
10. Noise Assessment Study, prepared by Charles Salter & Associates, dated February 1994.
11. Air Quality Analysis, prepared by Donald Ballanti, dated February, 1994.
12. Visual Resource Analysis, prepared by Robert Lamb Hart, dated April 1994.
13. Fire Safety Management Plan, prepared by Roy A. Perkins, dated February 1994.
14. Biological Resources Report, prepared by Biosystems Analysis, Inc., dated February 1994.
15. Grazing Plan, prepared by Sage Associates, dated February, 1994.
16. Mitigation Monitoring Plan, prepared by Denise Duffy & Associates, dated April 1994.

EXHIBIT C

SUGGESTED EARLY CONTACTS WHILE PREPARING EIR

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SAN FRANCISCO, CA 94105-1905

Comments Received on Notice of Preparation for the Combined Development Permit for the Santa Lucia Preserve (PC94067)

MONTEREY BAY
Unified Air Pollution Control District
serving Monterey, San Benito, and Santa Cruz counties

ABRA BENNETT
Air Pollution Control Officer

24580 Silver Cloud Court • Monterey, California 93940 • 408/647-9411 • FAX 408/647-8501

August 8, 1994

Wanda Ann Hickman
County of Monterey Planning & Building Dept.
P.O. Box 1208
Salinas, CA 93902

SUBJECT: NOTICE OF PREPARATION FOR SANTA LUCIA PRESERVE

Dear Ms. Hickman:

Staff has received the Notice of Preparation for the proposed Santa Lucia Preserve development. In addition to our previous comments on the preliminary air quality analysis, staff has the following general comments:

1. Project consistency with the Air Quality Management Plan for the Monterey Bay Region should be addressed in accordance with Chapter 13 of the Plan.

2. Direct and indirect source emissions from all proposed activities should be quantified and their impact on air quality assessed. If the project would significantly affect an intersection, modeling should be undertaken to determine if carbon monoxide standards would be violated.

3. Mitigation measures should be identified if the project would have a significant impact on air quality. Emission reduction effectiveness of these measures should be quantified, their feasibility addressed, and agencies responsible for implementation and monitoring identified.

Enclosed is a copy of the District's Guidelines for the Assessment of Environmental Impact Documents to assist you in preparing the air quality section of the draft EIR. If you have any questions, please do not hesitate to call Douglas Kim of our planning staff.

Sincerely,

Janet Brennan
Senior Planner, Planning and
Air Monitoring Division

cc: Nicolas Papadakis, AMBAG
PAM/dk
File: 3442

GUIDELINES FOR THE ASSESSMENT OF ENVIRONMENTAL IMPACT DOCUMENTS

I. ENVIRONMENTAL SETTING

Description of ambient air quality conditions prior to the proposed action. The description should provide sufficient information to permit independent evaluation by reviewers. The following information should be included in the discussion of the environmental setting:

A. Local climate and topography

B. State and local air quality standards

C. Summary of ambient air quality data for the previous three years including data from the closest monitoring stations as well as basinwide data

II. IMPACT OF PROJECT PROPOSAL AND ALTERNATIVES

All phases of a project and project alternatives must be considered when evaluating air quality impacts. Impact assessments should be calculated using "worst case" meteorological conditions and the most current emission factors available. Pollutants of particular concern are nitrogen oxides, sulfur oxides, particulate matter, ozone, reactive hydrocarbons, carbon monoxide, NESHAPS (National Emission Standards for Hazardous Air Pollutants), and toxic pollutants identified in Appendix A. Several types of emission computations may be needed for the air quality analysis. All results may be presented in units of tons per year, pounds per day, or parts per million (ppm). The ARB EMFAC7D composite vehicle emission factors or the most current approved method may be used in calculations where more specific regional factors are not available.

A. Short Term Emission - Short term emissions generated during the site preparation and construction phase of a project include fugitive dust resulting from grading and materials handling, construction workers vehicular traffic, and the exhaust from heavy-duty gasoline and diesel powered vehicles. Emission factor data for emissions generated during construction activities can be found in Compilation of Air Pollutant Emissions Factors, AP-42. Once the appropriate emission factors have been determined, computations would be similar to

computations below for long-term emission generation.

B. Long-Term Emissions - The long-term emissions associated with a project include both the direct emissions generated by the operation of the project and the indirect emissions induced by the project, due principally to the use of motor vehicles. An emission assessment should be done in 5 year increments to project completion if appropriate. This assessment should identify and analyze emission sources (i.e., motor vehicles, power generation, project operations). Factors in vehicle useage to be considered are:

1) Number of person trips associated with the project listed by mode
2) Number of vehicle trips associated with project
3) Length of trips
4) Peak hour traffic count estimates
5) Percent cold-hot start
6) Types of trips
7) Vehicle miles traveled per day

Two models are available from ARB for doing this assessment. They are URBEMIS #2 and Supplement to Procedure Basis for Estimating On-Road Vehicle Emissions.

C. Local Scale-Analysis - Estimate of project's air quality impact in the vicinity of the project. Special emphasis should be placed on identifying locations of sensitive receptors (i.e., hospitals, schools, etc.) and the actual exposure to pollutants. Concentrations of carbon monoxide and lead are of primary concern. We recommend that a suitable microscale model such as CALINE 3 or 4 be used to analyze the project's carbon monoxide impact. This model is applicable to intersections, roadway links, and ingress/egress points of parking. A lead analysis should be performed if local stationary sources of lead emissions are present in the area or if the project is in an area that exceeds the national or state lead standards.

D. Hazardous Pollutants - Airborne hazardous or toxic pollutants (referenced but not limited to Appendix A) expected to be generated by the project must be identified. The types of pollutants, quantities emitted and potential impact on public health must be addressed. In addition, it must be identified if a project is to be located in an area which may be impacted by existing or planned facilities with the potential to emit toxic or hazardous pollutants, the impact on project residents or employees must be evaluated.

E. Cumulative Impacts - The impact on the ambient air environment which results from the incremental impact of a proposed project when added to other past, present, and reasonable foreseeable future development activities should be identified. The State CEQA Guidelines (Section 15023.5) presents the following criteria for an adequate discussion of cumulative impacts:

1. A list of projects in the vicinity of the proposed project producing related or cumulative impacts, including those projects outside the control of the agency.

2. A summary of the expected environmental effects to be produced by those projects with specific reference to additional information stating where that information is available, and

3. A reasonable analysis of the cumulative impact of the relevant projects.

III. CONFORMITY WITH AIR QUALITY PLAN

Section 15142(b) of the State EIR Guidelines and Sections 176 and 316 of the Federal Clean Air Act contain specific references on the need to evaluate local plans, programs and projects for conformity with Air Quality Plans (i.e., Air Quality Management Plan (AQMP)/State Implementation Plan (SIP).

IV. MITIGATION-MEASURES

The EIR should identify all feasible motor vehicle trip reduction measures that can serve to mitigate project-related air quality impacts. There should be an assessment of the air quality benefits which could result from the implementation of mitigation measures. These should be stated in quantitative terms, including projected reductions in emissions, trips generated, and vehicle miles travelled. The 1989 Air Quality Plan should be used as a guide to TCMs (Transportation Control Measures) applicable to a region. In addition, mitigation measures not adopted for regionwide implementation may be reasonably available for specific projects. If the project's design includes AQMP motor vehicle trip reduction measures, this should be noted in the EIR; similarly, AQMP measures rejected as infeasible should be noted and explained in relation to the project.

The names of entities responsible for implementation of proposed TCMs and the timeframes for their implementation should also be included in the EIR. It is recommended that project proponents contact public transit, ride-sharing, bicycling, local public works, and other appropriate service providers during early planning stages to ensure that needed facilities and services are appropriately incorporated into project design.

The following listing is intended to be a guide only and is not all-inclusive; other measures to mitigate adverse air quality impacts are available. The measures are related to land use and transportation planning and management. Their purpose is to reduce motor vehicle trips thereby reducing emissions of automobile-related pollutants on both a regional and local scale.

1. General Transportation Measures - Applicable to all developments

   - Direct support to transit agencies for service and/or facilities
   - Parking management
   - Bicycle paths and on-street lanes
   - Safe and convenient pedestrial facilities
   - Minibus, jitney, or other para-transit services within and between trip attractions (major development only)

2. Employer Sponsored-Transportation-Measures - (For job sites.) General Measures listed above and:

   - Employer-sponsored ridesharing programs
   - Employer-provided transit passes
   - Carpool/vanpool preferential parking
   - Employer subsidy to employees using carpools/vanpools
   - Employer-charged parking fees for single occupant motor vehicles
   - Onsite fuel for carpool/vanpool vehicles
   - Modified work schedules (flextime) for meeting carpooling, vanpooling, or transit schedules
   - Provision of employee services within walking distances, including banking, child care, food service, recreation and other facilities
   - Shuttle services for employees for shopping and to public transportation access points
   - Fleet management to reduce trips and improve vehicle maintenance

3. Residential Projects
   General Measures listed above and:

   - Provision for transit access in street design
   - Neighborhood shopping and day-to-day personal service needs within residential projects, without additional parking for such service uses
   - Major open space and recreational facilities within residential projects

4. Land-Use-Development-Measures

   - Mixed land/use balanced communities
   - Optimum insulation standards
   - Solar access siting
   - Solar space heating/hot water systems/pool heating

Appendix A

LISTING OF TOXIC OR POTENTIALLY TOXIC COMPOUNDS
THAT ARE LIKELY TO BE PRESENT IN AMBIENT
AIR IN SIGNIFICANT QUANTITIES

COMPOUND

Acetalcenyde
Acrolein
Acrylonitrile
Allyl Chloride
Arsnic
Asbestos
Benzene
Benzyl Chloride
Beryllium
Cadmium
Carbon Tetrachloride
Chlorobenzene
Chloroform
Chloroprene
Chromium
Cresol (all isomers)
p-Dichlorobenzene
Diethyl Nitrosamines
1-4 Dioxane
Dioxins
Epichlorohydrin
Ethylene Dibromide
Ethylene Dichloride
Ethylene Oxide
Formaldehyde
Hexachlorocyclopentadiene
Lead
Maleic Anhydride
Manganese
Methyl Bromide
Methyl Chloroform
Methylene Chloride
Mercury
Nickel
Nitrobenzene
Nitrosomorpholine
Polycylic Aromatic Hydrocarbons
Perchloroethylene
Phenol
Phosgene
Polychlorinated Biphenyls
Propylene Oxide
Trichloroethylene
Vinyl Chloride
Vinylidene Chloride
Xylene (all isomers)

MONTEREY PENINSULA
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June 15, 1994

Ms. Wanda Ann Hickman
Monterey County
Planning and Building Inspection Department
P.O. Box 1208
Salinas, California 93902

Subject: Comments on Combined Development Permit Application for the Santa Lucia Preserve (No. PC94067)

Dear Wanda:

Enclosed are our review comments on the Combined Development Permit (CDP) application for the Santa Lucia Preserve. Our comments are limited to the Comprehensive Hydrological Study for Rancho San Carlos (CHS) that was included as part of the application and focus on the off-site impacts from the proposed project. Our comments are based on a review of the CHS and discussions with technical representatives from Rancho San Carlos, Monterey County Health Department, and Monterey County Water Resources Agency at meetings on June 2 and 9, 1994. Based on our review, the District believes that additional information is needed to accurately assess the potential impacts on off-site water resources from the level of development proposed in the CDP application. It is the District's understanding that this information will be provided in the environmental impact report (EIR) that will be prepared for the Santa Lucia Preserve and that the direct and indirect off-site impacts will be fully analyzed.

These comments are similar to our draft comments that were discussed with the applicant's consultants at the technical meetings on June 2 and 9, 1994. It should be noted that all of the District comments were addressed by the applicant's consultants during the meetings and, in many cases, specific information needs were identified. It is expected that this information will answer many of the questions raised by District staff.

The District comments are provided in accordance with the standards[1] that were added to the Greater Monterey Peninsula Area Plan (GMPAP) when the portion of Rancho San Carlos within the GMPAP was designated as a "Comprehensive Planned Use" area. This designation was made in March 1993 when the Monterey County Board of Supervisors adopted Resolution No. 93-115. The District received the CDP application materials, including the Comprehensive Hydrological Study, on May 11, 1994.

[1] Section V.1.h.(2)

The District is committed to ensuring that a comprehensive understanding of the surface and ground water resources of Rancho San Carlos is developed so that a sound factual basis is available for analyzing the potential adverse impacts to the water resources and water-dependent resources within the Carmel River basin. This commitment stems from the fact that the District has initiated a number of programs to manage and protect the natural resources within the Carmel River basin. Specifically, as part of its Water Allocation Program EIR, the District has implemented a comprehensive 5-Year Mitigation Program that is designed to protect the steelhead fishery and riparian vegetation along the Carmel River. The 5-Year Mitigation Program was begun in 1991 and has expended over $3,400,000 to date, with an additional $1,500,000 budgeted for fiscal year 1994-1995. These comments are provided because of this investment and the District responsibility to protect the community's water supply.

Based on our review to date, we feel that the application materials provided represent a commendable effort at condensing and assimilating the vast quantity of water resources data that have been collected throughout the course of the project. The District recognizes that the project encompasses an enormous area characterized by complex geologic and hydrogeologic relationships.

Our review comments are divided into two sections. In the first section, specific comments on the CHS are provided and ordered by page number. In the second section, our comments are summarized and other issues not addressed in the CHS are discussed.

Specific Comments

Page 2-13, first paragraph. The statement that "The great majority of the project water supply will be extracted from bedrock with a modest amount to be derived from the alluvium" needs to be clarified. In previous discussions of the interim results from the ground water exploration program (Memorandum from Cliff Wallman, Todd Engineers, November 1992), it was stated that ground water pumpage for the project would be from deep wells and no shallow ground water resources would be impacted. Accordingly, the volume of water that will be derived from alluvial sources should be quantified and the wells that would produce this water should be identified. If production capacity from existing alluvial wells (e.g. E-3; see Table 6-7) will be used for the proposed project, the amount of production that will be in excess of historical production should be quantified.

Page 3-1, fifth paragraph. The use of average annual values to characterize hydrologic phenomena, such as streamflow, should be qualified. Because average values can be influenced disproportionately by high values, other measures should be included to provide information on the frequency that particular values are expected to occur. As a minimum, median values should be provided for comparison.

Page 4-9, second paragraph. As described, the estimated daily pumping capacity requirement (or maximum day water demand) for the Combined Development permit application is 350 gpm. On page 6-12, it is stated that pumping cycles are planned on the order of 12 hours per day to meet maximum day water demand. If total current well yield for the ranch is 527 gpm (page 6-26), and these wells were pumped for 12 hours a day, actual well yield would be one-half of 527 gpm, or approximately 264 gpm, which would not be sufficient to meet the maximum day water demand of 350 gpm. If the pumping cycles were extended to 24 hours to meet the maximum day demand, it is not clear how subsequent day water demand requirements (which would be at or near the maximum day water demand) would be met given that the well yields are based on an analysis that assumes recovery time is equal to each pumping cycle (page 6-26). This should be clarified.

Page 6-2, sixth paragraph. The assumption that the fractured rock aquifer system underlying Rancho San Carlos can be treated as "an equivalent porous medium at the scale of a pumping test" requires further explanation and substantiation. One approach to verify this assumption would be to collect empirical data from pumping tests utilizing multiple, appropriately spaced observation wells (See item (3) of the enclosed letter to Todd Engineers dated December 16, 1992). Without this site-specific data, additional information from the literature should be provided that addresses the validity of this assumption regarding scale.

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Page 6-3, Table 6-1. In this table, it is noted that discharge boundary conditions were observed in the pumping test data from at seven sites. The discharge boundaries encountered during two of the 30-day tests (wells T-18 and T-26) are briefly discussed in Section 6.10. The significance of the discharge boundaries with respect to projected pumping declines and the ability of the wells to sustain the estimated well yields during peak demand periods should be evaluated and discussed in the report. This discussion should focus on the cause (i.e. hydrogeologic versus topographic) of each of the discharge boundaries that were observed and, where appropriate, distinguish between "apparent" and real boundaries.

Page 6-5, third paragraph: The analysis describing how the storativity values for wells T-17 (Chamisal Formation) and T-18 (Porphyritic Granodiorite) were calculated should be provided and should be further clarified. More specifically, the justification for extending the effective saturated thickness 50 feet below the bottom of the wells needs to be explained. By assuming that this magnitude of vertical flow would be induced, the storativity values are doubled from 0.005 to 0.01. Because the storativity values are critical in calculating available storage and assessing off-site impacts, it is important that the values be accurate and defensible. Also, additional discussion should be provided that explains why only two estimates of specific yield were discussed from the well testing program.

Page 6-5, fourth paragraph. The "cross check" of the storativity estimate should be qualified given the ranch-wide, average values for annual recharge and seasonal water table fluctuations that were used. The annual recharge value (6,800 AF) was not measured directly, but was

derived in the water balance calculations. In fact, the "recharge rate" (page 8-6) was used as a correction factor in the water balance calibrations and was varied "so that the residual of the water balance equation over the 1961 through 1990 period would approach zero". In addition, it is not clear how the average seasonal fluctuation across the ranch (10 feet) was estimated.

Page 6-5, fifth paragraph. As discussed above, the conclusion that "a value of one percent appears to be appropriate as an average value for the full saturated thickness" needs further clarification. It is unclear why the "best estimates of specific yield", which were empirically-derived and are site-specific, are not used. To assist our review, the District requests a copy of the reference (Bedinger, et al., 1986) that is cited as support for the selection of this storativity value.

It is recommended that the consultants review the Monterra Ranch Water Supply Study that was prepared by Anderson-Nichols & Company in July, 1985, as an example of a fractured media analysis in a nearby site (i.e. Jenkins-Prentice and Papadopulos methods). This report was provided to the applicant's consultants for their records and review for the June 2 meeting.

Page 6-7, second paragraph. The suggestion that the concept of a "single hydrogeologic unit beneath and immediately surrounding the ranch" is supportable because the mean hydraulic conductivity values for the four geologic units on Rancho San Carlos are within one order of magnitude of each other and the overall average needs further clarification. In reviewing Figure 6-1 and Table 6-3, it is unclear at this time whether the observed similarity is due to the computations used (i.e. geometric mean of log hydraulic conductivity) or the intrinsic hydrogeologic properties of the units. If this logic is applied to the K values for the Porphyritic Granodiorite in Table 6-3, the argument could be made that there are separate units within the Granodiorite because the range of values (0.03-13.6) is greater than one order of magnitude.

Page 6-7, fifth paragraph, Radius of Direct Pumping Influence. This section discusses the anticipated radii of influence around pumped wells at the ranch. The approach used assumes that the cone of depression around a pumped well propagates outward in a symmetrical fashion with continued pumping. However, as discussed elsewhere in the document, it is believed that flow to wells at the ranch is primarily controlled by bedrock fractures. Therefore, the radii of influence from pumped wells could be considerably different from those given in this section, particularly if a predominant directional orientation exists in the fracture system. The role of fractures and resultant anisotropic behavior in the aquifer system needs further evaluation and discussion in the report.

Page 6-14, sixth paragraph. In discussing the ground water contour map of the ranch (Figure 6-4), the lack of any impermeable boundaries and abrupt changes in ground water levels that might indicate isolation or separation between adjacent geologic units is noted. Further, the "general smoothness and continuity of groundwater contours" is used to suggest that the ground water beneath the ranch is hydraulically continuous and able to move across geologic contacts

and faults. To verify this "smoothness" and lack of abrupt changes, a map showing the actual water level data used to construct the ground water contours should be provided.

Page 6-17, second paragraph. The ground water storage estimate beneath the ranch (199,000 AF) is based on an average specific yield value of one percent and an average saturated thickness of 1,000 feet. As discussed above, the appropriateness of using the one percent value is not clear. In addition, it is unclear from the data presented how the average saturated thickness of 1,000 feet was determined. If the unadjusted specific yield value (0.005) is used and the saturated thickness associated with the optimum well depth (650[2] feet) is used, total extractable storage beneath the ranch would be 65,000 AF. The derivation of the average saturated thickness (1,000 feet) should be provided and discussed with respect to the saturated thickness associated with the optimum well depth that is described on page 6-7. In this regard, a distinction between total and extractable ground water storage beneath the ranch should be made.

Page 6-26, third paragraph. As discussed, the individual well yields for wells included in Table 6-7 are the product of the 24-hour specific capacity and the available drawdown at each well. This analysis has resulted in a total estimated well yield of 527 gpm. Both the specific capacity and available drawdown results for most wells are based on test results and conditions during near average or above average rainfall periods. However, both specific capacity and available drawdown would be expected to decrease during extended drought periods. Accordingly, the well yields for the project should also be evaluated with respect to the occurrence of a drought of record at the ranch.

Page 6-27, Table 6-7. The well yield estimates for the ranch shown here include well E-3, which is an alluvial well in the Garzas Creek drainage. Until the potential impacts to off-site water resources from project-level production at well E-3 are more fully discussed, production from this well should be qualified in the well yield estimates for the proposed project.

Page 6-28, fourth paragraph. The discussion regarding ground water quality needs to be expanded. Specifically, the conclusion that the ground water chemistry results for each of the different geologic units are similar should be substantiated. As an example, the twofold difference between the average TDS values for the Chamisal Formation (494 mg/l) and for the Hornblende-Biotite Granodiorite Unit (242 mg/l) should be explained. The discussion should specify which statistical tests were used to measure similarity and include trilinear diagrams.

[2] The 650 feet of saturated thickness represents the difference between the 800 feet associated with the optimum well depth and the 150 feet assumed as the average depth to static water.

Page 6-33, second paragraph. In the discussion of the 30-day test for well T-18, it is noted that a "discharge boundary condition was encountered at 30,000 minutes (20.8 days)". This section should be expanded to include a discussion of the nature of the discharge boundary and its implication with respect to hydraulic continuity across the ranch.

Page 6-33, sixth paragraph. Similar to the comment above, the significance of the discharge boundary that was encountered at approximately 6,000 minutes (4.2 days) into the well T-26 test should be explained.

Page 6-35, second paragraph. In the discussion of the 30-day pumping test at well T-11, it is stated that streamflow monitoring data and water quality data provided conflicting information regarding whether a stream-aquifer interaction exists, and that further testing is required at this location. However, the calculated well yield for well T-11 (35 gpm) has been included in the total well yield available for the ranch in Table 6-7. Because the stream-aquifer interconnection is inconclusive at this location, the production from well T-11 should be qualified in the well yield estimate for the ranch, until further testing can more conclusively address this issue.

Page 8-7, first paragraph. The conversion from the monthly ground water recharge factor of 1.28 inches/month to 6,800 acre-feet/year is unclear. It should be clarified how the 1.28 inches/month recharge factor was determined and used in the water balance evaluations.

Page 8-14, second paragraph. The estimated additional fluctuation in ground water due to net project buildout demand of 400 acre-feet/year is estimated to be 0.7 feet/year. This estimate assumes a storativity value of 0.03. If the smaller, empirically-derived storativity value of 0.005 is used, the additional fluctuation would be 4.0 feet. It should be noted that in both of these estimates the drawdown is averaged across the ranch. This logic assumes that the demand and drawdown are uniformly distributed across the ranch. Based on the concentration of wells in the Las Garzas watershed (Figure 5-1, page 5-8), it is likely that the demand and associated drawdown will be more localized in this area. The discussion of the impacts due to drawdown on the ranch should be expanded to account for this spatial concentration of wells. In addition, the discussion should address the cumulative impact of the cyclical pumping that is planned for these areas.

Page 9-3, last paragraph. Regarding the location of future wells to avoid direct impacts of pumping on adjacent streams, seeps, and springs, the anisotropic nature of the aquifer system in the vicinity of these features will need to be considered in addition to the other factors discussed.

Page 9-7, fourth paragraph. The calculations used to estimate the reductions in ground water flow to the Carmel Valley alluvium due to changes in ranch-wide water levels from project pumping are unclear and should be provided.

Page 9-10, second paragraph. In discussing the impacts from supplying the net project water demand of 400 AF/year at buildout, it is stated that under pre-project conditions this water would have gone to ground water recharge and subsequent off-site ground water flow, dry-season phreatophyte ground water use, or ground water that would have become streamflow.

Of this total, ground water flow off the ranch due to the project water demands is estimated to be reduced by approximately 10 AF/year and the reduction in ground water use by phreatophytes on the ranch is also estimated as 10 AF/year. The remainder, i.e. 380 AF/year, is water that under pre-project conditions would have become streamflow. Therefore, under project conditions, 380 AF/year will not be available as streamflow in tributaries to the Carmel River or San Jose Creek. This annual reduction in streamflow should be broken down by watershed and analyzed over time, including the drought of record.

Page 9-10, fourth paragraph. The assertion that "the overall impacts on streamflow will be small, because groundwater inflow will be reduced primarily during the wet season when most streamflow is derived from runoff" needs further explanation. In addition, this reduction in streamflow should be corroborated by the monthly water balance estimates.

Also, the calculation that the 380 AF/year reduction in streamflow represents three percent of the average annual streamflow (12,000 AF/year) should be contrasted with the percent reduction expected in specific dry years. For example, during Water Year 1990, would the reduction be 25 percent based on the streamflow value shown in Table H-4? Similarly, what would the percent reduction be in Water Year 1977 when only 270 AF of streamflow is available?

Appendix E. Based on preliminary review of the pumping test recovery data plots that have been provided, it appears that complete or near complete recoveries did not occur in a number of wells tested, most notably wells T-3 (3-day), T-9 (3-day), T-14 (30-day), T-29 (3-day), R-1 (3-day), R-3 (3-day), and R-9 (3-day). Given these incomplete recoveries, the ability of these wells, and possibly others for which recovery plots are not available in the report, to sustain the planned cyclic pumping is not clear. Specifically, the length of time that an individual well could be pumped on a planned 12-hour daily cycle before encountering a limiting condition (e.g. drawdown reaching the top of well screen) needs to evaluated and discussed. Preliminary District calculations for estimating drawdown from intermittent (i.e. cyclic) pumping schemes suggest that field verification of well performance under the proposed operating conditions is warranted.

Appendix E. Recovery plots are provided for some, but not all of the 3-day and 30-day pumping tests that were conducted in 1993. Specifically, no recovery plots are shown from pumping tests on wells T-10 (3-day), T-17 (30-day), T-21 (3-day), T-24 (3-day), R-6 (3-day), and R-11 (3-day). If recovery data are available from these tests, plots of the data should be provided. If no recovery data are available from these tests, this should be stated. In either case, the criteria that was used to determine whether or not to collect recovery data from the pumping tests should be described.

Appendix H. Given the limited time available, District staff was unable to rigorously review the water balance analysis shown in Appendix H. Prior to preparation of the scope of work for the EIR, staff would like the opportunity to meet with the applicant's consultant to review the methodology and assumptions used for the water balances.

Summary

The District is concerned with the documentation in the Rancho San Carlos Comprehensive Hydrological Study that relates to the concept of treating the ground water resources underlying Rancho San Carlos as a single fractured rock aquifer system and the assumptions made in estimating a single storativity value for this system. More importantly, the District believes that additional information regarding the operating plan for the proposed water supply system needs to be provided to accurately evaluate the direct and indirect off-site impacts on water resources in the Carmel River basin. This information should include the location, planned pumping capacities, and planned pumping cycles for each production well.

Other Issues

Water System Reliability In addition to the issues raised in the specific comments, the District is concerned about the long-term reliability of the proposed water supply system and questions what contingency plan exists for supplementing the water supply to Rancho San Carlos in the event of failure of all or part of the water supply system (See items (3) and (4) of the enclosed letter to Monterey County Board of Supervisors regarding proposed plan amendments to the GMPAP relative to Rancho San Carlos dated March 25, 1993). In assessing the reliability of the proposed water system under maximum day demands, the possibility that a major production well or a specified percentage of total production capacity will be out of service should be included in the analysis. This assumption is consistent with standard practices and is likely be required by the California Department of Health Services.

Phasing Because of the uncertainty associated with the proposed use of the water in the fractured rock aquifer system underlying Rancho San Carlos, the District supports the concept of phasing the development on the ranch based on proven water supplies. This approach conforms with the language in the County Resolution No. 93-115 which specified that "development shall be permitted on Rancho San Carlos to a level consistent with safe yield of the proven water resources, provided that the level of development has no adverse impact on off-site water resources". The District recommends that development on Rancho San Carlos be phased according to proven water resources. This "proof" should be based on results from a ongoing surface and ground water monitoring program that is in place during the early phases of the project. The monitoring program should include key reference features (i.e. wells, creeks, and springs) and predetermined trigger values.

Third Party Review Resolution No. 93-115 specifies that the Division of Environmental Health or the Water Resources Agency may, at their discretion, request a third party review of the hydrology report prepared by the applicant's consultant. The District supports the concept of a third party review of the CHS at this time or as part of preparation of the EIR for the project. In either case, the District recommends that the third party reviewer possess a strong background in the concepts and characterization of fractured rock aquifer systems.

If you have any questions regarding these review comments or the District's recommendation, please contact Darby Fuerst or Joe Oliver of my staff. Thank you for your opportunity to comment on the Comprehensive Hydrological Study for Rancho San Carlos.

Sincerely,

James R. Cofer

James R. Cofer, P.E.
General Manager

/enclosures

cc: Owen Stewart, Monterey County Water Resources Agency
Mark Dias, Monterey County Health Department
Board of Directors, Monterey Peninsula Water Management District
Denise Duffy, Denise Duffy & Associates

/u/darby/wp/rsc/mchd.061594

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March 25, 1993

Ms. Judy L. E. Pennycook, Chair
Monterey County Board of Supervisors
P.O. Box 1728
Salinas, CA 93902

Subject: **Proposed Plan Amendments to the Monterey County General Plan and the Greater Monterey Peninsula Area Plan Relative to Rancho San Carlos**

Dear Ms. Pennycook:

This letter is to express the concerns of the Monterey Peninsula Water Management District (District) regarding the evaluation of the water resources on Rancho San Carlos. The District is interested in ensuring that a comprehensive understanding of the surface and ground water resources of Rancho San Carlos is developed, as well as a thorough analysis of the potential adverse impacts to water resources and water-dependent resources within the Carmel River basin. The District has submitted written comments on the Draft Supplemental EIR and Subsequent Draft EIR for the Rancho San Carlos Plan Amendments. At this time, the District's concerns are focused on answering four key questions:

(1) What is the potential for impacts to surface waters draining from Rancho San Carlos to the Carmel River,

(2) What is the potential for impacts to ground water in the Carmel Valley aquifer,

(3) What is the reliability of the proposed water supply system for Rancho San Carlos, and

(4) What is the contingency plan for supplementing the water supply to Rancho San Carlos in the event of failure of all or part of the water supply system?

To address these concerns, the District has been in close communication with representatives of the responsible Monterey County agencies and Rancho San Carlos on the water resources issue.

We concur with the language in Section V. 1. H: of the proposed plan amendments regarding the development of a "comprehensive hydrological study" for Rancho San Carlos. Further, we concur that this study should be submitted for review and approval before any discretionary development application is deemed complete. In this regard, the District's role and responsibilities in the review process should be made clearer. Specifically, the District suggests

that the following language be added to Section V. 1. H:

> **The hydrological study will also be provided to the Monterey Peninsula Water Management District for its review and comment.**

This language could be added after the second sentence in Section V. 1. H.

In addition, the phrase "to the extent feasible" in subsection F should be clarified. This subsection deals with the issue of interconnections between the hydrogeologic units on Rancho San Carlos and off-site aquifers and basins (e.g. Carmel Valley alluvial aquifer) and is of vital importance to the District. It is our understanding that this phrase refers to the "quantification" of the off-site impacts from development, not to the overall "delineation" of the interconnections. In this more restrictive sense, the phrase is intended to mean that the quantitative estimates will be made within the accuracy limits of standard hydrologic practices. In this context, the District suggests the following change in the second sentence in subsection F:

> Quantify development impacts to off-site basins and aquifers and development impacts to on-site and off-site vegetation **within the accuracy limits of standard hydrologic practices.**

The District appreciates the opportunity to comment on the proposed plan amendments relating to Rancho San Carlos. We intend to continue working closely with the local agencies and representatives from Rancho San Carlos to improve our understanding of the hydrology on Rancho San Carlos and its relationship to the water resources and water-dependent resources in the Carmel River basin.

Sincerely,

James R. Cofer, P. E.
General Manager

cc: MPWMD Board of Directors

/u/darby/wp/rsc/ltr.032593

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December 16, 1992

Mr. Clifford G. Wallman
Project Hydrogeologist
David Keith Todd Consulting Engineers, Inc.
2914 Domingo Avenue
Berkeley, CA 94705

Subject: Memorandum Report entitled, "Interim Results of Rancho San Carlos Groundwater Exploration Program"

Dear Mr. Wallman:

This letter is in response to your November 30, 1992 letter, transmitting copies of the above-referenced report. We appreciate the opportunity to review this interim report. The report is intended to provide a brief overview of the findings from the ground water exploration program conducted at Rancho San Carlos to date. The report indicates that this work is continuing and that a complete discussion of the testing and analysis program will be presented as part of the project application report. Accordingly, we are not providing detailed comments on this interim report, but would like to provide several general comments related to the analysis of ground water supply potential and associated impacts. These comments are listed below.

(1) The interim report discusses "safe yield" in relation to individual wells that have been tested to date. It will also be important to consider production from individual wells in a cumulative fashion and relate this to the long-term sustainable yield of each of the water production zones at Rancho San Carlos.

(2) To assist in understanding the occurrence of ground water within the various water production zones and the relationships with local surface water systems and ground water within the Carmel Valley alluvial aquifer, we recommend the construction of detailed geologic cross sections. The cross sections should depict the lithologies encountered, interpretations of geologic structure between control points, well completion information including screened intervals, strata seals and sanitary seals, and ground water levels.

(3) Since the occurrence of ground water in some zones tapped by the wells may be controlled primarily by fractures in the rock, ground water drawdowns may display anisotropic behavior (i.e. drawdowns would vary directionally at a given distance from the pumping well). Therefore, analysis of aquifer test data may not be appropriate by standard methods which assume homogeneous, isotropic conditions. Recognition and valid analysis of such anisotropic conditions may require the use of multiple, appropriately spaced observation wells at some locations.

(4) The testing program as described in the interim report includes long-term constant rate pumping tests for periods of 24 to 72 hours. Given the occurrence of ground water in low permeability and/or fractured, limited ground water zones, we believe aquifer tests of longer duration would be more appropriate to effectively understand the supply capabilities and limitations from these zones.

(5) The interim report discusses production from existing wells to meet anticipated low and high annual demand for the potential project; however, it will also be important to analyze the ground water supply capability and potential impacts during peak demand periods.

(6) The interim report does not include a discussion of the plans for wastewater treatment; however, it will be important to consider possible impacts from the wastewater treatment upon the local surface and ground water systems.

We look forward to review of the more detailed results from the ground water exploration program at Rancho San Carlos. We would recommend that when this information becomes available, each of the local agencies that is involved in the review process be contacted to organize one group meeting so that comments and concerns can be more efficiently coordinated and communicated. In the meantime, if you have any questions regarding this matter, please do not hesitate to call. Thank you for your cooperation.

Sincerely,

Joseph W. Oliver
Senior Hydrogeologist

pc: Owen Stewart, Monterey County Water Resources Agency
Linda Weiland, Monterey County Planning & Building Inspection Department
Walter Wong, Monterey County Health Department
Mary Anne Dennis, Monterey County Health Department

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September 6, 1994

Ms. Wanda A. Hickman
Monterey County
Planning and Building Inspection Department
P.O. Box 1208
Salinas, California 93902

Subject: **Comments on the Preliminary Scope of Work for the Environmental Impact Report for the Santa Lucia Preserve (EIR #94-05)**

Dear Wanda:

Enclosed are our comments on the Preliminary Scope of Work for the Environmental Impact Report that will be prepared for the Santa Lucia Preserve (*aka* Rancho San Carlos). At this time, our comments are limited to the Hydrology, Water Quality, and Public Services sections in the Preliminary Scope. As was discussed with Darby Fuerst last week, we will pick up copies of the technical reports that address selected water-related resources in the Preserve area -- Preliminary Drainage and Erosion Control Report, Geological and Geotechnical Investigations, and Biological Resources Report -- on September 6, 1994, from your office for District review and possible comment.

Our comments are based on our review of the Comprehensive Hydrological Study (CHS) that was prepared for Rancho San Carlos in March 1994 and the Supplement to the CHS that was prepared in July 1994, and reflect the District's concerns about the impacts to the surface and ground water resources in the Carmel River Basin from the level of development proposed in the Combined Development Permit (CDP) application for the Santa Lucia Preserve (PC94067). In this regard, the District requests that additional information be developed and discussed in the EIR that adequately assesses the impacts on the water resources in the Carmel River Basin from the proposed development of the Santa Lucia Preserve. This information should address both direct and indirect impacts on off-site water resources. In addition, this information should correspond to a specified water distribution system with a specific operating plan.

The District's technical concerns regarding the adequacy of the analysis in the CHS regarding potential off-site impacts were detailed in our letter dated June 15, 1994 (Enclosure 1). These concerns were not considered relevant to the "completeness" of the CDP application and, as a result, were not addressed in the July 1994 Supplement to the CHS. It was indicated that a separate supplement would be prepared "at a later date to address EIR-related issues". In this regard, the District requests that its comments on the CHS be reviewed and incorporated into the Preliminary Scope.

With respect to the proposed Preliminary Scope, the District suggests:

Section 5. HYDROLOGY	Add "County" between Monterey and Water in the first sentence (page 6).
	Add "Monterey Peninsula Water Management District" after Health Division in the first sentence (page 6).
	Add item, "Discuss both on-site and off-site potential surface and ground water impacts from project", under "Description, Setting, Impacts" (page 7).
	Add item, "Discuss phasing of project development as a means of (1) verifying "proven" water resources and (2) comparing projected and actual water supply impacts based on the ongoing monitoring program" under "Mitigation Measures - Hydrology" (page 8).
Section 6. WATER QUALITY	Add "Monterey Peninsula Water Management District" after Health Division in the first sentence (page 8).
	Change "Conservation" to Management under "Responsible/Concerned Agencies-Institutions" (page 10).
Section 15. PUBLIC SERVICES	Add item, "Describe proposed water distribution system and associated operating plan, including production well locations, pumping schedules, and percent utilization of individual wells during average and peak demand periods" under "DOMESTIC/COMMERCIAL WATER DELIVERY SYSTEM" (page 24).

Thank you for the opportunity to review and comment on the Preliminary Scope of Work for the EIR for the Santa Lucia Preserve. If you have any questions regarding our comments or concerns, please contact Darby Fuerst or Joe Oliver of my staff.

Sincerely,

James R. Cofer

James R. Cofer, P.E.
General Manager

/enclosures

cc: Owen Stewart, Monterey County Water Resources Agency
Mark Dias, Monterey County Health Department
Board of Directors, Monterey Peninsula Water Management District
Jay Jones, Ogden Environmental and Energy Services

/u/dorby/wp/rec/mcp4.090694

MONTEREY COUNTY

LOCAL AGENCY FORMATION COMMISSION
(408) 755-5065 P.O. BOX 1369, SALINAS, CALIFORNIA 93902

JIM COOK
EXECUTIVE OFFICER

September 8, 1994

Ms. Wanda A. Hickman, Associate Planner
Monterey County Planning and Building Inspection Department
P.O. Box 1208
Salinas, CA 93902

Dear Ms. Hickman:

Thank you for providing the Local Agency Formation Commission (LAFCO) an opportunity to comment on the Notice of Preparation for the Santa Lucia Preserve Environmental Impact Report (EIR). The Santa Lucia Preserve project, formerly known as Rancho San Carlos, proposes 350 dwelling units, 150 visitor-serving units, and commercial and recreational uses on 2,000 acres, with nearly 18,000 acres maintained as open space preserve. The proposal area is located south of Carmel Valley between Rancho San Carlos and Robinson Canyon Roads.

LAFCO has adopted a conceptual sphere designation for the project indicating that future service should be provided by a new County Service Area (CSA). LAFCO will act as a Responsible Agency when considering approval of the proposed CSA. In order for LAFCO to use the environmental impact report for this purpose, the following issues need to be addressed:

1. The EIR should explain LAFCO's previous actions of December 14, 1993 establishing a conceptual sphere of influence for the formation of a County Service Area for the proposed development. A CSA could facilitate coordinated service delivery for development on the property, with the ability to provide water, wastewater, fire protection, open space maintenance and other services. The conceptual sphere designation gives formal recognition of a preferred service delivery option that should be analyzed in the EIR. A copy of the LAFCO staff report is attached for additional reference.

2. The EIR should include a thorough discussion of the proposed County Service Area, including the formation process, how the CSA would operate, the relationship with private entities serving the site, the likely services to be provided, and how services would be maintained and funded.

3. The EIR should contain a discussion of project consistency with relevant local agency policies. LAFCO's Standards for the Evaluation of Proposals have been attached for your use. These policies guide the Commission's decisions in such areas as water use, phasing of development, preservation of open space and provision of services.

4. The hydrology and water service sections of the EIR should include an analysis of the LAFCO groundwater standards contained in the attached Standards for the Evaluation of Proposals. The Notice of Preparation already mentions most of the informational requirements. A five-year history of water use and review by the appropriate water resources agency would satisfy the requirements in the Standards.

5. The sewage disposal section of the EIR should describe all types of sewage disposal methods that would be used to serve the proposed development. The EIR should include how implementation and maintenance would occur under CSA management, and how reclamation can be used to the maximum extent possible.

6. The EIR should describe how fire safety services will be provided, including an evaluation of the various agencies that could serve the proposed development.

7. The EIR should include a discussion of road maintenance standards and whether the CSA could provide such services. The EIR should evaluate the need for on-site quarries for road construction and maintenance materials, how the quarries would be managed and how they will be reclaimed.

These comments will be presented to the Commission on September 27, 1994. We will notify you if there are any additional concerns after the meeting. Meanwhile, please call me at 755-5065 if you have any questions.

Sincerely,

Catherine S. West

Catherine S. West
LAFCO Senior Analyst

CSW:em

Attachment

MONTEREY COUNTY

LOCAL AGENCY FORMATION COMMISSION
(408) 755-5000 P.O. BOX 180, SALINAS, CALIFORNIA 93902

JIM COOK
EXECUTIVE OFFICER

AGENDA ITEM 6

DATE: December 14, 1993

TO: Members of the Formation Commission

FROM: Jim Cook, LAFCO Executive Officer

SUBJECT: CONCEPTUAL COUNTY SERVICE AREA SPHERE OF INFLUENCE FOR THE PROPOSED RANCHO SAN CARLOS DEVELOPMENT

SUMMARY OF RECOMMENDATIONS

It is recommended that the Commission approve a Conceptual County Service Area Sphere of Influence for the proposed Rancho San Carlos development.

A-73

EXECUTIVE OFFICER'S REPORT

Summary

A general plan amendment was approved by the County of Monterey for the Rancho San Carlos property. The amendment allows development of 350 residential units, 150 visitor-serving units, commercial and recreational uses. The property includes 20,000 acres located south of Carmel Valley.

Formation of a new County Service Area (CSA) could facilitate coordinated service delivery for future development on the ranch. The CSA would have the ability to provide water and wastewater services required by the proposed development, and could assume responsibility for fire protection, open space maintenance, and other services if needed. This approach toward service delivery complements the County's policy requiring the ranch to be developed on a comprehensive basis, and would also comply with LAFCO policy promoting use of multipurpose agencies.

The conceptual sphere designation gives formal recognition of a preferred service delivery option that should be analyzed in the environmental impact report to be prepared for the development. The property owners of Rancho San Carlos and the County Public Works Department concur with the proposed approach.

Project Description

The Monterey County General Plan and the Greater Monterey Peninsula Area Plan were amended by the Board of Supervisors on March 30, 1993, to allow development of the Rancho San Carlos property. The General Plan allows a maximum of 350 residential units, 150 visitor-serving units, neighborhood commercial uses and recreational uses to be developed on approximately 2,000 acres of the ranch. Over 14,000 acres must be placed in a perpetual "Grazing, Recreation, and Resource Conservation " preserve. The remaining acreage would be placed in scenic conservation easements or other open space uses.

Development is required to be clustered on the least environmentally sensitive portions of the property. The developer envisions several such areas with homes located on sites of five or less acres and separated by open-space lands.

The recent General Plan amendment sets the framework for future consideration of the Rancho San Carlos development. The General Plan policies require preparation of a comprehensive plan to ensure development is compatible with the natural resources on the ranch. In addition, a resource management plan must be developed which identifies resources, sets building standards, proposes mitigation and establishes a monitoring program for the implementation of mitigation measures.

The County Planning and Building Inspection staff anticipates that a development application for the Rancho San Carlos property will be submitted in the early part of 1994. The application will consist of a vesting tentative map, rezoning, and general development plans for visitor-serving units, a small commercial center, sports and equestrian facilities and a maintenance yard. A new Environmental Impact Report (EIR) will be prepared on the comprehensive development proposal.

Land Management

The property owners of Rancho San Carlos intend to establish a conservation trust to manage approximately 18,000 acres of open space and preserve lands. By agreement, the conservation trust would be affiliated with the Trust for Public Land (TPL) to comply with tax law.

The Board of the new conservation trust could consist of members of the Rancho San Carlos Partnership, land trust representatives, homeowners, or other conservation associates. The purpose of the conservation trust would be to preserve and maintain the open space lands on the ranch owned by the trust, and manage on-site agricultural operations. The trust would also be responsible for resource management of those portions of privately owned residential lots placed in scenic or open space easements.

In order to provide for the maintenance of these lands, the conservation trust would retain the services of an on-site private company. This company would have employees that could be used for the maintenance of wildlands, open space, fences, roads, wells, pipelines, and the wastewater system.

Service Needs

Water

General Plan policy requires that Rancho San Carlos must be developed at a level consistent with the safe yield of proven water resources. Water systems serving development on the ranch must be coordinated and managed on a ranch-wide basis. Formation of a mutual water system is prohibited.

The property owners of Rancho San Carlos are preparing a comprehensive hydrological study, which includes a detailed water balance analysis, water demand calculations, extended pumping tests, and an investigation of the interconnection with off-site aquifers. This report will be reviewed and approved by the Division of Environmental Health, the Monterey County Water Resources Agency and the Monterey Peninsula Water Management District.

The Subsequent EIR for the Rancho San Carlos General Plan Amendment contains water demand calculations for a variety of development alternatives. The water demand of an alternative similar to the project allowed in the General Plan ranges from 254 to 630 acre-feet per year for clustered 40-acre minimum residential densities and hotel/commercial uses. The potential sources for this water include groundwater, surface water diversion, Cal-Am service and reclaimed wastewater. The two most likely sources as identified in the EIR are groundwater and reclaimed water.

Wastewater

General Plan policy requires that wastewater systems must be developed and managed on a ranch-wide basis. Plan policy prohibits community septic systems and requires wastewater to be reclaimed. Collection and treatment facilities must be privately owned or included in a County Service Area.

A comprehensive wastewater disposal plan is being prepared. It will include information on soil testing, sewage flow estimates, methods of treatment and nitrogen loading. The plan is subject to the approval of the Division of Environmental Health.

The EIR indicates that the maximum wastewater flow for a similar alternative is approximately 190,000 gallons per day (gpd). A typical flow for residential development is 350 gpd and for hotel use is 200 gpd per room. According to the Division of Environmental Health, it is likely that a centralized wastewater treatment and disposal system will be necessary for the visitor-serving and commercial areas and may also be considered for clustered residential development. Septic tank and leachfield systems would be most appropriate for the development on larger residential lots.

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Fire

Fire protection and emergency medical services will need to be provided to the development. A large portion of the ranch will remain in State Responsibility Area, with wildland fire protection service provided by the California Department of Forestry and Fire Protection (CDF).

The visitor serving, commercial and residential portions of the ranch will require structural fire protection. A number of existing fire agencies could provide service, including the Mid-Carmel Valley and the Cypress Fire Protection Districts and CDF. The most effective service delivery option has not yet been determined.

County Service Areas

A County Service Area (CSA) is an administrative mechanism used by the County of Monterey to finance services in the unincorporated area. The CSA's governing body is the County Board of Supervisors and the Department of Public Works serves as the administrator of the agency. CSAs may establish zones of benefit, issue bonds, charge user fees, and enter into contractual agreements to provide service. CSAs can provide a wide variety of services, including sewer, street lighting, water, drainage control, police protection, fire, and open space maintenance.

ANALYSIS

Service Delivery

Formation of a new County Service Area for the Rancho San Carlos property conforms with LAFCO policies promoting the creation of multipurpose agencies and comprehensive service delivery. CSAs can provide a wide variety of services, avoiding the need to create multiple service agencies or fragment service responsibility by annexing the area to different agencies. The CSA would also be responsible for the full range of administrative functions and could contract with the same private firm hired by the conservation trust. This approach could maximize efforts to operate service delivery systems in the most efficient manner possible.

Water and wastewater disposal services will be required for the proposed development. Creation of a new CSA responsible for coordinating both services on a ranch-wide basis would: 1) maximize the ability to use reclaimed water, 2) minimize groundwater use and maximize conservation efforts, and 3) allow for complementary pipeline and transmission routes.

It should also be noted that formation of a CSA would not preclude contracting with a private utility company, such as Cal-Am Water Company, to provide service. Cal-Am is an investor-owned private utility regulated by the Public Utilities Commission and provides service in Carmel Valley.

At present, the hydrology studies for Rancho San Carlos are not completed. The Monterey Peninsula Water Management District is actively reviewing the studies to assure that the proposed development will not adversely affect the District's water resources. Based on input from the District, it would be premature to discuss potential District boundary modifications until the studies are completed, the extent of groundwater interaction between the basins is determined, and additional input from the property owners and affected districts is available.

There are a number of agencies that could provide structural fire protection service on the Rancho San Carlos property. The CSA could contract for fire protection service with any one of these agencies, maximizing opportunity to coordinate open space maintenance with proactive fire management.

Financing

CSAs have the authority to levy benefit assessments on properties within the agency. CSA benefit assessments have proven to provide secure means of financing, minimizing the potential for future financial issues to occur. The amount of the benefit assessment charge would depend on the services to be provided and the outcome of public hearings on the issue.

Transition Agency

County service areas were developed as a mechanism for counties to furnish services to the unincorporated areas beyond those uniformly provided County-wide. In Monterey County, county service areas have often been created to provide services to newly developed areas. This approach ensures that a fully staff agency is up and running during the initial stage of project development to help resolve service issues and represent the public interest.

When Rancho San Carlos is developed, the CSA could be converted to a community services district or other independent district with its own local Board of Directors should the need for local representation increase.

Environmental Review

The proposed conceptual sphere of influence is exempt from the California Environmental Quality Act (CEQA) under Section 15262 of the CEQA Guidelines. This Section provides that feasibility and planning studies that involve possible future actions do not require the preparation of a Negative Declaration or an Environmental Impact Report (EIR).

The proposed action would establish a conceptual sphere of influence for territory proposed for urban development in Rancho San Carlos. This designation sets the parameters for future environmental review. An evaluation of the impacts related to service delivery and the formation of a CSA would be completed as part of the EIR prepared for the development. The conceptual sphere designation would require subsequent actions by the Commission to adopt a sphere of influence and establish the CSA. It is more appropriate to establish a sphere of influence for the CSA after environmental issues have been addressed.

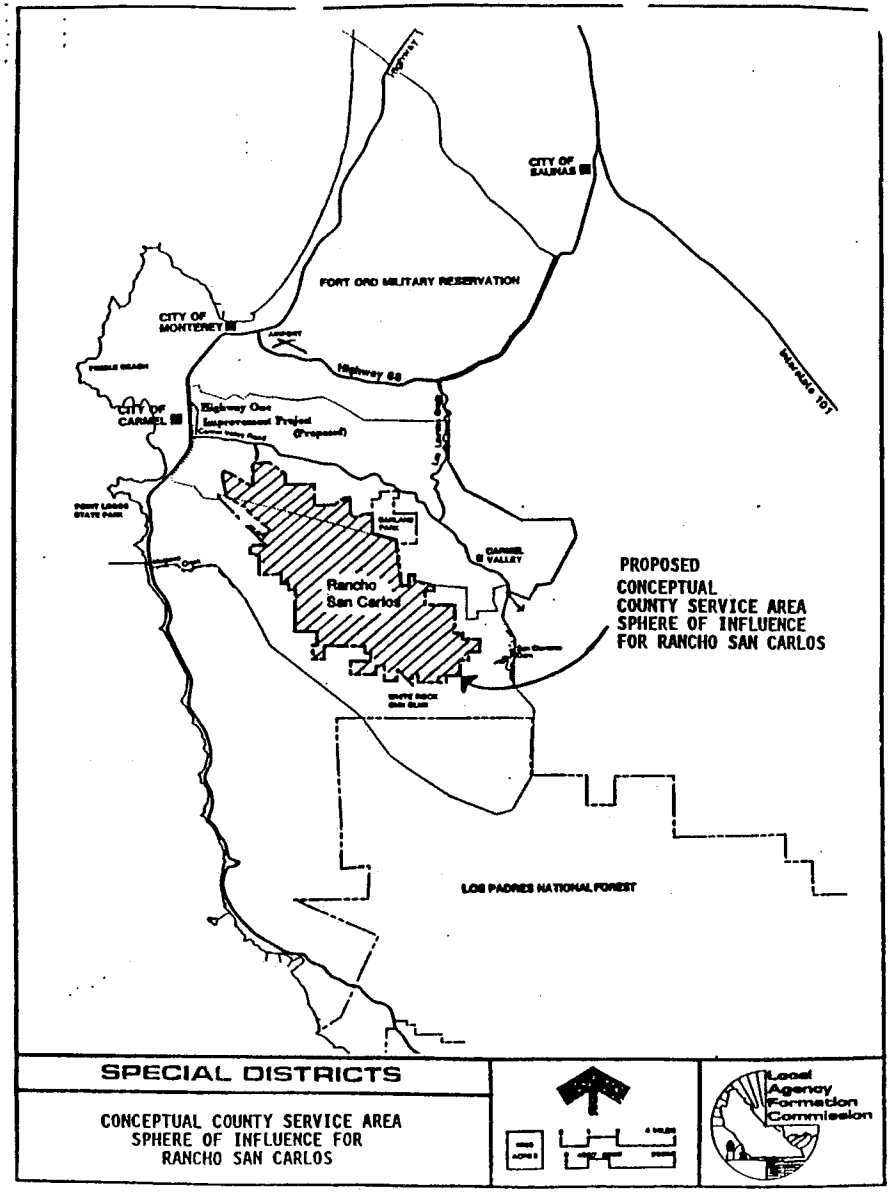
Summary/Conclusion

One of LAFCO's purposes is to encourage the orderly formation and development of local service agencies which provide for community service needs. Based on the wide range of CSA services, adoption of a Conceptual County Service Area Sphere of Influence is consistent with LAFCO policy promoting the use of multipurpose agencies. The conceptual sphere is also consistent with the County General Plan that requires a comprehensive plan for development on Rancho San Carlos. With a single governing body and administrative agent, service delivery under the CSA umbrella can be coordinated to be cost-effective and avoid administrative duplication.

Respectfully Submitted,

Catherine S. West
LAFCO Senior Analyst

CSW:mb



SPECIAL DISTRICTS

CONCEPTUAL COUNTY SERVICE AREA
SPHERE OF INFLUENCE FOR
RANCHO SAN CARLOS

Local Agency Formation Commission

MONTEREY COUNTY

LOCAL AGENCY FORMATION COMMISSION
(408) 755-5085 P.O. BOX 195, SALINAS, CALIFORNIA 93902

JIM COOK
EXECUTIVE OFFICER

STANDARDS FOR THE EVALUATION OF PROPOSALS

Introduction

The Monterey County Local Agency Formation Commission (LAFCO) operates pursuant to the Cortese-Knox Local Government Reorganization Act of 1985 (California Government Code, Section 56000 et seq.). Among the purposes of the Commission are the discouragement of urban sprawl and the encouragement of the orderly formation and development of local agencies based upon local circumstances and conditions.

State law provides that the Commission may adopt standards for the evaluation of proposals. The primary purpose of standards is to identify issues and requirements associated with boundary change proposals to promote achievement of LAFCO goals and objectives. Standards also promote a rational and consistent process of review, which can be applied to all proposals. It should be noted that no one standard is of paramount importance nor is universally absolute. Because local circumstances and conditions vary, the Commission must consider the facts in evidence as they relate to all standards.

California Government Code Section 56375 provides that standards may be based on any of the factors enumerated in Section 56814 as follows:

a. Population, population density; land area and land use; per capita assessed valuation; topography, natural boundaries, and drainage basins; proximity to other populated areas; the likelihood of significant growth in the area and in adjacent incorporated and unincorporated areas during the next ten years.

b. Need for organized community services; the present cost and adequacy of governmental services and controls in the area; probable future needs for those services and controls; probable effect of the proposed incorporation, formation, annexation, or exclusion and of alternative courses of action on the cost and adequacy of services and controls in the area and adjacent areas. "Services," as used in this subdivision, refers to governmental services whether or not the services are services which would be provided by local agencies subject to this division and includes the public facilities necessary to provide those services.

c. The effect of the proposed action and of alternative actions on adjacent areas, on mutual social and economic interest, and on the local governmental structure of the County.

d. The conformity of both the proposal and its anticipated effects with both the adopted Commission policies on providing planned, orderly, efficient patterns of urban development, and the policies and priorities set forth in Section 56377.

e. The effect of the proposal on maintaining the physical and economic integrity of agricultural land, as defined by Section 56016.

f. The definiteness and certainty of the boundaries of the territory, the non-conformance of proposed boundaries with lines of assessment or ownership, the creation of islands or corridors of unincorporated territory, and other similar matters affecting the proposed boundaries.

g. Consistency with city or county general and specific plans.

h. The sphere of influence of any local agency which may be applicable to the proposal being reviewed.

i. The comments of any affected local agency.

The following report lists the Monterey County Local Agency Formation Commission's Standards for the Evaluation of Proposals. The standards have been organized to correspond to the major policies of the Commission including Boundaries, Duplication of Service Functions, Conformity with Planning Documents, Spheres of Influence, Environmental Impacts, Economics, Services, Phasing, Open Space, and Agricultural Land. The citation following each standard references the related State factor.

Determination of Boundaries

1. Definite and certain maps and legal descriptions must be filed as part of an application for a boundary change proposal. All maps and legal descriptions must comply with the following LAFCO and State Board of Equalization requirements (Section 56841f).

   Map:

   a. Every map shall bear a north point, graphic scale, date, title, or short term designation and the name(s) of the affected agency or agencies.

   b. Every map must clearly indicate all existing streets, roads, and highways within and adjacent to the subject territory, together with the current names of the thoroughfares.

   c. Maps must not be drawn on paper less than 8 1/2" by 11" or larger than 24" by 36." One map, 8 1/2" by 11" must be submitted.

   d. Every map shall include a regional location vicinity map showing its relationship to the local agency to which annexation to or detachment from is proposed. The boundaries of the existing district or city (if applicable) and the proposed boundary must be distinctively shown without obliterating any essential geographic or political features.

   e. The point of beginning of the legal description must be shown on the map. The boundaries of the subject territory must be distinctively shown on the map without obliterating any essential geographic or political features. The use of yellow lines to highlight the boundaries is urged, as the color photographs a light gray.

   f. All maps must be prepared by a registered civil engineer or licensed land surveyor. Rough sketches of maps or plans will not be accepted.

   g. The computed or estimated acreage shall be set forth in the legal description or on the map.

h. Bearings and distances must be shown on all lines. If the scale of the map is such that it is impractical to letter adjacent to or near the line, then a table may be used and the course designated by a number or a series of inclusive numbers. The table should appear on the same sheet as the map.

Legal Description

a. The description must be headed with the date, title or short-term designation of the proposal, and the name of the affected agency or agencies.

b. Every description must be self-sufficient within itself and without the necessity of reference to any extraneous document. When a description refers to a deed of record, the deed should be used only as a secondary call.

c. When writing a metes and bounds description of a contiguous annexation, all details or the contiguous portion(s) of the boundary should be omitted. The junction points between the proposed boundary and the existing boundary must be clearly established.

d. A description making reference only to a subdivision or a lot within a subdivision or similar references without actually describing the perimeter boundary of the subject area is not acceptable.

e. The description must describe only the subject area. Descriptions of larger areas with exceptions are not acceptable unless the exception is an "island" totally surrounded by land proposed for annexation.

f. A specific parcel description in sectionalized land (e.g. the SW1/4 of Section 22, T1N, R1W) is permissible without a metes and bounds description of the perimeter boundary.

2. To the greatest possible extent, boundaries should follow existing political boundaries and natural or man-made features such as rivers, lakes, railroad tracks, and freeways. Where boundaries do not meet this standard, the proponent shall justify the reasons for non-conformance (Section 56841 a, f).

3. Boundaries should not be drawn so as to create an island, corridor, or strip either within the proposed territory or immediately adjacent to it. Where such an island, corridor, or strip is created , the proponent shall justify the reasons for non-conformance with this standard (Section 56841 d).

4. Whenever practicable, boundary lines of areas proposed to be annexed to cities and/or districts shall be located so that all streets and rights-of-way will be placed within the same jurisdiction as the properties which abut thereon and/or for the benefit of which such streets and rights-of-way are intended (Section 56841 d).

5. The creation of boundaries that divide assessment parcels should be avoided whenever possible. Where such division occurs, the proponents shall justify to the Commission the necessity for such division (Section 56841 d).

6. Boundaries should avoid dividing an existing identifiable community, commercial district, or any other area having social or economic homogeneity. Where such division occurs, the proponents shall justify the reasons for non-conformance to this standard (Section 56841 c).

7. The following guidelines related to road right-of-way apply to all proposals submitted to the Commission (Section 56841 f).

   a. The following should not be allowed:

      (1) City limits which include a portion of the road right-of-way.

      (2) Road islands of County maintained roads.

      (3) Islands of road caused by annexation on both sides.

      (4) Strip annexation of roads.

   *b. In the following cases where the road is the boundary and is a major County arterial, the street or road should be retained by the County. These roads would not have direct access from the property:

      (1) Roads which carry through traffic.

      (2) Planned development by developer or city which provides limited access and protects the capacity of the road.

   *Note: Each case should be considered on its own merit.

   c. The following should be annexed to the city. These roads would have direct access to the annexing property and would serve the residents of the property:

      (1) Minor or local roads.

      (2) When the street will be used for the city sewer lines, water lines, or storm drains.

      (3) Piece-meal development by developer causing difficult coordination between two or more agencies.

      (4) Where the annexation will complicate drainage or traffic control.

8. Where feasible, city and related district boundary changes should occur concurrently to avoid an irregular pattern of boundaries (Section 56841 b).

9. Should the Commission modify the boundaries of a proposal, LAFCO may condition the proposal on the proponent preparing a new boundary description which conforms with LAFCO and State Board of Equalization requirements (Section 56841 f).

10. Boundaries should reasonably include all territory which would reasonably benefit from agency services (Section 56841 b).

Duplication of Authority to Perform Similar Functions

1. Proposals, where feasible, should minimize the number of local agencies and promote the use of multi-purpose agencies (Section 56841 b, c).

2. The effect of the approval of a proposal which would result in two or more districts or a city and a district possessing any common territory, the authority to perform the same or similar functions shall be considered by the Commission. The views of the governing body of the city or special district possessing authority to perform the same or similar function in the subject territory should be made known to the Commission. Proponents must justify the need for boundary change proposals which result in duplication of authority to perform similar functions (Section 56841 b, c).

Conformance with City or County General and Specific Plans

1. Each proposal should be consistent with the appropriate city or county general and specific plans. Where the proposal does not abide by these plans, the proponent shall specify the reasons for plan non-conformance. (Section 56841 g).

2. Pursuant to Section 56375 of the Government Code, for proposals involving city annexations, the LAFCO Executive Officer shall not file a Certificate of Filing, which acknowledges that an application is complete, until the city has completed a prezoning process for the subject property in a manner consistent with the city's general or specific plan (Section 56841 g).

Spheres of Influence

1. Proposals shall be consistent with the spheres of influence for the local agencies affected by those determinations (Section 56377.5 and 56841 h).

2. In the case of agency formations, the Commission shall determine a sphere of influence within one year from the effective date of the proposal (Section 56841 h).

3. With the exception of agency formations, the Commission shall adopt a sphere for affected agencies prior to consideration of related boundary change proposals (Section 56841 h).

4. When a proposal is inconsistent with the adopted sphere of influence, the applicant shall justify reasons for amending the sphere of influence. An annexation application for land outside an adopted sphere of influence may be considered concurrently with a request for amendment to the sphere of influence (Section 56841 h).

5. Proposals involving changes of organization or reorganization affecting city boundaries shall comply with the Urban Service Area and Urban Transition Area designations. An Urban Service Area consists of existing developed and undeveloped land within an agency's sphere of influence,

which is now served by existing urban facilities, utilities, and services or is proposed to be served within five years. An Urban Transition Area is an area within the sphere of influence boundaries of a city which is not programmed for urban facilities or utility extensions within the next five years. The Urban Transition Area will most likely be used for urban expansion within 5 to 20 years (Section 56841 h).

6. Pursuant to Government Code Section 56375 (a) (2), the Commission shall not have the power to disapprove an annexation to a city, initiated by resolution, of contiguous territory which the Commission finds is locate within an Urban Service Area delineated and adopted by the Commission, which is not prime agricultural land, as defined by Section 56064, and is designated for urban growth by the general plan of the annexing city (Section 56841 h).

Environmental Impact Assessment

1. In January 1975, in the Bozung Case, the California Supreme Court held that LAFCOs are subject to the terms of the California Environmental Quality Act (CEQA) and the regulations of the California Resource Agency, which establishes the guidelines for its implementation. All environmental factors introduced by the proposal shall be considered as outlined in the "Monterey County Local Agency Formation Commission Guidelines for Implementation of the California Environmental Quality Act" and CEQA.

2. The potential environmental impacts of proposals involving changes of organization or reorganization shall be reviewed by LAFCO environmental staff and the appropriate environmental determination shall be considered by the Commission in accordance with the LAFCO Regulations and Procedures for the Implementation of the California Environmental Quality Act of 1970.

Economics, Service Delivery, and Development Patterns

1. If a proposal is for the formation of anew agency, the application shall include a service plan demonstrating the economic feasibility of the proposed formation (Section 56841 a, b, c).

2. The Commission shall discourage proposals that would have adverse financial impacts on the provision of governmental services or would create a relatively low revenue base in relationship to the cost of affected services. Applications shall describe related service and financial impacts (including revenues and expenditures) on the County, cities, and/or special districts and provide feasible measures which would mitigate such adverse impacts (Section 56841 a, b, c).

3. Applications must address current and ultimate service needs as established by the appropriate land use plans and prezoning. Proposals shall not be approved unless a demonstrated need for additional service exists or will soon exist. In reviewing boundary change proposals, the Commission shall consider alternative government structure options which may be more appropriate in light of the demonstrated need for service. The formation of or annexation to a single governmental agency, rather than several limited purpose agencies, shall be encouraged when possible (Section 56841 a, b).

4. Applications must indicate that the affected agencies have the capability to provide service. Territory shall be annexed to a city or special district only if such agency has or soon will have the capability to provide service (Section 56841 b).

5. Whenever a local agency submits a resolution of application for a change of organization or reorganization, the local agency shall submit with the resolution of application a plan for providing services within the affected territory. The plan for providing services shall include all of the following information (Section 56653):

   a. An enumeration and description of the services to be extended to the affected territory.

   b. The level and range of those services.

   c. An indication of when those services can feasibly be extended to the affected territory.

   d. An indication of any improvement or upgrading of structures, roads, sewer or water facilities, or other conditions the local agency would impose or require within the affected territory if the change of organization or reorganization is completed.

   e. Any conditions which would be imposed or required within the affected territory such as, but not limited to, improvement or upgrading of structures, roads, and sewer or water facilities.

   f. A description of how such services and improvements will be financed (Section 56653).

   A plan for providing services may consist of:

   a. A master plan for providing services throughout all or a portion of a city sphere of influence for use in evaluating all proposals affecting the area covered in the master plan.

   b. A proposal-specific supplement which updates and/or provides a higher level of detail than is contained within the master plan for services. Such supplement may include by reference or in summary form those pertinent sections of the master plan for services which remain valid. The supplement need discuss in detail only that information which is not current or discussed in sufficient detail in the master plan for services.

6. The Commission discourages proposals which will facilitate development that is not in the public interest due to topography, isolation from existing developments, premature intrusion of urban-type developments into a predominantly agricultural area, or other pertinent economic or social reason (Section 56841 a).

7. The Commission shall consider the testimony from all potentially affected agencies or individuals in reviewing boundary change proposals. Proposals submitted by resolution of application shall include information indicating that landowners in the affected area support the proposal (Section 56841 i).

8. An application for incorporation of a new city shall be supplemented by sufficient information to enable the Commission to determine (Section 56841 a,b,c):

   a. The long-term fiscal feasibility of the new city. A five-year service plan including revenue projections shall be required of all incorporation proposals.

   b. The existing and projected population base in the affected area warrants urban-type services.

   c. The service and financial impacts on all potentially affected agencies, including existing cities, districts, and the County.

   d. The proposal territory includes the entire area that would reasonably benefit from city services and would not logically be more appropriate for annexation to an existing city.

9. A city application for annexation of an unincorporated island without an election shall, in addition to the plan for providing services, be supplemented by sufficient information to enable the Commission to determine within the affected territory:

   a. The total acreage of the unincorporated island and the boundaries of all cities and/or counties and, if applicable, the Pacific Ocean, which border thereon.

   b. The presence or absence of prime agricultural land as defined in Sections 56064 of the Cortese-Knox Local Government Reorganization Act.

   c. The availability of public utility services.

   d. The presence of public improvements.

   e. The presence or absence of physical improvements upon each parcel.

   f. The benefits from such annexation or the benefits now being received from the annexing city.

Phasing

1. The Commission, in furtherance of its objectives of preserving prime agricultural land, containing urban sprawl, and in providing a reasonable assurance of a city/district's ability to provide services shall consider the appropriateness of phasing annexation proposals which include territory that is not within a city/district's urban service area and has an expected build-out over a period longer than five to seven years (Section 56841 a, b, e).

2. Change of organization and reorganization proposals which are totally within a city or district's adopted urban service area shall not be considered appropriate for phasing. Urban service areas are, by definition, territory expected to be developed/serviced in the next five years (Section 56841 a, b, c).

3. Proposals which contain territory which is not within a city or district's adopted urban service area and have an expected build-out extending beyond a five- to seven-year period may be considered appropriate for phasing. For the purpose of this policy, "phasing" shall be defined as a planned incremental approval of a project and "building-out" shall be interpreted as 70 to 80 percent developed. When an exception from this policy is desired, the proponent shall justify to the Commission the reasons why phasing is not appropriate. Included within the justification for exception, the proponent shall demonstrate the jurisdiction's ability to provide necessary public services (Section 56841 a, b, e).

Open Space and Agricultural Land

1. This Commission, through its actions, desires to maintain the physical and economic integrity of land in an agricultural preserve as may be established by either the Board of Supervisors of Monterey County or a city council within the County (Section 56841 e).

2. This Commission will attempt to guide the provision of governmental services and development to areas other than those classified as prime agricultural land as defined in Section 56064 of the Government Code, except where such development would promote the planned, orderly, and efficient development of that area (Sections 56377 a and 56841 e).

3. This Commission encourages and will assist to implement the development of existing vacant or non-prime agricultural land for urban uses within an agency's existing jurisdiction or within an agency's sphere of influence before it will consider with favor or will approve any proposal which would allow for or lead to the development of existing open space land for non-open space uses which are outside of the agency's existing jurisdiction or outside of an agency's existing sphere of influence (Section 56377 b and 56841 e).

4. It is the policy of this Commission to encourage and to seek to provide for planned, well-ordered, efficient urban development patterns while at the same time remaining cognizant of the need to give appropriate consideration to the preservation of open space land within such patterns (Section 56300).

5. In determining whether a boundary change proposal may affect prime land, the Commission shall apply the definition of "prime agricultural land" established under the Cortese-Knox Local Government Reorganization Act Section 56064.

6. Boundary change proposals which would allow or likely lead to the conversion of prime agricultural land or other open space land to other than open space uses shall be discouraged by the Commission unless such an action would promote the planned, orderly, efficient development of an area, or the affected land use planning jurisdiction has accomplished the following:

a. Identified within its sphere of influence all "prime agricultural land" as defined under Government Code Section 56064.

b. Demonstrated to LAFCO that effective measures have been adopted to preserve for agricultural use prime agricultural land identified in (a). Such measures may include, but not be limited to, establishing agricultural preserves pursuant to the California Land Conservation Act; designating land for agricultural or other open space uses on that jurisdiction's general plan, adopted growth management plan, or applicable specific plan; adopting an agricultural element to its general plan; and undertaking public acquisition of prime agricultural land for the purpose of leasing back such land for agricultural use.

c. Prezoned pursuant to Government Code Section 56375 (a) (2), both territory within the agency's general planning area to be maintained for agricultural use and also territory within the annexation area to indicate anticipated level of development.

7. In reviewing a proposal which will lead to the conversion of agricultural or open space land to urban uses, the Commission will consider the following criteria to determine whether the proposed action would (a) adversely affect the agricultural resources of the community, or (b) not promote the planned, orderly, efficient development of an area:

a. The agricultural significance of the proposal area relative to other agricultural land in the region (soil, climate, and water factors).

b. The use value of the proposal area and surrounding parcels.

c. Determination as to whether any of the proposal area is designated for agricultural preservation by adopted local plans, including Local Coastal Plans, the County General Plan, Land Use and Open Space Element, and Growth Management Policies.

d. Determination of:

(1) Whether pubic facilities would be extended through or adjacent to any other agricultural land to provide services to the development anticipated on the proposal property.

(2) Whether the proposal area is adjacent to or surrounded by existing urban or residential development.

(3) Whether surrounding parcels may be expected to develop to urban uses within the next five years.

(4) Whether natural or man-made barriers would serve to buffer the proposal area from existing urban uses.

8. Government Code Section 51243.5 provides that the Clerk of the Board of Supervisors shall give written notice to any city within the County of its intention to consider adoption of a Williamson Act contract which includes land within one mile of the exterior boundaries of that city. Such notice shall be given at least 30 days prior to the time the Board of Supervisors intends to consider the execution of such a contract. If

such city files with the Local Agency Formation Commission a resolution protesting the execution of a contract which includes land within one mile of the exterior boundaries of the city, and the Commission, following a hearing, upholds the protest upon a finding that the contract is inconsistent with the publicly desirable future use and control of the land in question, then should the Board of Supervisors execute such a contract, the city shall have the option provided in subdivision (b) of Section 51243 of not succeeding to the contract upon annexation of the land to the city.

9. Applications of protest to the establishment of a Williamson Act contract shall include the following information which is necessary for the Commission to determine that the contract is inconsistent with the publicly desirable future use and control of the land in question:

   a. A map showing the location of the contract in relation to the adopted sphere of influence of the protesting city.

   b. A summary of the County and protesting city general or specific land use plan designations and policies for the proposed contract area and surrounding territory.

   c. An analysis of the economic feasibility of the current and future agricultural operations in the proposed contract area and surrounding territory.

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Groundwater Standards

Informational Requirements

1. The Commission shall encourage the Monterey County Water Resources Agency, the Pajaro Valley Water Management Agency, and the Monterey Peninsula Water Management District to complete water management plans, develop or revise allocation of water supply as necessary, and promote County-wide standards. The LAFCO standards shall be reviewed periodically to reflect changes in information and current water management policy.

2. In considering a proposal which may significantly impact the groundwater basin, as documented by the Lead Agency pursuant to the California Environmental Quality Act (CEQA), the Commission shall review the following information. This information can be submitted to the Commission in an environmental document or as a part of the LAFCO application.

   a) The projected water demand of the proposed project based on guidelines provided by the appropriate water resources agency.

   b) The existing water use and historical water use over the past five years.

   c) A description of the existing water system including system capacity serving the site.

   d) A description of proposed water system improvements.

   e) A description of water conservation or reclamation improvements that are to be incorporated into the project.

   f) An analysis of the impact that proposed water usage will have on the groundwater basin with respect to water quantity and quality, including cumulative impacts.

   g) Evidence of consultation with the appropriate water agency. The agency shall be consulted at the earliest stage of the process, so that applicable recommendations can be included in the environmental document.

   h) A description of water conservation measures currently in use and planned for use on the site such as drought tolerant landscaping, water-saving irrigation systems, installation of low-flow plumbing fixtures, retrofitting of plumbing fixtures with low-flow devices, and compliance with local ordinances.

   i) A description of how the proposed project complies with adopted water allocation plans.

   j) A description of those proposals where the agency has achieved water savings or where new water sources have been developed that will off-set increases in water use on the project site that would be caused by the proposal.

   k) A description of how the proposal would contribute to any cumulative adverse impact on the groundwater basin.

   l) A description of those boundary change proposals that, when considered individually and after taking into account all mitigation measures to be implemented with the project, still cause a significant adverse impact on the groundwater basin.

3. Any proposal considered by the Commission that uses water will be referred to the Monterey County Water Resources Agency, the Pajaro Valley Water Management Agency, Monterey Peninsula Water Management District, or any other affected water agency. Recommendations of the agencies will be considered by the Commission and, where appropriate, should be incorporated into the project design prior to approval of the boundary change proposal.

4. The Commission recognizes that water usage will vary due to soil type, location of aquifer, characteristics of aquifer, and type of project. Each project must be reviewed on a case-by-case basis.

5. Should an agency adopt similar or more restrictive informational requirements, the LAFCO informational Standard Nos. 1 through 5 will no longer apply.

Policy Statements

6. The Commission will encourage boundary change proposals involving projects that use reclaimed wastewater, minimize nitrate contamination, and provide beneficial use of storm waters.

7. The Commission will encourage proposals which have incorporated water conservation measures. Water conservation measures include drought tolerant landscaping, water-saving irrigation systems, installation of low-flow plumbing fixtures, retrofitting of plumbing fixtures with low-flow devices, and compliance with local ordinances.

8. The Commission will encourage those proposals which comply with adopted water allocation plans as established by applicable cities or water management agencies.

9. The Commission will encourage those proposals where the affected jurisdiction has achieved water savings or new water sources elsewhere that will off-set increases in water use in the project site that would be caused by the proposal.

10. The Commission will discourage those proposals which contribute to the cumulative adverse impact on the groundwater basin unless it can be found that the proposal promotes the planned and orderly development of the area.

11. The Commission will discourage those boundary change proposals which, when considered individually and after taking into account all mitigation measures to be implemented with the project, still cause a significant adverse impact on the groundwater basin.

DEPARTMENT OF PUBLIC WORKS
COUNTY OF MONTEREY

MEMORANDUM

TO: Planning & Building Inspection Department
Attn: Wanda Hickman

FROM: Development

SUBJECT: **SANTA LUCIA PRESERVE (EIR #94-05)**

DATE: August 30, 1994

As per your memorandum of August 2, 1994, we request that the following information be discussed in the EIR Report for the Santa Lucia Preserve:

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Page 13, Carmel Valley Road - The statement that there will be no change in future cumulative Levels of Service should be reevaluated, since it is difficult if not impossible to substantiate that there will be no future cumulative levels of service changes. Revise comments to include specific numerical changes in capacity on Carmel Valley Road and State Highway One.

Page 14 - A discussion should be included on how the private roads within the private preserve are going to be maintained including traffic control devices.

The current operational improvements proposed by CalTrans between Rio Road and Carpenter should be discussed. Also, the status of the Hatton Canyon Freeway Project should be included.

The EIR should be analyzed for the adequacy of the existing Rancho San Carlos Bridge across the Carmel Valley River for travelway width, for handling pedestrian and bicycle traffic, and for the weight of truck traffic. Existing width too narrow?

The intersection of Rancho San Carlos Road and Carmel Valley Road needs to be re-analyzed with the discussion centering on the need for a traffic signal and/or grade separated structure. Include Dowling and Associates signal warrant analysis of existing conditions in appendix. Detailed discussion of the existing intersection accident problems must be included with a plan for mitigation proposed. If an acceleration lane is the proposed mitigation in lieu of a traffic signal or grade separated structure, provide documentation that it will handle future traffic volumes safely.

More discussion is needed on how travel on Robinson Canyon Road will be limited, since it is a shorter route to Carmel Valley Road than Rancho San Carlos Road.

Development of standards should be included to ensure that adequate grades and sight distance will be provided at all driveways and/or intersections within the project.

Include a discussion of proposed bicycle and pedestrian trail systems.

Discuss proposed trip reduction plan.

Detail how the project will meet the Carmel Valley Master Plan and Congestion Management Plan requirements as they relate to traffic issues.

Provide up-to-date traffic counts on Rancho San Carlos Road.

HCN/NT/cw

WATER RESOURCES AGENCY

M E M O R A N D U M

County of Monterey

DATE: September 8, 1994

TO: Wanda Hickman, Project Planner
Planning & Building Inspection Dept.

FROM: Owen Stewart, Assoc. Water Resources Engineer

SUBJECT: Santa Lucia Preserve, EIR Scope of Work

The Monterey County Water Resources Agency has followed the development of a very extensive and detailed hydrogeologic study and analysis on the Rancho San Carlos, and has participated in the formulation of the study guidelines and parameters. It was acknowledged from the outset of the studies that development of a number of reliable wells in the "fractured rock" aquifer underlaying the Rancho lands might require specific methods unique to this type of aquifer. Also, it was recognized that well tests could yield other than usual results. Therefore, much emphasis was put on the well testing program to verify the reliability of the wells that are to provide water to the planned development.

A statement appears on page E-8 of the Comprehensive Hydrological Study, Summary, that succinctly summarizes the results of the studies. "The aquifer characteristics suggest that pumping capacities from individual wells will not be large. However, the relative impacts of any groundwater pumping will be small and very local to the individual well site." The latter statement suggests a relative insignificance for the impacts on the immediate environment, while the former statement illuminates the potential problems associated with developing a reliable water supply. Agency staff believes that if dependence is placed on relatively low producing wells, the most significant factor for the long term reliability of these wells is the ground water in storage around the wells. The hydrology studies have demonstrated that there is substantial water in storage, given the very large recharge area. However, the accessibility of the individual wells to this water in storage is difficult to predict with accuracy. This becomes particularly important during drought periods.

The California Department of Water Resources has recommended that in areas where the sole source of water is hard-rock wells, pumping rates versus consumption rates should include a large safety factor. This might be done by initially providing standby wells, by providing maximum operating flexibility in the water system design, and constructing large storage tanks. On page 4-11 of the Comprehensive Hydrological Study there is a suggestion that local subsystems of an overall water system could be constructed.

The Water Resources Agency would strongly recommend that the ability to distribute water throughout the system from the better producing wells be integrated into the systems design. The ability to distribute groundwater once it is extracted from the aquifer will largely allay concerns about aquifer transmissivity and whether the groundwater is hydraulically continuous and able to move through the aquifer with relative ease.

Based on the above discussion the Water Resources Agency believes that the following issues need evaluation in the EIR:

- The need to provide integrated water system design to provide for maximum operating flexibility and easy access to the better producing wells, both for water supply and fireflow requirements.
- The need to construct standby wells to provide immediate replacement of wells that could fail during drought periods.
- Determine the potential for capturing stormwater at peak runoff periods during the winter, to provide for irrigation needs during the summer, and possible riparian and waterfowl habitat.

Based on discussions with other County staff, we believe that these items should be subject to feasibility level analysis in the EIR, including a preliminary design of the water system along with proposed locations for the storage tanks and standby wells.

A procedure should be established by the EIR consultant to allow input to the EIR by the third party hydrology consultant.

OS\sntlucia.mem
cc: Jay Jones
Mark Dias
Joe Oliver

MEMORANDUM

MONTEREY COUNTY HEALTH DEPARTMENT
Division of Environmental Health

DATE: September 12, 1994

TO: Wanda Hickman, Project Planner

FROM: Mark Dias, Division of Environmental Health, Land Use MD

SUBJECT: Response to Notice of Preparation and Request for Comments on the Preliminary Scope of Work for EIR #94-05 (Santa Lucia Preserve)

GENERAL COMMENTS

Additional Information Required for Circulation of DEIR. During the review of the application materials and the Comprehensive Hydrological Study (June 1994), a number of issues were raised by the Health Department and the Monterey Peninsula Water Management District (MPWMD). It was agreed that the majority of these issues (see list below) were to be addressed concurrently with the preparation of the EIR. Therefore the Draft EIR will not be circulated for public review until the applicant prepares and submits a second supplement, it is reviewed and commented on by the three water agencies and the third party reviewer. Once this is completed, the supplement and comments will be forwarded to the EIR consultant for impacts analysis and incorporation into the DEIR. The applicant will be sent a more detailed list of what additional issues need to be addressed, however, a brief list of the issues follows:

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- Consider options and impacts for well pumping operational modes,
- Provide additional data to verify assumption of fractured rock treated as "an equivalent porous medium" at the scale of a pumping test,
- Discussion of the calculated 0.5% storativity values and 1% storativity values and the rationale for using 1% storativity across the ranch,
- Clarification on the use of 3% storativity for groundwater level fluctuations verses 1% storativity,
- Sensitivity analysis of off-site groundwater flows with different storativity values,
- Sensitivity analysis of different storativities and saturated thicknesses in storage below the ranch,
- Discussion of usable groundwater storage versus total groundwater storage,
- Discussion of why only some well pairs were used for storativity calculations,
- Discussion of the relationship of the surface geophysics and well drilling program and wells which weren't cased to address concern that storativities are based on the most favorable hydrogeologic environments at the ranch,
- Evaluation of well yields during seasonal and drought cycles to determine long term yields,
- Impacts of wells (both specific wells and in general) on surface waters,
- Provide information on future well locations, and water system distribution patterns for future water system improvements and discussion of local and cumulative impacts,
- Provide analysis of localized groundwater impacts based on distribution of wells and pumping patterns as opposed to averaging impacts on a ranch-wide basis,
- Provide additional information on streamflow, water level data, monthly groundwater recharge factor and conversion from the monthly factor to yearly factor, and off-site flow calculations,
- Analysis and discussion of calculated, apparent, and real discharge boundaries,
- Methodologies for generating, and conclusions based, on the groundwater contour map.

Analysis Required by EIR Consultant. The applicant has submitted extensive water quality and quantity information. Reviews, comments, and mitigation measures will be submitted by the three water agencies and the third party reviewer throughout the EIR process. This will of course be submitted to the EIR consultant for incorporation into the EIR. However, the EIR consultant will also be expected to provide their own independent evaluation, impact analysis and recommendations for mitigation measures as they see fit. Therefore, the EIR consultant should ensure that project staff have adequate qualifications to make such evaluations and recommendations, or should strongly consider contracting with sub-consultants who are qualified. In reviewing the various proposals, the Health Department and the MCWRA will place emphasis on the qualifications of staff or sub-consultants working on the hydrology and water quality sections of the EIR. The proposals should therefore include adequate time and materials estimates for a thorough evaluation of these sections. In addition, the amount of information that has/will be submitted is very extensive and voluminous and therefore the proposals should also reflect the amount of time needed to evaluate this large body of information.

COMMENTS ON PRELIMINARY SCOPE OF WORK

Based on the Preliminary Scope of Work attached to the NOP as Exhibit B, the Health Department recommends the following modifications, additions, and deletions (text to be added is <u>underlined</u>). Attached is a highlighted mark-up of the scope of work in which the many minor modifications, additions, and deletions can be found. The more extensive changes/comments appear below.

Section 1. GEOLOGY

Description, Setting, Impacts. Suggestion; As part of the extensive investigations for septic system feasibility, additional soils data was generated since February 1994 which could have a direct bearing on the review of geotechnical impacts of the development. Therefore, the EIR consultant should also review and incorporate this additional information which appears as Section 3 of the Comprehensive Wastewater Disposal Plan (revised/updated Aug 1994). A 1:400 scale map showing the location and type of the soils investigations is part of the revised/updated information. Also available from Cleary Consultants are the water levels of 100 shallow monitoring wells which may also have some bearing on the geotechnical impacts of the development.

Section 5. HYDROLOGY

General comments. The Preliminary Scope of Work is based on a generic scope of work intended to apply to a wide variety of projects. Without rewriting the entire section, the comments above and below are intended to clarify what is needed by the EIR consultants so that a complete and accurate proposal can be given. A complete evaluation of all the hydrology information submitted by the applicant will be expected.

First item pp.6-7, add text; "...March 1994, <u>Supplement to Comprehensive Hydrological Study dated July 1994, and additional supplements to be submitted by the applicant during the preparation of the EIR.</u>"

Description, Setting, Impacts.
The first major item should be re-written to read,

"___ <u>Utilizing the Comprehensive Hydrological Study, supplements thereto, and comments from the third party review, summarize and analyze: the project's description, conclusions of the hydrological information submitted, localized impacts, off-site impacts, and the following:</u>"

Mitigation Measures.
New items, p.8, new text;
"___ Provide recommendations for monitoring actual water usage, and well yields, and water levels during project construction and phasing.

"___ Provide recommendations for locations and distribution of future wells, well construction designs, pumping modes, water distribution patterns to minimize the impacts (if any) of on and off site local and cumulative impacts."

Section 6. WATER QUALITY
First item, p.8, line 5, add the following text;
"...Hydrological Study, and the Comprehensive Wastewater Disposal Plan dated February 1994, and the Supplemental Nitrogen Loading Study Dated May 1994 prepared for the project..."

Mitigation Measures.
The four existing mitigation measures have either been satisfied or are typical conditions of approval and may confuse the EIR consultants as to what work is expected now. They should therefore be deleted.

Section 7. PLANT LIFE
Description, Setting, Impacts.
New item, new text to read;
"___ Identify and evaluate the impacts of tree removal and tree root disturbance for septic system installation on selected lots. Contact the Division of Environmental Health for list of affected lots."

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Section 15. PUBLIC SERVICES. Wastewater Treatment.
Description, Setting, Impacts.
First item, p.21, line 2, add the following text;
"...Disposal Plan dated February 1994, and the Supplemental Nitrogen Loading Study Dated May 1994 prepared for the project..."

Section 15. PUBLIC SERVICES. Wastewater Disposal.
Description, Setting, Impacts.
First item, p.23, line 2, add the following text;
"...Disposal Plan dated February 1994, and the Supplemental Nitrogen Loading Study Dated May 1994 prepared for the project..."

New item, new text to read;
"___ Describe the amount of wastewater available daily and seasonally for each phase of the development plan in comparison to the proposed landscaping plan. Identify any surplus or deficit in amount of irrigation water available during the build-out of the project. Identify the need (if any) for additional disposal areas."

Section 15. PUBLIC SERVICES. Domestic/Commercial Water Delivery System.
Description, Setting, Impacts.
First item, p.24, line 4, add the following text;
"...March 1994, Supplement to Comprehensive Hydrological Study dated July 1994, and additional supplements to be submitted by the applicant during the preparation of the EIR."

cc: Walter Wong, Director, Division of Environmental Health
Mary Anne Dennis, Chief, Resource Protection Branch
Lynne Monday, Supervising Planner
Darby Fuerst, MPWMD
Joe Oliver, MPWMD
Owen Stewart, MCWRA
Al Moholland, MCWRA
Jay Jones, OEES

MD/md

AMBAG ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS
(408) 883-3750 FAX (408) 883-3755
Office Location: 445 Reservation Road, Suite G, Marina
P.O. Box 838, Marina, CA 93933-0838

September 15, 1994

Wanda Ann Hickman
County of Monterey Planning & Building Dept.
Post Office Box 1208
Salinas, California 93902

RE: MCH #099402: Notice of Preparation - Draft EIR for the Santa Lucia Preserve Residential/Visitor Serving Development

Dear Ms. Hickman:

AMBAG's Regional Clearinghouse circulated a summary notice of your environmental document to our member agencies and interested parties for review and comment.

The AMBAG Board of Directors considered the project on September 14, 1994 and has no comments at this time. However, we are forwarding the enclosed comments on this project that we have received from other agencies or interested parties.

Thank you for complying with the Clearinghouse process.

Sincerely,

Nicolas Papadakis
Executive Director

Enclosures

NP:dis

A-87

MONTEREY BAY
Unified Air Pollution Control District
serving Monterey, San Benito, and Santa Cruz counties
ABRA BENNETT
Air Pollution Control Officer
24580 Silver Cloud Court • Monterey, California 93940 • 408 647-9411 • FAX 408 647-8501

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August 8, 1994

RECEIVED BY
AUG 10 1994

Wanda Ann Hickman
County of Monterey Planning & Building Dept.
P.O. Box 1208
Salinas, CA 93902

SUBJECT: NOTICE OF PREPARATION FOR SANTA LUCIA PRESERVE

Dear Ms. Hickman:

Staff has received the Notice of Preparation for the proposed Santa Lucia Preserve development. In addition to our previous comments on the preliminary air quality analysis, staff has the following general comments:

1. Project consistency with the Air Quality Management Plan for the Monterey Bay Region should be addressed in accordance with Chapter 13 of the Plan.

2. Direct and indirect source emissions from all proposed activities should be quantified and their impact on air quality assessed. If the project would significantly affect an intersection, modeling should be undertaken to determine if carbon monoxide standards would be violated.

3. Mitigation measures should be identified if the project would have a significant impact on air quality. Emission reduction effectiveness of these measures should be quantified, their feasibility addressed, and agencies responsible for implementation and monitoring identified.

Enclosed is a copy of the District's Guidelines for the Assessment of Environmental Impact Documents to assist you in preparing the air quality section of the draft EIR. If you have any questions, please do not hesitate to call Douglas Kim of our planning staff.

Sincerely,

Janet Brennan
Senior Planner, Planning and
Air Monitoring Division

cc: Nicolas Papadakis, AMBAG
PAM/dk
File: 3442

monterey peninsula regional park district
POST OFFICE BOX 935 • CARMEL VALLEY, CALIFORNIA • 93924-0935

September 16, 1994

Ms. Wanda A. Hickman, Associate Planner
Monterey County Planning and Building Department
P. O. Box 1208
Salinas, CA 93902

Re: Santa Lucia Preserve - EIR Scope of Work

Dear Wanda:

As you know, the Monterey Peninsula Regional Park District owns and operates a 4,500 acre public park/preserve in Carmel Valley adjacent to the proposed project. We request that the scope of work for the proposed EIR consider the following items:

1. Public Trails

I have been working closely with Jeff Froke, Santa Lucia Preserve Manager, on exploring the opportunity for loop trails originating at the Park, entering the Preserve, and returning to the Park. The attached map shows six proposed public trail alignments that we request be considered in the EIR.

I understand the Preserve is also proposing a comprehensive system of "Preserve" trails. The District requests that the EIR include a map and discuss this class of trails, as well as elaborate on who would be allowed to use them.

2. Hydrological Impact

The Park District is very concerned about potential direct and indirect impacts on off-site water resources in the Las Garzas watershed. This issue is very technical and beyond my level of expertise. However, we have reviewed, fully support and echo the comments and concerns expressed by the Monterey Peninsula Water Management District in their letters for June 15, 1994 and September 6, 1994. We request some assurance that there will be no negative impact to the surface and ground water resources in the Las Garzas watershed. If there are potential impacts that they be fully discussed in the EIR and appropriate mitigation measures recommended.

Admin. Office (408) 659-4488 • Ranger Station (408) 659-6063 • Naturalist (408) 659-6062 • Fax (408) 659-5902

3. Visual Impacts

We request that the siting of residential lots (houses) in close proximity to the Park boundary be carefully reviewed by the EIR consultant. The Santa Lucia Preserve, with over 20,000 acres, can hopefully locate residential units in such a manner as to not impact adjacent public parkland. The concept of buffers, setback standards and alternative locations should be addressed in the EIR.

Thank you for the opportunity to comment on the EIR scope of work. Please call if you need clarification of any of the items mentioned above.

Sincerely,

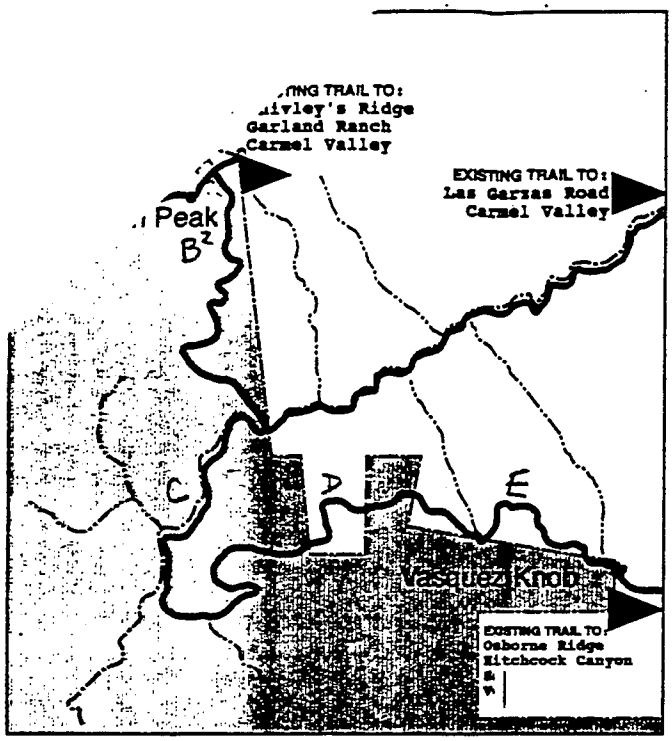
Gary A. Tate

Gary A. Tate
District Manager

GAT:rb

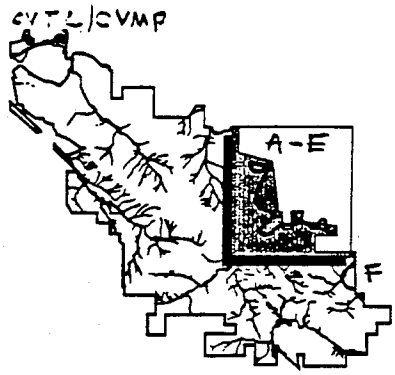
cc: Board of Directors
James Cofer, MPWMD
Owen Stewart, Monterey County Water Resources Agency
Jeff Froke, Santa Lucia Preserve Manager

Enc.



Proposed Public Trails:

Peñon Peak / Vasquez Knob



SANTA LUCIA PRESERVE

OGDEN ENVIRONMENTAL AND ENERGY SERVICES

5510 Morehouse Drive
San Diego, CA 92121
619 455 5044
Fax 619 453 3943

94-272-3171
September 26, 1994

Ms. Wanda Hickman
Monterey County Planning and
Building Inspection Department
P.O. Box 1208
Salinas, California 93902

Subject: Comments and Third Party Suggestions Regarding the Preliminary Scope of Work for the Environmental Impact Report for the Santa Lucia Preserve (EIR 94-05)

Dear Wanda:

I have had the opportunity to review the Preliminary Scope of Work for the Santa Lucia Preserve Environmental Impact Report (EIR), and comments regarding the Scope of Work prepared by the Monterey County Department of Health, the Monterey County Water Resources Agency, and the Monterey Peninsula Water Management District. In addition, reviews of the Comprehensive Hydrologic Study (CHS, Comprehensive Hydrologic Study, dated March 1994, prepared by the Rancho San Carlos Partnership) and the CHS supplement (Supplement to Comprehensive Hydrologic Study, dated July 1994, prepared by Rancho San Carlos in response to the June 21, 1994, completeness memorandum) are in progress. Written comments on the CHS will be submitted in mid-October.

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Overall, the CHS is an informative, well-written document and provides an extensive data base and analysis for the evaluation of water resources for the project. However, a number of issues remain regarding the analysis present in the CHS. The agency comments focus upon a number of relevant issues and are generally well-based with regard to the CHS. This review and commentary is not intended to replace the comments that have been submitted to your office by the water agencies.

The following discussion includes both general and specific comments regarding the scope of work and the relationship between the scope, the EIR consultant, and the efforts proposed to be conducted by the developer with regards to additional water resources investigations. In general, the scope and details of the impact assessment to be contained in the EIR require additional explanation and detail.

General Comments

While the overall quality of the CHS is quite good, a number of water resources issues will require further analysis in the EIR. A copy of the relevant portion of the Scope of Work is attached. These include but are not limited to:

- A more complete description of the water extraction, distribution, and management program is required. The project description should contain sufficient detail to determine the likely placement of private water wells, community water wells, and associated water distribution networks. A

description of anticipated reserve capacity requirements and system reliability should also be included.

- Review of the water balance components indicates that surface water flow within each basin and offsite comprises a significant portion of the available water and the majority of waters that flow into the Carmel River valley. An ongoing water resources evaluation program will likely be required to determine if significant impacts will occur. The field-based evaluation of recharge/discharge along stream channels (by establishing additional stream gauging stations and possibly shallow piezometers along stream channels) is critical to determination of potential project impacts by groundwater withdrawal. These data would also be needed to evaluate and monitor enhanced recharge programs if conducted as part of an EIR mitigation measure or water management strategy.

- The seasonal storage, discharge, and recovery of groundwater is extremely critical to the evaluation of impacts to phreatophytes and to the viability of the water resources for the project. A groundwater storage coefficient of 1.0 percent is used for the entire project area, and the withdrawal of groundwater is assumed to occur evenly over the entire extent of the ranch. The aquifer test analyses, and field observation of the rock properties suggest that the hydraulic conductivity and storativity of the rock decreases with depth. The Vesting Tentative Map and existing project descriptions indicate that development will be concentrated in a number of localized areas. The potential for decreased hydraulic conductivity and storage with depth in combination with potentially high pumping stresses indicates that the safe yield of the fractured rock aquifer may potentially be exceeded within an individual watershed, and that water transfers may be necessary within or from neighboring watersheds.

Because of the complex spatial and temporal relationships among rainfall evapotranspiration streamflow, recharge, groundwater withdrawal, surface water/groundwater interaction, return flows (reclaimed and irrigation water), groundwater storage, and the change in aquifer properties with depth, it is recommended that a transient-based numerical model of groundwater flow be prepared for the project site. The concept of a single hydrologic unit potentially simplifies the modeling effort, but does not reduce the complexities involved in the assessment of water movement and local mass balance of water for the proposed project. The potential also exists that discrete features such as fault zones may need to be incorporated into the model. This effort would also be of future use in groundwater management at the site and can be revised as the project develops and additional data are collected and analyzed during the development of the water resources program. Model calibration would provide the best estimates of groundwater storage at the regional scale and the model calculations provide a visualization of the groundwater system for the EIR scenarios and proposed mitigation measures. A three-dimensional public domain model such as the USGS MODFLOW model is recommended under the assumption that an equivalent porous medium (continuum) approach is valid and can be supported by the match of the numerical results with the field data. A minimum spatial discretization on the order of 20 acres and monthly time steps are suggested. This type of effort is consistent with and can be performed within the accuracy of standard hydrologic practice.

- Review of the CHS indicates that a number of hydrologic analyses may require additional refinement. These include the water balances (groundwater outflows are not included in the calculations), the groundwater contour map (it reflects an interpretive surface derived from mixed data obtained from shallow and deep wells that do not represent a true potentiometric surface-perhaps the results of the water depths from the septic investigations can be incorporated into the analysis), and the pumping tests (the existence and location of boundaries need to be substantiated.

recovery data were collected but typically not analyzed, and storativity calculations from observation wells are not consistently presented).

- Following refinement of water balances within watersheds, the seasonal nitrate loadings can be re-assessed. Yearly, long-term averages are used and do not reflect temporal variations that can lead to both increased and decreased nitrate loadings. The potential for localized impacts to occur in the more highly developed areas of the project should be assessed.

Specific Suggestions

The following comments/suggestions are provided in reference to the Preliminary Scope of Work and are referenced by Section and Page. In general, the CEQA requirements are addressed in terms of identifying mitigation measures necessary to evaluate the potential environmental impacts of the proposed project. It is recognized that an ongoing water resources management program will be required and that the initial estimates of project impacts will require ongoing observations of site conditions and the implementation of mitigation measures as warranted. In addition, no other potential water quality impacts such as urban runoff, fuel tanks, or other cultural impacts are addressed in the scope.

A-91

Section 1. Geology

Setting- Description-Impacts

page 1, fifth item. Comments are included in Section 5, Hydrology. Change "affluent" to "effluent".

Section 5. Hydrology

page 6, first item. It is not clear if the EIR consultant will be scoped to perform additional analysis. As written, the scope states that existing efforts will be summarized. A second CHS supplement is also likely based upon discussions with the water agencies. The role and timing of the second CHS supplement needs to be explicitly stated. The incompleteness/ EIR issues that were addressed in the June 2 and 9, 1994 meetings between the developer and the County agencies should also be attached to the scope of work as an addendum explaining additional analyses that are to be addressed by the project developer.

page 6, first item. Reference should also be made to the Greater Monterey Peninsula Area Plan (GMPAP), the EIR performed for the Plan, and Monterey County Board of Supervisors Resolution No. 93-115. In addition, it should be noted that the GMPAP does not cover the entire project area and that reference should be made to the Carmel Valley Master Plan and Coastal Zone requirements.

Description, Setting, Impacts

page 7, first item. See prior comment regarding project description.

page 7, fourth sub-item. Per public comments verbally received at the public meeting held August 29, 1994, the assessment of water usage should be appropriate to the style and level of development

reasonably foreseen for the project. It would be expected that the estate-sized lots would have above-average water requirements.

page 7, fifth sub-item. The discussion of aquifer characteristics should also include a discussion of those wells installed at the site that were deemed not to be usable for water production. Fractured/ crystalline rock aquifers are typically of low permeability as indicated by the CHS. It is not unreasonable to expect that a low percentage of wells drilled at the site will not produce sufficient water. Similarly, a small percentage of wells will produce above-average quantities of water. The statistics of well yield require discussions. This discussion could be placed here or in the seventh item regarding known water supply problems.

page 7, sixth sub-item. Further explanation of "safe yield" (definition and requirements) is necessary and would be appropriate in the project description. The suggested groundwater model could be a key component to the evaluation of safe yield.

page 7, eighth sub-item. The analysis of demands is both spatially and temporally defined. Suggest to add: "This analysis should be conducted for each watershed within the project, and evaluate the relationship between the water supply demands and the potential depletion in groundwater storage that could occur on a seasonal basis, accounting for seasonal and yearly variations in rainfall that occurs in the region. Because of the potentially complex temporal and spatial relationships among rainfall, streamflow, evapotranspiration, recharge, and groundwater storage a transient-based groundwater flow model should be considered. It would serve as an ongoing groundwater management tool and be useful for the evaluation of potential impacts and EIR mitigation measures." See general comment above.

page 7, suggested addition. The description of the off-site hydrologic setting is important to establish a baseline to evaluate potential impacts and associated mitigation measures. Reference should be made to addressing the surface water and groundwater connections between the project site and surrounding hydrologic systems, especially the Carmel River Valley. In particular, the Monterey Peninsula Water Management District's Water Allocation Program EIR and 5-year Mitigation Program should be included in the discussion.

Mitigation Measures- Hydrology

page 8. Suggested addition: "Provide recommendations for the establishment of a project-wide water management system to track groundwater usage, rainfall, streamflows, and available water. Include measures such as recommended streamflow measurements, the use of reserve water wells for water level measurements, and water quality observations necessary to provide continuing assessment of the water supply and the potential for offsite impacts. Include discussion of the role of the water management system to monitor or initiate feasible mitigation measures."

Section 6. Water Quality

Mitigation Measures- water Quality

page 9, general comment. The discussion included in hydrology includes both water quantity and quality. The only potential contaminant specifically discussed is nitrate. Other non-point sources include urban runoff and pesticides/herbicides. Potential point sources such as fuel tanks are not discussed either.

page 10. Suggested addition: "Provide recommendations for the establishment of a project-wide water quality reporting and management system."

Summary

Overall, the CHS provides for much of the large-scale detail required in the EIR and supports the viability of the proposed groundwater supply. The next step in the water resouce evaluation is to examine water-shed and smaller level scale components of the proposed project. Thus a more detailed project description is absolutely necessary to the scoping and implementation of the EIR. With regards to the water supply and potential developmental impacts, a more complete description of anticipated water extraction, storage, and distribution systems is required.

Additional analyses of data contained in the CHS have been recommended during the course of the EIR scope preparation; however, the scope of work is not clear regarding the proposed interaction between the water agencies, the developer, and the EIR consultant group. The process describing the expectations for the EIR consultant needs to be better explained. It is recognized that a water management strategy will need to be documented in the EIR and likely used to incorporate mitigation measures brought forth during the EIR process.

A-92

Thank you for the opportunity to provide third party review of the proposed project. These comments are intended to provide support to the water agencies' reviews and do not serve to replace their comments. A more detailed review of the CHS will be provided in mid-October.

Thank you for your time and attention.

Sincerely,

Jay W. Jones, R.G., Ph.D.
Senior Hydrogeologist

JWJ/crk

cc: Monterey County Dept. of Health
Walter Wong, cc: Mary Anne Dennis, Mark Dias
Monterey County Water Resources Agency
Al Mulholland, cc: Owen Stewart
Monterey Peninsula Water Management District
Joe Oliver, cc: Darby Fuerst
Monterey County Planning and B.I. Department
Wanda Hickman, cc: Lynn Monday
Dr. Leslie Smith, University of British Columbia
File #313161000-0001-3171

PRELIMINARY

**SCOPE OF WORK FOR THE
SANTA LUCIA PRESERVE
COMBINED DEVELOPMENT PERMIT
(PC94067)**

1. GEOLOGY

___ Review and incoporate the geological and geotehnical investigation prepared for the project by Cleary Consultant, Inc. dated February, 1994. This investigation shall be summarized and major points emphasized with the format of the EIR. Provide a third party review by a qualified geologist of this report for the EIR. Reference the report as an appendix to the Environmental Impact Report.

___ The geology report shall be consistent with "Guidelines for Geologic/Seismic Reports" of the California Division of Mines and Geology(CDMG Notes #46).

This information shall be summarized and major points emphasized within the format of the Environmental Impact Report.

Setting - Description - Impacts

Using the Geological and Geotechnical Report, include the following in the EIR:

___ Describe regional geologic setting.

___ Describe geologic conditions including soil, sediment, rock types and characteristics.

___ Describe geologic structural features including bedding, joints and faults.

___ Describe evidence of past or potential landslide conditions. Describe the implications of these conditions and the proposed development(on/offsite) to include impacts by the development on landslides or the impact of possible landslides on development.

___ Describe ground and surface water conditions, natural variations, and their impact on geologic conditions. Describe possible or probable changes in ground/surface water hydrology and subsequent geologic changes caused by completion/construction of the project. Examples could include:

- Introduction of sewer affluent or irrigation water to groundwater system.
- Alterations in surface water flow patterns.

— Discuss the maximum credible earthquake in the area to include the subsequent seismic forces and resulting possible damage.

— Describe impacts from project siting, design, the septic system, landscaping, drainage, grading and construction practices with regards to geologic stability of the project site.

— Include other on/off site factors that might contribute to slope instability.

— Discuss erosion and the project site to include existing and possible/probable future conditions on/off site because of conditions relating to site development or natural causes.

Mitigation Measures-Geology

— Suggest possible engineering alternatives to stabilize landslide conditions exposed during the geologic study.

— Suggest best engineering practices to protect structures during a maximum credible earthquake.

— Provide measures to mitigate possible hydrologic changes caused by completion or during construction of the project.

— Provide measures to alleviate erosion caused by completion or construction of the project on/offsite. Examples might include:

- Best Management Practices during construction.
- Landscaping and both on/offsite drainage improvements.
- Other possible recommended mitigation measures.

Responsible/Concerned Agencies-Institutions

California State Resources Agency-
Division of Mines and Geology
United States Geological Service
Monterey County Department of Environmental Health

2. MINERALS

Setting, Description, Impacts

— Discuss the relationship of the project to any known mineral deposits and how the project might impact those deposits.

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used during the ongoing operation of the project or emissions related to growth inducing impacts caused by the project.

— Discuss reactive organic gasses (ROX) and oxides of nitrogen (NOX) which would be generated by motor vehicles associated with the subject project. Carbon Monoxide is also related to traffic generation. If the project will contribute to significant levels of traffic congestion at intersections, roadway links, and places of ingress/egress, then (CO) should be measured. ROG, CO, and NOX shall be measured in tons per year or tons per day.

Source: Two models are available from the California Air Resources Board for estimating emissions: 1) URBE MIS #2, and 2) Supplement to Procedure Basis for Estimating ON-Road-Vehicle-Emissions.

Source: A suitable micro-scale model for CO emissions measuring concentrations vs. tons per day is the computer model Caline $, available from the California Air Resources Board.

Mitigation Measures - Air Quality

— The EIR shall identify those mitigation measures necessary to reduce significant air quality impacts to an acceptable level. The following information shall be provided for each mitigation measure:

- Emission reductions resulting from mitigation measure implementation measured in tons per day or year.
- Agency responsibility for measure implementation.
- Cost and time frame for implementation of measure.

Responsible/Concerned Agencies-Institutions

Environmental Protection Agency
California State Air Resources Board
Monterey Bay Unified Air Pollution Control District
Monterey County Department of Environmental Health

5. HYDROLOGY

— Utilize existing ground water studies available from the Monterey Water Resources Agency, County Environmental Health Division and comprehensive hydrolocal study, prepared for the project by Camp Dresser and McKee Inc., Balance Hydrologics, David Keith Todd Consulting Engineers, Geoconsultants, Inc., and Luhdorff and Scalmanini Consulting Engineers

dated March 1994. A third party review of this report is being conducted under a separate contract. The results and conclusions of the study and the results of the third party review shall be summarized and major points emphasized with the format of the EIR.

___ In the following assessment and analysis of hydrology include both surface and sub-surface conditions. Be sure to describe their relationship separately and together and how an impact to one may be a direct/indirect impact to the other.

Description, Setting, Impacts

___ Utilize the hydrology study and third party review. Summarize project description and impacts to include the following:

___ Describe the hydrologic setting and drainage system to include cultivated/non-cultivated areas.

___ Discuss the location of floodplains in the area and their relationship to the project. Discuss the effects of a 10 and 100 year event.

___ Describe the regional source of water for the project and how it is supplied to the site.

___ Provide an assessment of existing and proposed water usage. Divide usage among landscaping, fireflow requirements and domestic/commercial/industrial use.

Indicate the amount of run-off to be generated by the project and the methods of onsite/offsite collection.

___ If groundwater is utilized, describe the aquifer system. Include aquifer characteristics and identify recharge areas within the project area.

___ Discuss both the existing and future water balance and safe yield of the basin and sub-area both with and without the proposed project. Incorporate adequate background information on climate conditions, surface water supplies and water demand affecting the balance.

___ Describe any known water supply problems in the area.

___ Analyze the water demands of the existing land use and compare to the proposed project demands.

___ Recognize cumulative impacts created by this project

and other similar projects that intensify ground or surface water use.

___ Consider anticipated water demand for construction and maintenance of the proposed project.

Mitigation Measures - Hydrology

___ Discuss alternative project design and location including density reductions to mitigate adverse project impacts.

___ Provide recommendations from the hydrologic report concerning water conservation measures to include water reclamation and retention methods.

___ Submit plans for hydrology/drainage improvements to the Director of Environmental Health for review and approval. All improvements shall comply with Chapter 15.20 Monterey County Code and the Basin Plan, RWQCB.

___ Provide fire flow per Ordinance 3600 or subdivision water supply standards (FF2).

___ Determine the potential for employing methods to enhance the percolation of stormwater as recharge for local groundwater supplies.

Responsible/Concerned Agencies/Institutions

Monterey County Water Resources Agency
Association of Monterey Bay Area Governments
Monterey Peninsula Water Management District
California Regional Water Quality Control Board
Monterey County Health Department

6. WATER QUALITY

___ Utilize existing ground/surface water studies available from the Monterey County Water Resource Agency and the County Environmental Health Division. Review and incorporate the Water Quality sections of the Comprehensive Hydrological Study prepared for the project by Camp Dresser and McKee Inc. Balance Hydrologics, David Keith Todd Consulting Engineers, Geoconsultants, Inc. and Luhdorff and Scalmanini Consulting Engineers, the Comprehensive Wastewater Disposal Plan prepared by Camp Dresser and McKee Inc., Bestor Engineers, Inc. Cleary Consultants, Inc. and Geoconsultants, Inc. dated March 1994 and third party review. The applicable sections from each study shall be summarized and major

points emphasized within the format of the EIR.

Description, Setting, Impacts

— Describe the quality and quantity of wastewater and/or sewage discharged by the proposed project. Quantity figures should include both daily average and peak wastewater/sewage flows. Quality figures should include estimated nitrate concentrations, and all other constituents as determined by the Division of Environmental Health and the RWQCB.

— Calculate the average daily and peak nitrate loading rate per acre.

— Briefly describe the method of wastewater/sewage disposal, i.e., spray field, irrigation, leachfields, etc.

— Briefly describe the type and extent of wastewater/sewage treatment.

— Identify any aquifer recharge areas in the project's vicinity.

— Identify and discuss all existing and future sources of nitrate loading within the study area including lots of record, all agricultural activities, and commercial wastes.

— Identify and describe the aquifer impacted by the wastewater and/or sewage discharge in terms of existing and future water balance both with and the without the project (see "Hydrology").

— Calculate the long term nitrogen/nitrate balance of the impacted aquifer. Contact the Division of Environmental Health to determine the scope of work and any special concerns or requirements in the study area.

— Research and summarize the existing nitrate levels within the affected study area. Identify any trends or historical nitrate problems, and compare to the calculated nitrate balance.

— Examine and document any ground/surface water studies in the project area and highlight conclusions or recommandations.

— Describe the relationship between surface water quality and ground water quality.

— Determine the potential for surface water contaminants to enter aquifers in the vicinity of the proposed development area.

Mitigation Measures-Water Quality

— Identify methods of treatment of drainage or sewage that will bring water quality to acceptable levels to re-enter aquifers. Consult the Health Department to set and identify water quality standards for the project.

— Perform percolation tests and/or soil borings per Health Department to determine subdivisions suitability for sewage disposal by septic tank system (MD3).

— Design and construct water system to meet standards per Title 15 of Monterey County Code (MD5).

— Design and construct water system to meet standards per Title 22 of California Administrative Code (MD6).

Responsible/Concerned Agencies-Institutions

Monterey County Water Resources Agency
Monterey Peninsula Water Conservation District
California State Department of Resources
Monterey Regional Water Pollution Control Agency
California Regional Water Quality Control Board
Monterey County Department of Environmental Health

7. & 8. PLANT LIFE/ANIMAL LIFE

Description, Setting, Impacts

— Review and incorporate the Special-Status biological Resources Report prepared for the project by Biosystems Analysis, Inc. dated February 1994 and the Forest Management Plan prepared by Ralph Osterling Consultants, Inc. dated February 1994. These studies shall be summarized and major points emphsized within the format of the EIR. Reference the report as an appendix to the Environmental Impact Report.

— Describe the surrounding affected plant/wildlife environments. Describe any supporting environments that may be affected by the project including wildlife, fisheries, and climate.

— Follow the, "Guidelines For Assessing Effects of Proposed Developments On Rare and Endangered Species", published by

No surprise — issue of water dominates meeting on RSC

By SUSAN BECK

WHILE A wide range of issues about Rancho San Carlos was aired Monday night at a "public scoping" meeting in Carmel, the main issue was water.

Though issues covered everything from fauna and flora to air quality and traffic congestion, one question was repeatedly asked throughout the two hours of public input: Why is the Rancho San Carlos application process moving ahead before the county has determined if there is enough water for the project?

"There is absolutely no law that says an EIR cannot be processed before an application has been accepted," Doug Holland, Monterey County Counsel, said.

"They (Rancho San Carlos management team) have already drilled some 40 wells. I imagine, from their perspective, they are satisfied they will be able to demonstrate there is an adequate water supply to support their application."

Although a better practice would be to have absolute proof of an adequate water supply before incurring the cost of processing a project application and EIR studies, Holland noted, "There is no reason why an EIR and application process can't move forward in tandem."

Future water

At times, it seemed that some in the audience—about 75 residents and public officials attended — were only interested in sparring with members of the Monterey County Planning and Building Inspection Department, which held

See RSC page 11

Subject of water garners audience focus at Rancho San Carlos meeting

RSC from page 1

the meeting at the Crossroads Community Room in Carmel.

However, the meeting was intended to provide an opportunity for residents to tell county planners what should be addressed in the preliminary environmental impact report (EIR) for Rancho San Carlos, or The Santa Lucia Preserve. The EIR is expected to be completed Oct. 11. The deadline for suggestions is Oct. 1.

The proposed project for the almost 20,000-acre ranch in Carmel Valley includes 350 homesites, a 150-room hotel, recreational facilities and a golf course.

Owens Stewart, a county water resources engineer, said county geological studies are currently being conducted to determine if there is enough water at Rancho San Carlos to provide "not only an immediate water supply, but future water as well for development."

As water normally runs downhill, noted Dick Heuer, a Monterey Peninsula Water Management District director, "it is fair to assume water used at Rancho San Carlos would eventually have flowed to the Carmel River."

Heuer, who said he was speaking for himself and not on behalf of the water district, added the managers of Rancho San Carlos bear the "burden of proof" that water used for development will not have an adverse impact on Carmel River's supply. (Carmel River provides water for 85 percent of Cal-Am users.)

This is a "critical" point, Heuer said. "There is so much uncertainty about what happens to water underground, and every bit of the district's available water is already taken."

What would happen if the current application was turned down by county planners and supervisors?

"Will the EIR cover the alternatives?" asked George Ferguson, a Carmel Valley resident. "There is something like 500 legal lots of record that could be developed. That's more devastating than this project."

Holland explained no development at Rancho San Carlos can take place without water. "The board of supervisors cannot approve a project without water," he said.

Lynne Mounday, supervising planner for the county, ended the meeting by noting he had four pages of suggestions that would be considered carefully in preparing the EIR for Rancho San Carlos.

"Something this large is like a slow moving animal," Mounday said. "We are trying to get the pattern of the people who have come here tonight. We are a long way from being finished at this time."

Richard and Eleanor Avila
6405 Brookdale Dr.
Carmel, Ca. 93923
Sept. 7, 1994

Mr. Lynne Mounday
Monterey County Planning Dept.
240 Church St.
Salinas, Ca. 93901

Dear Mr. Mounday:

We read the enclosed Pine Cone report with great interest. Inasmuch as Oct. 1st is the deadline for suggestions, we are submitting ours to you as of today, Sept. 7th.

Mr. Owens Stewart, county water resources engineer, is quoted as saying studies are being made to determine if there is "future" as well as "immediate" water for development for Rancho San Carlos. (1) The public needs to know how many of those 40 wells drilled at Rancho San Carlos hit water, and how much. Secrecy is suspect. (2) Rancho San Carlos should be made to promise in writing that if water for homes already built (assuming this goes through) is insufficient or dries up, they will TRUCK IN additional water from outside the county.

We who were hoodwinked in the past by the Carmel Valley Ranch "aquifer" must know before the application is finalized that the Carmel River supply WILL NOT BE TOUCHED.

Thank you for accepting suggestions.

Yours truly,

Richard and Eleanor Avila

Richard and Eleanor Avila

Statement by Dick Heuer at Rancho San Carlos Hearing, August 29, 1994

My name is Dick Heuer, formerly of Carmel Valley but now a resident of Monterey. I'm an elected Director of the Monterey Peninsula Water Management District, but I'm speaking as an individual, not on behalf of the Water District.

Water normally runs down hill, so the starting assumption that we all make is that most water used by Rancho San Carlos is water that would otherwise eventually become available to the Carmel River system. Tom Gray has stated repeatedly that he accepts that the burden of proof is on him to show that water proposed to be used on Rancho San Carlos will not have *any* adverse impact on the Monterey Peninsula's water supply.

The reports I've seen to date do not persuade me that 400AF can be used by Rancho San Carlos without having an impact on the Peninsula supply. On the other hand, I'm also not yet prepared to say that it can't be done. That is still an open question.

To me, the important point is where the burden of proof lies. It is up to Rancho San Carlos to prove that it will not have any adverse impact on the Peninsula supply. It is not up to the County or the Water District to prove that it will. The reason the burden of proof is critical is that there's so much uncertainty about what really happens under ground. In the event of continuing uncertainty after all the research and analysis has been done, that uncertainty should be resolved in favor of the existing water users on the Monterey Peninsula, not in favor of Rancho San Carlos.

The second point I want to make, is that there is no such thing as a de minimis impact on the Peninsula water system. Standard hydrological measurements normally give only rough approximations, not precise amounts. Even though the impact may be so small that it's within the normal margin of error for the hydrological techniques used to measure it, it is still significant when judged within the context of the Water District's water allocation system. Every bit of the available water is already allocated, and we argue over amounts as small as 1 acre foot. So, please don't tell us the impact is insignificant because it's too small to measure, or that it may be only 100 acre feet, or even 10 acre feet.

Finally, please consider alternative sources of water supply and contingency plans for the event that after the project is built, the water supply you relied on dries up. As one alternative source, I suggest you consider a reservoir to capture and store runoff during wet years, when we don't need it for the Peninsula supply, and from which you can release water during the dry years to offset the pumping at Rancho San Carlos.

As a contingency plan for drought years, you may wish to identify a threshold that would cause termination of pumping for the golf course, or for all outdoor irrigation throughout the project, in order to stretch your supplies during a drought or to avoid impact on the Peninsula system during a drought.

San Clemente Rancho
36945 Dormody Rd.
Carmel, CA 93923

Aug. 29, 1994

Monterey County Planning Dept.
c/o Wanda Hickman
P.O. Box 1208
Salinas, CA 93908

Re: Santa Lucia Preserve EIR

Dear Ms. Hickman:

A-98

The following is San Clemente Rancho's response to scoping issues related to the EIR. Most of our concerns are broadly covered in your preliminary scope of work. Many of our suggested topics will focus in on a broad topic to be sure the issue is covered in adequate detail. We will then comment on your initial study in a separate but attached letter, some information we feel has been left out, is misleading, or is completely incorrect and must be remedied before proceeding. We furthermore strongly feel that all of this is premature, the board of Supervisors resolution 93-115 clearly calls for a comprehensive plan for the entire 20,000 acres, which the application does not, and further recognizes that the application cannot proceed without an adequate water / waste-water program approved by the Health Dept. We feel that there is sufficient legal precedence for this request, specifically a court case recently in Contra Costa County covered close to these same issues. In any event here are our comments:

GEOLOGY

The following statements/questions should be included in this section.

> Describe the effects of roadcuts on slopes below and in excess of 30%. Include effects on slope stability, erosion, increased runoff and loss of soil needed for revegetation.

This statement needs to be included because due to the shallow soil conditions experienced throughout most of the rancho, the cutting into slopes, no matter how slight creates the potential for landslides or slumps during heavy rainfall events. Robinson Canyon Road commonly experiences landslides throughout the year, even though its over fifty years old, it's still unstable, the severest cuts have no soil to support vegetation, rills and gullies have formed, increasing sedimentation in Robinson Canyon Creek. This likely

scenario will be repeated thought the dozens of miles of roads excavated throughout the *Preserve*.

> Discuss the possible destabilizing effect of deep water pumping in fractured bedrock along or near faults systems, would have on the faults systems that either are a conduit to or barrier to water movement.

This needs to be discussed because there is common belief that by relieving water under pressure near a fault can have the potential to activate the fault.

Mitigation

> Suggest alternative locations to roads and/or development clusters to avoid geologic hazards.

This obvious mitigation could guide readers/decision makers as to where exactly the ***least sensitive areas*** of the Rancho are located, as specified in Resolution 93-115.

MINERALS

> Discuss/locate where minerals extraction (Quarries) will be on the *Preserve*. Discuss impacts on noise, erosion, runoff, sedimentation, dust, viewshed and traffic.

The project proposes several quarries throughout the *Preserve*, yet they are never located or discussed. The EIR must look at their cumulative effects they have on the project.

SOILS

> Review prepared reports of the developers to determine their completeness.

The reports on soils, erosion and drainage do not cover adequately many appropriate topics including but not limited to:

> Effects on canyons and hillsides when road runoff is drained into these areas, where established water courses are many thousands of feet away.
>
> Increased flood potential/occurrence in physically constrained areas(Narrows) resulting from rapid runoff from paved/compacted/altered surfaces ie lower San Clemente Creek along Dormody Rd, both on and of the *Preserve*.

Description # 4 of the scope of work points out exactly why discussion of the golf course must be included in this report to determine the cumulative effects of the whole project. Lots 264, 265, & 266 incompass over 330 acres of land, much of it will be graded, compacted, watered, and manipulated to change the existing runoff patterns. Roads, bridges, culverts buildings all down stream from these lots will be effected by the golf course, yet they are being sized and built prior to the golf course. The prudent solution, and the one the Supervisors intended when they called for a comprehensive plan includes all proposed uses and zoning designations, including the GOLF COURSE.

Mitigation:

Require excavation/construction calendar.

The result of this would be to establish a time frame during the calendar year when excavation can commence and must conclude. For example we would not recommend beginning earthmoving projects on the *Preserve* before May 1st (later if its a wet year), and be completed, paved and or seeded with cover by November 1st.

A-99

Describe and Require Emergency erosion plan.

During the construction phase, revegetation phase and to some degree operation phase a plan including man power, supplies, equipment, dump site needed to handle the inevitable erosion/flood/landslide events that will occur throughout the *Preserve* during heavy rain events. This is important to avoid or lessen both on and off-site impacts. If there is a slide for example, don't dump it over the bank, and make matters worse, haul it to stable location for winter storage.

The Fish And Game should be included as a responsible Agency to insure plans conform to potential impacts to streams and aquatic life.

AIR QUALITY

As an addition to the discussion of construction emissions include exhaust/effluent from proposed on site asphalt batch plant. Include plant location, amount of pollution, associated smoke/smell and related concerns.

The project proposes as a means to reduce off site traffic impacts, an asphalt plant at a undisclosed location. This will have a significant impact on the local air quality and needs to be discussed.

Discuss new and concentrated odors associated with the Preserve.

The purpose of this topic is to point out, especially on hot days(over 90 Degrees) how the 70 stall equestrian center and sewer treatment plant will smell up the area. Already on warm nights you can smell the cattle pens in their new location.

Discuss how local topography and micro climate located on the Preserve will effect the concentration of pollutants.

The Land use EIR 87-013, discusses and points out the many associated problems with wood burning stoves effluent settling into cold canyon bottoms during the winter, It also discusses ground fog, acid fog, and inversion layers, all of which are appropriate for discussion again in this new EIR.

HYDROLOGY

Describe project impacts to off site surface and subsurface streams, seeps, springs underflow, and groundwater.

This was outlined for discussion in resolution 93-115 and needs to be summarized here.

Describe potential effects on projects water supply from proposed Monterey Peninsula Water Management Districts/SAMDA's application to remove a minimum of 500 acre feet of groundwater upstream from project.

This was brought to light recently that for the last six months MPWMD has been working with SAMDA to enter into an agreement to export water from this area to the Monterey Peninsula.

Mitigation

Require contingency plan for water supply in the event that supply fails during phasing of construction and or after completion of the project.

WATER QUALITY

Examine the design of the waste water storage pond to assess potential for flood from heavy rainfall.

The area in and around the *Preserve* has experienced significant rainfall events over the years. Storm totals in excess of 10 inches in twenty four hours have occurred several times, ie Dec. 1982 on Ponciano Ridge, or for a series of storms in excess of 22 inches in just over 4 days in Feb. of 1986. These types of events must be recognized for their ability to transport sewage, nitrates from golf course or equestrian center directly into the surface flows.

> Discuss potential for water quality contamination from associated development hazards that are unavoidable with the proposal on the *Preserve*. Include oils from street/parking runoff, gas station, maintenance yard/fuel depot, transportation of fuels to site, household contaminants, and construction activities. List their effects to local environment including streams, aquatic life, ground water quality both on and off site.

The more cars, more houses, and the like the higher the potential for oils/fuels to accumulate in the local streams. A good example is during well drilling in the winter of 1990 a drill rig got stuck in the San Clemente Flats and spilled diesel fuel into the creek. this would probably not happen again if the ranch was left in its cattle ranch state, but will surely occur again as development proceeds.

A-100

Mitigation

> Design and construct project to avoid runoff from roads/parking from entering streams/surface water/ground water.

We believe The State Dept. of Fish and Game should be a responsible Agency for this subject.

PLANT LIFE / ANIMAL LIFE

> Review and determine the accuracy of developers information supplied.

The EIR consultants need to acknowledge that some of the information listed in the developers reports used for this section are incomplete, and sometimes misleading. For Example for total tree removal, the reports don't have any allotment for the realignment and widening of 1.5 miles of Dormody Rd. Near where this road intersects Steelhead Run Road, Dormody Road goes through a Oak Woodland Forest where many large trees will have to be cut down.

Another example is the Special Status report lists the Black Shouldered Kite as only possible a resident to the ranch. A pair of kites have lived near the summit of Robinson Canyon Road continuously for a least Twenty years. Not knowing the life expectancy of

Kites I am sure we now are observing one set of children or grand children of the original pair. They are surely not absent from the ranch and the authors editorial on the state of the Rancho on page 2-47 of the Biotic Report reflects more on their sloppy techniques then the quality of the habitat.

Still another example is the Red Legged Frog. It has been observed throughout San Clemente Creek by MPWMD consultants. The frog will most likely be fully listed as endangered by the time the EIR is released. Road building, erosion, culverts, and loss of wetlands will contribute to its demise. The same relationship between the development and the Carmel River Steelhead can be drawn. The EIR must address these issues. We could give a dozen more examples, this is why we are requesting an on site meeting with the EIR authors once they have been selected.

> Discuss the effect the Development will have on the continuity of the existing habitats, ie fracturing of habitats.

As proposed the *Preserve* will fracture many unique and threatened habitats into small less viable features. Large open fields will be crossed by large roads, filled with houses, hotel, and shopping centers. Hills will have vertical/impassable barriers for shoring purposes, cumulatively hundreds of miles of new fences will be built around building envelopes throughout the entire *Preserve*. All this will destroy the truly amazing wildlife habitat that currently exist.

> Discuss the effect the development will have on the natural fire regime.

This is directly out of EIR 87-013, which then discusses several mitigation's for the problem.

Mitigation

> Assess and propose siting of development, clustered in the Least Sensitive Regions of the *Preserve*.

This is directly out of resolution 93-115.

> "The Resource Management Plan shall specifically address the use of the Ranch by Golden Eagles that feed on ground squirrels. It shall also focus on maintaining desirable levels and distribution of ground squirrels while improving soil and vegetation cover conditions..."

This specific mitigation is directly out of EIR 87-013, and was not part of the resource management plan. It must be included in this EIR.

ENERGY

Discuss and compare energy requirements for project and similar sized project(Pebble Beach) in County.

The reason for this is to show that due to distance from town and services, depth of water to be pumped, more extreme climate, the *Preserve* will use much more energy then any other local development.

Mitigation

Locate clusters of housing in more energy efficient areas.

This would be to show an economic benefit to having more units located closer to existing infrastructure, and in a less extreme climate.

A-101

LAND USE

Define the term "Comprehensive Plan" as established by resolution 93-115, and discuss how the application conforms to the resolution.

This is needed because nobody else seems to want to define the meaning of Resolution 93-115 and is necessary to see how the application conforms to the board's amendments.

Describe possible future changes in land use designations with later permit applications.

As the golf Course is applied for will the Zoning have to be changed to allow a restaurant, pro shop, driving range and maintenance facility that are associated with a more commercial club house. Also why is it necessary for an employee rec. center to have a Heavy Commercial Designation?(Lot 262) What are the Commercial uses associated with the lands in the CVMP?

Describe possible effects on the land use designation if parcels in the CVMP and/or Coastal zone are sold prior to being developed into the *Preserve*.

Currently the CVMP allows 1 unit per ten acres for the lands in this portion of the Rancho San Carlos, If the development fails, or for some other reason has to be sold off prior to the developer applying for a VTM that adheres to the Comprehensive plan, will the new owner have the ability or legal right to apply for up to 250 units? This is why the EIR must discuss this issue and why the developers ought to be held to the comprehensive plan as required by resolution 93-115.

Describe Openspace component of the Preserve. Discuss if it conforms with General Plan Amendments of Resolution 93-115.

The project plan has many categories of Openspace. Some of these lands are literally only a few feet wide between building envelopes. The EIR needs to determine if this is truly openspace, or just back yard.

Describe and list all County and State, building / landuse / general plan exemptions/variances that application requests, including but not limited to all 30% slope development, ridgetop, visual/scenic, growth inducement, leap frog, safety response time, fire and environmental ordinances.

This would be helpful for the EIR reader/decision maker to have a concise list to better judge the effect this project would have to the integrity of the many local and state rules establish to guide development.

Mitigation

Define and add buffer zones to areas of the *Preserve* where incompatible uses would exist between proposed uses and surrounding historical uses.

This would insure that uses such as hunting and grazing which are established uses on and off the Preserve would continue without effecting the development and vise versa. This idea was much discussed and supported by the surrounding property owners during last years land use hearings.

Require developer to apply for a VTM for entire 20,000 acres.

This is what the supervisors meant with their board resolution 93-115, The project construction could still be phased, yet this would define the scope of the entire project, so it's cumulative effects could be best judged.

Discuss and define areas of the Preserve deemed the "Least Sensitive" by the EIR as pertaining to planning issues and require changes to the project application to conform to these guidelines.

This mitigation would make the project more conforming to local General, and Master Plans.

HOUSING

Discuss alternative locations to required employee housing outside visually sensitive areas and/or without access to Robinson Canyon Road.

This would first point out that a majority of the employee units are either highly visible from Robinson Canyon Road(Lots 27 - 31) or have direct, unobstructed access to Robinson Canyon Rd. (Lots 64-67, 92, 93).

A-102

TRANSPORTATION

It should be recognized that some of the information in the Traffic report is misleading and incorrect, For example a section of Robinson Canyon Rd. (approx. 7.5 miles from Carmel Valley Rd.) is only 13 feet wide where the Preserve proposes to increase traffic levels an additional 100 cars per hour. The report in an effort to under estimate the projects effect on the use of Robinson Canyon Rd greatly overestimated its' travel time by about 6 to 8 minutes, where they say it takes 22 minutes, it only takes 12 to 16 minutes depending on the drivers mood and familiarity with the road.

Discuss specific design improvements, barriers and interior access roads which would reduce the use of Robinson Canyon Rd., including but not limited to alternative site locations, tunnel intersections under the County Road, signs, gates etc.

This is right out of Resolution 93-115. The Project must minimize use of this County road through these measures. The EIR needs to determine if the application complies to these requirements.

Discuss projects' interior road design for conformity to established traffic safety standards and suggest alternatives.

These need to be pointed out and discussed because the project is creating many hazards that currently do not exist. For example, the proposed intersection of Robinson Canyon Rd and Vasquez Trial will create a blind intersection due to the local topography. In

addition, the steepness of road grades (in places in excess of 15%), due to the frequent icy conditions will create many driving hazards.

Factor in the projects expected Socio - Economic status of the home owners/hotel guest when determining use of public transportation, number of trips generated per household, use of bicycles and the like.

Because of the expected high economic status required to be a part of the *Preserve*, the number of trips generated will be much higher then normal. For example it is likely that each household will have more then one vehicle per household, all family members over 16 will undoubtedly have their own cars, each estate will probably have a gardener, pool man, maid and the like commuting in from town. Their social status will require frequent trips to town for dinners, parties, events, hairdressers, recreation, they will surly not be prisoners on the *Preserve*. Due to the distance and topography they will not walk or bike to work, only for recreation. There is no public transportation to the project, and the economic status of the potential users of the project would deter its use. These all have to be factored into the trips generated figures.

PUBLIC SERVICES

DRAINAGE

Discuss how proposed drainage plan will impact off site properties and improvements.

Additions of rapid runoff to relatively small canyons like Hitchcock, Potrero, San Jose, Garzas, and San Clemente has the potential to effect existing structures and improvements when this new runoff reaches them. These areas traditionally have buildings/improvements directly within canyon bottoms, rapid runoff from development upstream could change the existing runoff patterns, causing flooding, sedimentation/siltation, and erosion. Where the impact exists, it needs to be pointed out and mitigated.

Mitigation

Create a funded account to provide insurance against probable future claims as drainage hazards develop.

This would result that in the event the *Preserve* experiences financial hardships, there will be a mechanism in place to clean up/rebuild destruction to off site properties as a direct result of the project. For Example, when Quail Meadows was built, rains washed mud and silt down onto Quail Lodges' golf course. There would have been a major problem, except

that the developer owner both properties. The *Preserve* does not own all down stream properties!

WASTEWATER

Discuss proposed wastewater treatment facilities location in terms of conforming to local scenic value.

As proposed the extremely large (multiple buildings of up to 98' by 20') are clearly visible from the County's scenic road. The developers propose excavation of a wastewater pond, plastic fences over 6' tall (a adult deer can upwards of 8' high!), blue tiled roof, the result will be to forever change a pristine upland meadow which is boarded on all sides by wetlands and full of wild flowers in the spring, with an unsightly, obstructive structure which could be hidden elsewhere on the *Preserve*, completely out of view!

WATER DELIVERY SYSTEM

Discuss contingency plan if water system fails during phased growth, after buildout, and/or during emergency conditions.

This scenario needs to be discussed and resolved. There is a strong probability that sometime during the life of the project, it will run out of water. This could be caused by the Aquifer giving out, severe drought, or a natural disaster (fire, earthquake, severe freezing) which cuts electricity cutting off pumping ability, or breaking delivery pipes. The storage capacity would only last a short time with no means of getting water quickly to the 500 units. If the aquifer gives out, or shows signs of reaching it's limits during phasing, will the project be stopped and the unbuilt units never built on? The EIR needs to discuss this likely scenario.

POLICE SERVICE

Discuss project in terms of response time to emergencies, and how these calls could change response times and levels of service to existing patrol areas.

The EIR needs to discuss that due to the large size and limited access to the project that response times to calls will be in excess of established standards, no matter what staffing levels are set at. The EIR must also look into the strong possibility that at current staffing levels, there are not enough sheriffs patrols to respond to a call deep into the *Preserve*, and still maintain a reasonable level of service to Carmel Valley.

FIRE SERVICES

Review and discuss the appropriateness, safety, and effectiveness of the special designs incorporated into the project plan.

The EIR needs to discuss if the Fire Safety Zones located in the more remote regions of the *Preserve* will provide the safe haven that they propose, or will they contribute to a disaster if a large wildland fire exists. The EIR further needs to discuss if the length of roads, siting of building envelopes, and response times to determine if the project does conform to local fire codes.

Describe how project will effect fire hazard to off site locations.

The *Preserve* has the potential to both raise and lower the fire hazard to the local area. It would greatly raise the threat to a large wildland fire by opening up thousands of acres of land to housing, and visitor use. Conversely if there is a public, professional (not a private volunteer) fire station constructed on site it would dramatically lower response times to the initial call, to any fire in the area, regardless of whether the fire was on the *Preserve* or not.

Mitigation

Identify alternate locations to project improvements that would reduce the fire hazard associated with the project.

The EIR needs to recommend to the Reader/Decision Makers that there are alterations to the proposed plan which would lower the fire hazard to the project and surrounding areas.

NOISE

We believe that additional sensitive receptors needs to be added to the list located on page 30.

Wilderness areas(both public and private)
Open space(both private and public)
Wildlife habitats

These need to be discussed because of the location of nearby parks, National forests and private recreation areas which provide the public a place to get away from the sounds and sights of civilization. The project, with building envelopes located within a few feet of *Preserves* border, will dramatically change the background noise levels in the area. Wildlife will be effected by the noises of this project from both the construction and buildout phases. These new noises will likely result in a loss of wildlife, especially the more sensitive species(Coyotes, bobcats, Mountain Lion).

Mitigation

Propose buffer zones around projects border to insure onsite noises will not effect offsite uses.

As called for be the County's EIR, this would insure that the *Preserve* would conform with the uses which currently surround the development.

AESTHETICS

SCENIC VIEWSHED

We feel that the aesthetics chapter needs to be outlined in more detail to better guide the EIR. Therefore we are proposing these, slightly more specific questions.

Describe the impact the project will have on the view shed from the designated County Scenic Roads(Robinson Canyon, Carmel Valley, and Los Laureles Grade)

A-104

This section should deal primarily with Robinson Canyon road. It is probably the most well known "Wildflower Roads" to travel for County residents during the spring. A large percentage of the best fields will be lost or fragmented by housing, roads, sewer treatment facilities, maintenance yard, golf courses etc. The Biologic reports are sorely lacking in this aspect. They might say what plants exist, but they don't convey the unique and overwhelming setting that they are found in.

For Robinson Canyon Rd. describe the *Preserve's* aesthetic effects in terms of the whole project along with specific features of the project, including but not limited to:

Visual impact from turnouts
Impact of Maintenance Facility
Impact of Golf Course
Impact on Wildflower fields
Impact of Sewer treatment Plant
Impact of new roads and intersections
Impact of expanded Hacienda
Impact on viewable wildlife
Impact from employee Housing
Impact from Hotel
impact from Commercial center
Impact from Recreation center

Impact from entire building envelopes

This project will have a tremendous visual effect on Robinson Canyon Road. Many thousands of people enjoy the Scenic road for motoring, walking, biking, birding, picnics, wildlife viewing and to "just get away from it all". The *Preserve* proposes to bring "it all" to this unimproved, yet highly accessible area. This will have a tremendous effect on the area and its inhabitants and must be addressed in the EIR.

HISTORICAL/ARCHAEOLOGICAL

Mitigation

Suggest public access/parks/openspaces for the more well known, and significant places on the Preserve.

This mitigation is appropriate for the Stevenson Cabin where a park was once called for and possibly around the newly found Rumsen Indian Village located behind the Hacienda, with a possible interpretive center.

CLIMATE

We suggest this additional topic be added to the Scope of Work. The local weather. It is significantly different then most of the developed Monterey County. It occasionally snows, experiences heavy winds and rain. It has more severe temperature fluctuations, colder in the winter, hotter in the summer, all of which when combined with the topography of the region effects the project design and success. For example how will frost (a nightly event during winter) effect the safety of roads in the steep terrain? If it snows, can homeowners expect to get to town? Should building standards be increased for buildings along the ridge tops due to the high winds commonly experience in winter storms? These questions need to be addressed and the EIR is the perfect forum for them.

MISCELLANEOUS IMPACTS

We feel that there are a few more impacts this project will have on the local environment, yet do not know the specific heading these impacts would fall under.

PHASING

Describe the benefits and drawbacks associated with the *Preserve's* proposed 24 phases. For example Construction of roads, buildings and associated noise, dust, and erosion for twenty years.

This would be helpful to fully understand one of the long term effects of the project, construction activity, will have on the surrounding land owners.

DOMESTIC ANIMALS

Describe the effect that hundreds of dogs and cats will have on the local environment and habitats.

This is needed to asses the Preserve's effect on wildlife, whether it will still be in abundance, scared off, eaten, or out competed.

CLUSTERING OF UNITS

Describe and define what resolution 93-115 meant by "one or more clusters" and whether the Preserve complies with this guideline.

Describe the cumulative effects that each building envelope at full buildout (main house, guest, servants, senior units) could have on expected water use, traffic generation etc.

These topics are necessary to determine if the project as proposed complies with the board resolution, and can meet expected demands on services.

GOLF COURSE

It is imperative that the golf course be included in the initial study. The impacts of the proposed golf course affect two major watershed draining into the Carmel River. The Garzas and San Clemente Creeks contribute 15 to 20% of the River's flow. It is common knowledge that the golf course is the main attraction to this development. The overall impact that it will have on the project, environment, traffic, water (both quantity and quality) must be assessed in the initial EIR, whether or not the facility is built now or at a later date.

FENCING

Describe the effects on wildlife habitat that the hundreds of individual fences constructed around each building envelope will have. Impact 8a of EIR 87-013 "Fencing Interference's with wildlife:..."

This again comes directly out of the Land use EIR. It is a necessary topic because rough estimates of fencing around 350, two plus acre building envelopes will be a new fence from here to San Francisco and partly backl, the larger the building envelope, the more fencing. Free ranging animal migration will be severely curtailed because these fences will most likely not be the low impact three strand barbed wire variety.

Mitigation

Wildlife corridors should be mapped as part of the preparation of the Resource management plan.

This was called for by the county's EIR and was not complied with in the application. The developers admitted that they occur on the Rancho yet only show a map of vegetation types, THIS IS UNACCEPTABLE.

Define and describe types of fencing that are appropriate for the different protection needs through out the *Preserve*.

This is a modified mitigation from EIR 87-013, it is meant to also cover fencing around building envelopes. This again was left out of the developers resource management plan.

FEASIBLE

Discuss and define the term feasible as it relates to the *Preserve*.

Upon reading the developers application, one gets the impression that their proposal is the only "feasible alternative". They use the word constantly through out their plan in terms of CEQA and County terms. It would be helpful to the reader/decision maker if the term was once and for all defined and then that definition applied to it's appropriateness each time the developer uses it.

This concludes our response to scoping issues at this time, as more information becomes available, specifically on the incomplete hydrology report, we may have more responses. We have complied with the County's request for the reasons for our comments, we now ask for the County to respond with their reasons for any of our additions that are not included in the scope of the EIR. Please provide this prior to placing the EIR out for bid. Thank you for the opportunity to comment.

Sincerely,

Bruce Dormody
San Clemente Rancho

San Clemente Rancho
36945 Dormody Rd.
Carmel, CA 93923

Aug. 29, 1994

Monterey County Planning Dept.
c/o Wanda Hickman
P.O. Box 1208
Salinas, CA 93901

Dear Ms. Hickman:

The following is San Clemente Rancho's response to your initial study. We feel it is necessary to comment on the listed impacts and their findings that we don't agree with, some of the developers consultant reports that the listed impacts are based on do not accurately portray the true impacts of the project. Please feel free to contact me if you need further information.

A-106

5. EARTH

5.1 MUST READ YES. You can not tell me that building many miles of roads through topography in excess of 30% will not result in an increase in landslide activity. No matter how much shoring and revegetation is called for, the slopes will become more unstable. I can show you many examples of this through out the County if you would like.

5.2 MUST READ YES. Again with the construction of up to one hundred miles of roads and driveways, along with 969 acres under building envelopes, 121 acres used under hotels, 14 acres under the Commercial areas, and 382 acres manipulated for recreation, there will be severe disruption, displacement(an estimated 425,000 cu. yds), compaction and over covering of soils! If this isn't a significant impact then what in the world is?

5.3 MUST READ YES. 425,000 cu. yds. of earth excavated won't change the topography? Digging a sewage treatment holding pond covering 3 acres won't change surface relief? How about the nine Quarries? the hundred miles of roads?, the 350 house pads?

5.4 MUST READ POTENTIAL. Until we know the location of all the quarries, this impact can't be fully determined. It has the potential for impact because rock features are inherent with quarries, and once they are mined these existing features get stripped away.

5.6 MUST READ YES. On page 5A-29 of County EIR 87-013 rightly classifies this impact as significant. The Project Developer responded not to argue that sedimentation occurs or will continue to occur, but only which reservoir the sedimentation will take place in, they claim it will pass out at "DORMODY RESERVOIR" and not reach San

Clemente Dam. But in any event the project will change the sedimentation pattern, and increase it to our lake so the impact must rightly be yes.

5.7 MUST READ YES. Our family has lived in the region for over 60 years, and has daily experience of the Rancho San Carlos for the last 34 years. We are all very experienced with earth moving and development projects. We can say with the upmost of confidence that as proposed the Preserve represents a direct hazard to San Clemente Rancho. The topography mixed with the local Climate when disrupted, for example in the Long Ridge potion of the Preserve, will lead will lead to landslides, mudslides, ground failure, debris flows, and floods down upon our San Clemente Rancho. This impact must be handled with the importance to life and property that it represents and the EIR must acknowledge our concerns.

AIR

6.2 MUST READ AT LEAST POTENTIAL. You can't tell us that a 70 stall equestrian center and a sewage treatment plant on a 100 degree day won't smell! Just drive Carmel Valley road any summer night in a convertible between the Village and the Grade and take a whiff, it's not too good. The Preserve's Equestrian facility will be about as large ass all those facilities along Carmel Valley Road combined!

WATER

7.1 MUST READ POTENTIAL. There is a strong probability that with the increase in rapid runoff the currents in the local streams will become more turbid and rapid. this could result in the stream increasing its sediment load to try to stabilize itself, which will cause it to cut into it's own banks, causing further erosion.

7.3 MUST READ POTENTIAL. With all the stream crossings with roads, mostly in the form of culvert, the creeks will become more channeled, and back up more with the potential to spill over their banks where they normally would not have and causing flood damage.

7.4 MUST READ POTENTIAL. Until the hydrology report is complete and accepted, where off-site impacts are shown not to occur, there is a definite possibility that the project could effect the level of Moore's Lake, Trout Lake on San Clemente Rancho, 5 private ponds along San Clemente Creek, and San Clemente Reservoir.

7.5 MUST READ YES. There is no doubt that the project as proposed will increase turbid flows in the local streams. The introduction of even a minor amount of nitrogen from septic systems or turf areas will create algae plumes which will in turn effect dissolved oxygen

7.6 MUST READ POTENTIAL. Even if the Hydrology report concludes that the project will not have an effect on ground water, surely removing 300 to 500 acre feet of

water from a dynamic system with a finite source(rainfall) will result in a alteration in the rate of flow of these groundwater's.

7.9 MUST READ POTENTIAL. There is a high probability that as a result of paving/compacting thousands of acres of lands as proposed with the *Preserve*, The potential exists for increased rapid runoff which could turn to flooding in the many narrow canyons downstream of the project.

PLANT LIFE

8.1 MUST READ YES. Of course there will be a change in the number of any species of plants. There will be thousands of trees cut and not replaced on a comparable canopy cover or by weight/mass which results in only a fraction of one percent replaced compared to what currently exists. Hundreds of acres of grassland with wildflowers will be paved or built upon and there is no mitigation planned for this loss.

Redwoods: In this paragraph the initial study over confidently states that no redwood groves will be lost to development. The county must recognize that the local redwoods rely heavily on ground water. To date the developers have not proven that their proposed ground water pumping program will not lower existing water levels out of the redwoods shallow root zone, thus killing the redwoods. This likely scenario was played out in Carmel Valley when that aquifer was over pumped and the Cottonwoods, Alders and Willows all died.

The initial study is incorrect in believing the Forest Management Plan report when it projects the removal of 1,480 trees. First of all these are trees in excess of a certain diameter(six inches) many tree species take dozens of years to reach this size (Bay, Valley Oak, Madrone, Maple) and have a tremendously long life expectancy(many hundreds of years). This is not an indicative number of trees cut down. Second many roads, driveways and building sites have been left off their report. According to the developer, not one tree will be removed from changing and widening Dormody Road.

ANIMAL LIFE

9.1 THROUGH 9.4 MUST ALL READ YES. For example take Mountain Lions. The Preserve and surrounding properties currently have many Mountain Lions. They do not seem to be afraid of humans. Over the past several months there has been three lion kills close to the main house on San Clemente Rancho. The most recent (last week) was less then fifty feet away from the closest bedroom, in the family orchard! If the Preserve is built as proposed, housing will be constructed deep into the lion's habitats. These lions will either move out of the area, or more likely have to be removed as home owners become nervous over the safety of their pets, children and livestock. 9.3 must read yes because with the introduction of at least 350 dogs to the property (some homes will likely have

more than one dog) that they will not chase, bark, harass, etc. the local deer population, which is reported in the Biologic Report as being the healthiest, densest herd in the area.

The initial study is incorrect in assuming that there will be no significant impacts to the Tiger Salamander, Red-legged Frog, Golden Eagles and other endangered species. Wetlands will be lost to development, runoff altered to local streams and ponds, which will change the existing aquatic habitats. Fields will be paved or changed to turf, eliminating hunting/foraging habitat for the Eagles. This will result in significant impacts to these species and must be addressed.

ENERGY

11.1 MUST READ POTENTIAL. With at least 39 new, deep, low volume wells being placed into round the clock service, the local electrical demand will dramatically increase. This in addition to at least 500 new building units, and hundreds of street lights being placed into service. If this doesn't place a demand on the electrical service then what does qualify?

LAND USE

12.1 MUST READ YES. Changing a field that for the last hundred years has been used for grazing to a golf course is not significant(lot 265)? Changing a defacto wilderness area to housing development(lots 104 - 117) is not significant? Come on Monterey County, list these impacts as they really exist.

TRANSPORTATION

15.3 MUST READ YES. Cal Trans as a COMPROMISE agreed with the 1 unit per 160 acres, otherwise the impact of any development would be too great. They wrote to Monterey County on May 26, 1992, and reported, "Until the Hatton Canyon Project is in place, the present road network can not accept the additional traffic that would be created by the Rancho San Carlos development. **EVEN THE MOST MODIFIED ALTERNATIVE WILL HAVE A SERIOUS IMPACT ON HIGHWAY ONE AT CARMEL HILL.**" Doesn't the County read its' mail? Or would the County rather believe the Developer then the State?

15.6 MUST READ YES. There has already been a significant increase in accidents to the local traffic scene. The design changes to the intersection of Carmel Valley Road and Rancho San Carlos Rd. have greatly increased the amount of accidents at this site at a tremendous cost to the community. This impact will only increase as the amount of traffic is increased at this intersection.

The initial Study then goes on to describe Robinson Canyon Road. The County claims that it ranges from 16 to 22 feet wide. This is after San Clemente Rancho took County staff on field trips and physically showed that in many, many areas the road is only 13 feet wide, far from a two lane road. There are three cattle guards and a bridge that only have 9.5 feet of width. Figure 8 of the developers traffic report clearly shows that the project will increase traffic on Robinson Canyon road (in a section only 13 feet wide) from a existing peak level of 10 cars per hour to 116. Fully eleven times as much traffic. This is a major, significant impact that must be addressed in the County's scope of work. Despite what the developer and the County thinks, Robinson Canyon road, with its much shorter distance and driving time (14 minutes) to Camel Valley Road will be used to a significant level by this development.

UTILITIES

17.1 MUST READ YES. Approximately 90% of the *Preserve* currently has zero utility service. There will be major improvements, extensions, construction of services required to provide utilities to the project.

NOISE

18.2 MUST READ YES. Currently the developer is proposing a onsite rock crusher and a portable asphalt plant. These are extremely noisy facilities and their impacts must be assessed.

FEASIBLE PROJECT ALTERNATIVES

We believe another alternative option that needs to be discussed in the EIR in order to reduce the projects impacts is; Alternative site/construction locations. For example if Development on the Long Ridge portion of the Preserve is too environmentally damaging, suggest moving the lots to other, less sensitive regions of the property.

These are our concerns and additions to date with the Initial Study. Being that the application is still incomplete, and more information is needed, new concerns may arise at a later date. We feel since the County is requesting our reasons/explanations for these suggested changes we in response request that the County comment in writing to this letter on items where the County does not agree our specific changes, and their reasons for so doing, before the EIR contract is put to bid. Thank you for the opportunity to comment.

Sincerely,

Bruce Dorinody
San Clemente Rancho

PATRICK L. DORMODY
7076 Valley Greens Circle
Carmel, California 93923

September 29, 1994

Monterey County
Planning & Building Inspection Dept.
c/o Wanda Hickman, Associate Planner
P.O. Box 1208
Salinas, CA 93902

Subject: **Santa Lucia Preserve (EIR 94-005)**

Dear Ms. Hickman:

A-109

m an owner of property off Robinson Canyon Road. The property is four tenths 4) of a mile from the entrance to White Rock Gun Club and is adjacent to ncho San Carlos to the south at an elevation of 2,200 feet. I travel Robinson nyon Road several times each week.

This property overlooks the following areas of Rancho San Carlos (VIEW SHED):

1. San Francisquito Flats *
2. Long Ridge *
3. Chamisal Ridge *
4. Robinson Canyon Road
5. San Clemente Ridge *
6. Las Garzas Creek *
7. Rancho San Carlos - complex and lakes *
8. Pinyon Peak
9. Mesa
10. Vasquez Knob

* These areas are being planned as Rancho San Carlos' major development points, *i.e.*, hotel, golf courses, recreation, commercial, residential, roads, water storage tanks, employee housing, etc.

The expansive views of these unspoiled lands from my property will be devastated with any development. This is a significant and sensitive issue to me.

I can see across Monterey Bay to Santa Cruz. On a day when the temperature and wind conditions are just right, I can see the crest of the Sierra Nevada Mountains.

I have never been asked by any of the Rancho San Carlos Partnerships or any of their many consultants as to my concerns and the impact of their project on my property.

5. **EARTH**

5.1 ***YES on SIGNIFICANT IMPACT***

In periods of excess rains, slides have occurred throughout the San Carlos Ranch, closing existing roads and causing heavy silting in the creeks and canyons. Landslides are visible. Additional roads and building site excavation will cause more of this. Earthquakes will also contribute to unstable earth.

Robinson Canyon Road is subject to closure in times of bad weather, fire conditions, slides, wash-outs, fallen trees, flooding, snow, ice, culvert washouts, to mention a few problems that have occurred. Road and traffic records should show that travel has been stopped for days while repairs were made. Some residents of White rock were flown out by helicopter, others walked out.

5.2 ***YES on SIGNIFICANT IMPACT***

Covering of existing earth surfaces with topsoil, for example, golf course and landscaping will alter existing earth. Road building, excavation, campaction, and road base materials, including oil, will have a significant impact.

5.3 ***YES on SIGNIFICANT IMPACT***

I've been told that as much as 9,000 truck loads of decomposed granite will be mined for road construction directly across from my property. This will change the topography – the taking down of a whole mountain side. I don't know the locations of the other eight quarries at this time but moving 425,000 cubic yards of various rock will certainly have an impact on the topography.

5.4 ***YES on SIGNIFICANT IMPACT***

Covering existing earth with cement, blacktop, oils, placing of culverts, curbs, rip-rap, will change the topography and physical features.

5.6 ***YES on SIGNIFICANT IMPACT***

Silting of creeks, waterway and run off in canyons, will increase silting and have an adverse effect on plant and fish life.

5.7 ***YES on SIGNIFICANT IMPACT***

The mining of large quantities of granite as mentioned in 5.3, two hundred (estimated) yards from my property could cause landslides and unstable conditions on my property due to the steep terrain. San Clemente creek and its various tributaries form in this area.

A-110

AIR

6.2 ***YES on SIGNIFICANT IMPACT***

My property is located at 2,200 foot elevation. San Francisquito Flats where the major development (town) is planned is at an elevation of 1,700 feet.

From my vista point I am concerned that smoke from the town's inns, lodge, hotel, bungalows, restaurants and houses will have a negative effect in the area. The sewage treatment plant, equestrian facilities and service center are directly visible from my property. San Francisquito Flats is in a bowl-like setting. My property lies south and directly above this bowl. At times the bowl is covered with fog, while the areas around its perimeter are clear (dead air pocket). This must be checked because it could cause serious breathing problems (poor air quality, *i.e.*, smoke, carbon monoxide, dust, etc.

6.3 ***POT on SIGNIFICANT IMPACT***

I HAVE NEVER BEEN CONSULTED ON ANY OF THEIR AIR QUALITY

STUDIES, YET I COULD BE THE MOST AFFECTED BY THIS PROJECT. I know I'll be affected by carbon monoxide, dust, portable asphalt batch plant fumes, and smoke from controlled burning, and smoke from buildings mentioned in 6.2.

7. WATER

7.1 ***YES on SIGNIFICANT IMPACT***

Excessive downpours have caused washouts in many normally dry ravines, washing out or covering the Robinson Canyon Road in many spots. I know and can point out these areas. Culverts became clogged, and size of culverts restricted the flow of water. Erosion then becomes more severe.

7.3 ***POT on SIGNIFICANT IMPACT***

Many hundreds of new culverts will have to be installed and continually checked during inclement weather. Clogged culverts cause flooding and washouts. With the construction of many miles of roads and paving of existing dirt roads, rapid run-off leads to flooding, for example, Potrero Canyon Creek.

7.4 ***YES on SIGNIFICANT IMPACT***

My primary residence is 120 yards to the East of Rancho San Carlos Road just across Potrero Creek on the Carmel Valley Golf and Country Club's sixth fairway. The house faces directly West to Rancho San Carlos Road.

Potrero Creek runs directly in front of my residence and is on my property line, and only 20 yards from the house.

In periods of severe weather flash flooding occurs in the creek. Signs of erosion on the creek banks are evident in many places.

In periods of high water in the Carmel River, it is impossible for Potrero Creek to empty into the Carmel River. Flooding occurs when water backs up on the golf course; flooding of Valley Greens Circle takes place and many houses are completely surrounded by water,

while the road becomes too deep to travel. Many houses on Valley Greens Circle are already in the 100 year flood plain.

Won't any development in the Potrero Canyon drainage further increase the danger of flooding downstream to the residents on the Creek and Valley Greens Circle?

7.6 *YES on SIGNIFICANT IMPACT*

Water on my Robinson Canyon property comes from a spring. I am concerned with the close proximity of many wells that Rancho San Carlos has drilled on the flat land below me (as the crow flies 3 to 4 hundred yards). Pumping of ground water from these wells could have an adverse effect on my spring water supply. Can I be assured it will not? And what if ...?

A-111

ANIMAL LIFE

9.1, 9.2, 9.3, 9.4

YES on SIGNIFICANT IMPACT

Restrictions must be applied for dogs and cats living on the property. They cannot be allowed to roam free and chase the wild life. Right now (9/29/94) there is an extensive trapping, tagging and radio monitoring (collars) study being conducted on the Rancho San Carlos property with the wild pigs that inhabit the ranch.

SECTION 9 ~~ cannot be commented on with no mention of studies of this nature to the public and adjoining property owners.

If this study is the first step in eliminating the wild pigs from the property, because of the possibility for potential damage to golf course and landscaping projects, the public has a right to know. So the Section on Animal Life is incomplete.

15. TRANSPORTATION CIRCULATION

TRAFFIC:

Robinson Canyon Road is not a two (2) lane road as stated (error), the paving is only 12 ft. wide in places. There are three (3) narrow single way bridges, thirty (30) plus narrow blind turns, three (3) one-way cattle crossings. No two-way divider markings are painted on the road as it starts up the steep canyon. Autos, and trucks cannot pass on most of the road. An average 3,000 square foot home has a minimum of 13 autos and trucks at the site each day during construction.

No mention in your traffic report takes into account the number of sightseers that will be viewing the development each day from Robinson Canyon Road.

Peak hour vehicle trips in he traffic report are nothing more than total lunacy. When I built my residence off of Rancho San Carlos Road in 1986 there were not more than twenty vehicle trips per day on Rancho San Carlos Road (private road with locked gate). Today there are over 1,600. This report is nothing but rhetoric and not worth the paper it is written on.

The existing bridge that crosses the Carmel River was constructed in 1958/59 by ranch hands and their friends. The bridge was transported in sections (pieces) from Northern California and placed on concrete columns; the wooden decking was replaced with a concrete deck. The bridge was not constructed using licensed structural engineers. A sign on each side of the bridge designates a 15-ton vehicle weight limit which is not enforced. Trucks of all sizes, shapes and weight use the bridge. Automobiles have to back off the bridge when trucks and buses approach. The bridge is subject to major log jams in high water periods and has had to be closed while ranch personnel are called to remove logs and debris. At the present time a 12-inch diameter iron water line, electricity lines, T.V., and telephone lines have been attached to the bridge to serve the Quail Meadows project.

This bridge vibrates when autos and trucks cross (just stand underneath, listen and watch). The bridge moves under the weight of large and heavy trucks from one end to the other. Rancho San Carlos Bridge has no walking or bicycle lane. Now with the realignment and widening of rancho San Carlos Road on both sides

of the bridge and the entrance and exit changes at Carmel Valley Road, traffic to Rancho San Carlos, Carmel Valley Racquet Club, Quail Meadows Development, Carmel Valley Golf and Country Club, plus sightseers, construction workers, events and guests to all these places – Rancho San Carlos Road has been transformed from a one lane private ranch road to a major public thoroughfare. The bridge is 18 feet wide and the road and approach to the bridge are 24 feet wide. This is a significant issue of public safety. The Rancho San Carlos Bridge over the Carmel River must meet all the criteria for earthquake standards for bridges (the concrete decking is cracked in all directions).

Why is Rancho San Carlos Road still designated a private road? Who has the jurisdiction for enforcing traffic laws on Rancho San Carlos Road and Bridge? Who are the persons, County and State, responsible for inspecting the structural safety of the bridge?

A-112

PUBLIC SERVICES

16.1 FIRE

There have been many major and small fires on Rancho San Carlos property. Listed are some of these fires:

1. One wing of main hacienda (guest wing) burns down.
2. Wild land fire consumes several thousand acres from Devil's Peak in National Forest north to White Rock Gun Club, west to Palo Colorado Canyon and east over Rancho San Carlos lands to what is now Dormody Road.
3. Wild land fire San Clemente Flats.
4. Main barn burns down.
5. Brush fires in Potrero Canyon.
6. Recent grass fire started by well drillers.
7. Grass fire started by defective grass mower by dairy building.

The problem of fire suppression and protection has not been adequately addressed. As an adjoining property owner, I am greatly concerned that with all the proposed increased activity associated with this monumental development project, the chances of wildland fires are more apt to occur. It therefore is incumbent on the owners and developers of the Santa Lucia Preserve to have in place a well trained full-time fire department for fighting wild land and structural fires before any construction can start. The response time for the California Division of Forestry is not acceptable especially for structure fires -- response time just to arrive on Rancho San Carlos property is twenty minutes (CDF verifies this).

A make up of ranch hands and construction workers is not the answer to putting out fires. Also, an evacuation plan of residence and workers must be written and practiced in case of fire, for example: Robinson Canyon Road cut-off -- people from White Rock, San Clemente Ranch and other property owners must be allowed to evacuate using Rancho San Carlos Road.

NOTE:

It is difficult to be objective in analyzing and commenting on any one topic when it is obvious that consultants' reports are slanted towards the project's developers. The reports are incomplete, not accurate, factual and contain misleading information.

The Monterey County Planning Department should be required to review all project plans and reports for accuracy and completeness before releasing them for public comments. There are many distorted facts.

The *what ifs?* need to be more clearly answered, and list the contingency plans.

There appears to be no marketing analysis for this project. This is a most significant topic that must be stated in the EIR.

This concludes my scoping on some of the issues that undoubtedly will be covered in more detail and included in the project EIR.

Sincerely,

Patrick L. Dormody

SIERRA CLUB

VENTANA CHAPTER
P.O. Box 5667 Carmel, California 93192 408 • 624 • [illegible]

Monterey County Planning Department
Ms Wanda Hickman

re: RSC/
Santa Lucia Preserve Scoping

10-10-94

Dear Ms Hickman;

Thanks for the opportunity to comment.

A-113

The Ventana Chapter has many concerns about this development, as you may imagine. A great many of those concerns have been addressed by other parties; we won't attempt to repeat them, for which I'm sure you'll be grateful.

We'd like to see addressed the issue of why the plan does not cover the entire ranch, as specified by the Board of Supervisors in its resolution. This is not a comprehensive plan and we'd like to know why it is not.

What will be the allowable uses of the private "open space," the parts of the lots which are privately owned, yet count toward the "Preserve?" What are the impacts of those uses?

We wonder about the impacts on views from Garland Ranch, an important public viewing place. What will be the impacts of development of the Rancho on the quality of experience of Garland Ranch?

We want to be certain that the EIR addresses the issue of cumulative impacts very precisely. There will be, for example, a significant new development at the foot of Garzas Canyon, Veeder Ranch. There are ambitious uses for the Little Horse Ranch being speculated. What will be the impacts of development of the Rancho if all or many of the other developments in the vicinity also come about?

What are the impacts of the lack of a trail plan, and the very limited, restricted public access planned?

There are a lot of mountain lions now visible on the Rancho. What will be the impacts to the lion population when the Rancho is developed?

We have the same concerns for bobcats, owls and other shy animals. What will be the impacts on those?

Getting back to the lack of comprehensive plan, can the developers later sell the portions not developed, the Coastal Zone and Carmel Valley portions, and lose the restrictions imposed by the "Comprehensive Development Plan" and the Board of Supervisors? If so, what are the impacts?

If the development is phased, will the implementation of the "Preserve" also be phased? What are the impacts?

What are the specifics of the impact to life on Robinson Canyon road. How much traffic will there really be on that road?

For further communication on this matter, please call me at 899-2089, fax me at 393 0449, or write me at PO Box 422, Pacific Grove, Ca 93950. Once again, thank you.

Sincerely,

Don Gruber

Don Gruber, Chair

Notice of Preparation for the Combined Development Permit for the Golf Trail (PC94218)

MONTEREY COUNTY

PLANNING AND BUILDING INSPECTION DEPARTMENT
P.O. BOX 1208 SALINAS, CALIFORNIA 93902 (408) 755-5025

ROBERT SLIMMON, JR.
DIRECTOR OF PLANNING AND BUILDING INSPECTION

February 7, 1995

Notice of Preparation

Dear Sir/Madam:

In August 1994, the County of Monterey circulated a Notice of Preparation (NOP) of an Environmental Impact Report (EIR) analyzing the application for the Santa Lucia Preserve Project (EIR #94-05) to allow a Combined Development Permit on 20,000 acres known as Rancho San Carlos.

This Notice of Preparation addresses a separate use permit application recently submitted by the Rancho San Carlos Partnership for a golf trail project to be developed as part of the Santa Lucia Preserve (PC94218). The Santa Lucia Preserve EIR# 94-05 will analyze the golf trail as described in the attached initial study, along with the entire Combined Development Permit for the Santa Lucia Preserve. The scope of work for the Combined Development Permit has already been finalized, the consultant is under contract and the draft EIR is in preparation. The purpose of the Notice of Preparation is to determine only if there are additional issues relating to the golf trail application that should be added to the existing scope of work for EIR #94-05 in order to adequately review both projects concurrently. The attached initial study and draft Scope of Work for the Santa Lucia Preserve Golf Trail describes the focus of analysis for the golf trail permit discussion in the EIR.

If you wish to have additional issues relating to the golf trail discussed in the EIR, please submit your comments in writing within 30 days of receipt of this letter. Your response must include reasons why this information is necessary, and why the existing scope of work does not already address the issue.

A project description and location map are included in the initial study. If you need more information, please contact us.

If we do not hear from you within 30 days we will assume that you agree with the County's proposal regarding EIR. Thank you.

Sincerely,

Wanda A. Hickman, Associate Planner

Attachments: Initial Study for Golf Trail Application
Scope of Work for the Santa Lucia Preserve Golf Trail

POTENTIAL OR YES QUESTIONS

5. EARTH

5.2, 5.3, 5.5, 5.6, 5.7
Erosion, Siltation - Golf Trail
Seismic STDS - Clubhouse

6. AIR

6.1 Fugitive Dust, Wind Erosion

7. WATER

7.2, 7.3, 7.5, 7.7, 7.8
Focus on clubhouse drainage, water use, golf trail changes to runoff; amount quality location, water use (possible interception of water supply).

8 PLANT LIFE

8.1, 8.2, 8.3
Plant communities, native replacement greens and tees, irrigation (impact on oaks).

9. ANIMAL LIFE

9.1, 9.2, 9.3, 9.4
Discuss impact of construction and subsequent management of golf trail on rodents (burrowing), impact on food chain and management of feral pigs and deer on vegetation related to replantings.

15. TRANSPORTATION/CIRCULATION

15.1, 15.2, 15.6
Circulation pattern, parking requirement, address access to golf trail clubhouse and discuss hours of operation and trips generated also whether or not tournaments will be held and, if so, how traffic will impact local roads and/or be Mitigated.

16. PUBLIC SERVICES

Fire 16.1
Police 16.2
Schools -
Park or Recreation Facilities -
Maintenance of Roads 16.5
Other Government Services .6

18. NOISE

18.1
Address construction noise, hours of operation, Days? duration (Days? Months?)

19. HAZARDS/HUMAN HEALTH

19.1
Review golf course and clubhouse chemical applications. where do they go? how soon do they breakdown? could they impact air or water quality or drain off site?

20. AESTHETICS

20.1
Review siting of the clubhouse against County policies for ridgeline development from a common public viewing area (Robinson Canyon Road). Discuss alternative siting and mention impacts of different sites (use alternatives Section of EIR 94-05).

21 CULTURAL RESOURCES (Add numbers to existing EIR cultural Resources Section)

21.1 21.2, 2.3
Discuss existing Archaeological reports and reported resources. Will the potential impacts to Archaeological site(s) be adequately mitigated? what mitigation measures would be applied as conditions? what ongoing monitoring is necessary?

22. CUMULATIVE IMPACT

ON-SITE Cumulative discussion should include impact of land area utilized by people with/without golf course, include water, open space traffic issues. Off site should address water, drainage, traffic issues.

23 ALTERNATIVES

"Alternatives" discussion should include 1) siting of clubhouse 2) potential "events" use of the course (trail) and clubhouse for awards ceremonies, special events, weddings etc. 3) slight adjustments for mitigation a) avoidance of archeological sites b) to reduce grading (the alternatives Section should discuss background for choosing this area for the golf trail and clubhouse over other areas) move to first sentences under alternatives.

DRAFT

SCOPE OF WORK FOR THE SANTA LUCIA PRESERVE
SANTA LUCIA PRESERVE
GOLF TRAIL (PC94218)

This scope addresses a separate Combined Development Permit application recently submitted by the Rancho San Carlos Partnership for a golf trail project to be developed as part of the Santa Lucia Preserve. The Santa Lucia Preserve EIR #(94-005) will analyze the golf trail as described in the attached initial study, along with the entire Combined Development Permit for the Santa Lucia Preserve. The scope of work for the Combined Development Permit has already been finalized, the consultant is under contract and the Draft Environmental Impact Report is in preparation. The purpose of circulating the Notice of Preparation and Scope of Work is to determine only if there are additional issues relating to the golf trail application that should be added to the existing scope of work for Environmental Impact Report (EIR) #94-005 in order to adequately review both projects concurrently. The following Scope describes the focus of analysis for the golf trail permit portion of the EIR. Many of these issues are already identified and included in the existing scope of work for the Santa Lucia Preserve Combined Development Permit (PC94067).

Utilize existing information from reports prepared for the Santa Lucia Preserve Project Combined Development Permit (PC94067) and the reports prepared for the Combined Development Permit for the Golf Trail Combined Development Permit.

1. GEOLOGY

___ Utilize the existing report prepared by Cleary consultants dated October 26, 1994. This report shall be summarized and major point emphasized within the format of the EIR. Reference the report as an appendix to the Environmental Impact Report.

Setting - Description - Impacts

___ Describe ground and surface water conditions, natural variations, and their impact on geologic conditions. Describe possible or probable changes in ground/surface water hydrology and subsequent geologic changes caused by completion/construction of the project.

- Introduction of irrigation water to groundwater system.
- Alterations in surface water flow patterns.

___ Discuss the maximum credible earthquake in the area to include the subsequent seismic forces and resulting possible damage.(include the clubhouse and drainage dams or water storage facilities for the golf trail.

X Describe impacts from project siting, design, landscaping, drainage, grading and construction practices with regards to geologic stability of the project site.

X Discuss erosion and the project site to include existing and possible/probable future conditions on/off site because of conditions relating to site development or natural causes.

X - Identifies items which are already included in existing Scope of Work for EIR 94-005.

Mitigation Measures-Geology

___ Suggest best engineering practices to protect structures during a maximum credible earthquake.

___ Provide measures to alleviate erosion caused by completion or construction of the project on/offsite. Examples might include:

- Best Management Practices during construction.
- Landscaping and both on/offsite drainage improvements.
- Other possible recommended mitigation measures.

Responsible/Concerned Agencies-Institutions
California State Resources Agency-
Division of Mines and Geology
United States Geological Service
Monterey County Department of Environmental Health

2. SOILS

Description, Setting, Impacts

___ Utilize existing soils report prepared by Bestor Engineers and Sage Associates, describe the soils and their limitations for development on the project site, including expansive soils as noted in the geologic report. Reference the report as an appendix to the Environmental Impact Report.

___ Review and summarize the existing Erosion Control Plan prepared by Sage Associates and reference the report as an appendix to the Environmental Impact Report. (See Appendix section for Erosion Control Plan-minimum requirements.)

___ Discuss the potential erosion and drainage impacts from the proposed development.

___ Discuss the amount of land disturbance or bare ground created or reduced as a result of the proposed development.

___ Discuss whether the project is located in a Watershed Restoration Area and the particular impacts associated with this sensitive environment.

Mitigation Measures - Soils

___ Consult the "Erosion Control Plan" in the appendix to identify specific mitigation measures for the project.

A summary of theses measures is provided below:

- Provide detailed plans for surface and sub-surface drainage devises.
- Provide measures to retain stormwater run-off resulting from a "20 year" occurrence.
- Provide site management including landscape and revegetation plans. Include monitoring programs to ensure the long-term success of these plans.

_ Discuss different methods of erosion control for the site including grading techniques, landscaping techniques and site planning techniques.

X Require maintenance of landscaping (PD13).

X Require cut/fill slopes to be preserved through coverage, seeding to control erosion during construction (PD14).

X Require restoration of natural materials per approved plan (PD 18).

X Provide for restoration/clean up of, and or contingency plans for soil contamination for construction or maintenance of project.

Responsible/Concerned Agencies-Institutions

California Department of Conservation
USDA Soil Conservation Service
Monterey County Department of Environmental Health

3. AIR QUALITY

Description, Setting, Impacts

X Discuss construction phase emissions including dust, construction worker traffic, and exhaust from heavy duty gasoline and diesel powered vehicles. Source: Air Pollution Emissions Factors Manual AP 42 - U.S. EPA September 1988.

___ Discuss spray application of fertilizer and pesticides to the golf trail.

X Discuss airborne hazardous or toxic pollutants expected to be generated by the project. MBUAPCD Rule 1000 permit guidelines and requirements for sources emitting toxic air contaminates shall be consulted for standards and possible mitigation measures.

Mitigation Measures - Air Quality

X The EIR shall identify those mitigation measures necessary to reduce significant air quality impacts to an acceptable level.

Responsible/Concerned Agencies-Institutions

Environmental Protection Agency
California State Air Resources Board
Monterey Bay Unified Air Pollution Control District
Monterey County Department of Environmental Health

4. HYDROLOGY

X In the following assessment and analysis of hydrology include both surface and sub-surface conditions. Be sure to describe their relationship separately and together and how an impact to one may be a direct/indirect impact to the other surface and subsurface streams, steeps, streams, springs underflow and groundwater.

X Discuss consistency with the Greater Monterey Peninsula Area Plan Resolution 94-115.

Description, Setting, Impacts

___ Utilize the Comprehensive Hydrological Study, Supplements thereto, and comments from the third party review, summarize and analyze; the project's description, conclusions of the hydrological information submitted, localized impacts, off-site impacts, and the following:

X Describe the hydrologic setting and drainage system to include cultivated/non-cultivated areas.

X Describe the regional source of water for the project and how it is supplied to the site.

X Provide an assessment of existing and proposed water usage. Divide usage among landscaping, fireflow requirements and domestic/commercial/agriculture use.

X Indicate the amount of run-off to be generated by the project and the methods of onsite/offsite collection.

X Recognize cumulative impacts created by this project and other similar projects that intensify ground or surface water use.

Mitigation Measures - Hydrology

X Provide recommendations from the hydrologic report concerning water conservation measures to include water reclamation and retention methods.

X Submit plans for hydrology/drainage improvements to the Director of Environmental Health for review and approval. All improvements shall comply with Chapter 15.20 Monterey County Code and the Basin Plan, RWQCB.

Responsible/Concerned Agencies/Institutions

Monterey County Water Resources Agency
Association of Monterey Bay Area Governments
Monterey Peninsula Water Management District
California Regional Water Quality Control Board
Monterey County Health Department

5. WATER QUALITY

___ Utilize existing studies available from the Monterey County Water Resources Agency, Environmental Health Division and supplemental Water Quality Protection Plan prepared by Balance Hydrologic, Camp Dresser & Mc Kee Inc., Luhdorff & Scalmanini Consulting Engineers dated December 1994. The results and conclusions of the studies shall be summarized and major points emphasized within the format of the EIR.

Description, Setting, Impacts

X Describe the quality and quantity of wastewater and/or sewage discharged by the proposed project. Quantity figures should include both daily average and peak wastewater/sewage flows. Quality figures should include estimated nitrate concentrations, and all other constituents as determined by the Division of Environmental Health and the RWQCB.

X Briefly describe the method of disposal, i.e.

X Identify any aquifer recharge areas in the project's vicinity.

X Identify and discuss all existing and future sources of nitrate loading within the study area.

X Examine and document any ground/surface water studies in the project area and highlight conclusions or recommendations.

X Describe the relationship between surface water quality and ground water quality, include the proposed golf course.

X Determine the potential for surface water contaminants to enter aquifers in the vicinity of the proposed development area.

Mitigation Measures-Water Quality

___ Identify methods of treatment of drainage or sewage that will bring water quality to acceptable levels to re-enter aquifers. Consult the Health Department to set and identify water quality standards for the project.

Responsible/Concerned Agencies-Institutions

Monterey County Water Resources Agency
Monterey Peninsula Water Conservation District
California State Department of Resources
Monterey Regional Water Pollution Control Agency
California Regional Water Quality Control Board
Monterey County Department of Environmental Health

6.& 7. PLANT LIFE/ANIMAL LIFE

Description, Setting, Impacts

___ Review and incorporate the Special - Status Biological Resources Report prepared for the project by Biosystems Analysis, Inc. dated November 1994 and the Forest Management Plan prepared by Ralph Osterling Consultants, Inc. dated November 1994. These studies shall be summarized and major points emphasized with the format of the EIR. Reference the report as an appendix to the Environment Impact Report.

X Describe the surrounding affected plant/wildlife environments. Describe any supporting environments that may be affected by the project including wildlife, fisheries, and climate.

___ Describe the native/non-native trees affected by the project and describe specific impacts.

Mitigation Measures-Plant Life/Animal Life

X Provide a mitigation program for Plant Life/Animal Life based on assessments and recommendations contained in the Biological Report/Wetlands and Forest Management Plan, all impact analysis and landscape criteria, regulations, and standards for the particular planning area and region.

Responsible/Concerned Agencies-Institutions

U.S. Fish and Wildlife
California State Department of Fish and Game
California Native Plant Society
United States Army Corp of Engineers
California State Lands Commission

8. NATURAL RESOURCES

Description, Setting, Impacts

X Describe the project in terms of those natural resources whose use or long term availability will be impaired by the placement of the project.

X Describe the natural resources impacted, and the availability of that resource either locally or nationally.

X Develop alternatives for the project to avoid use or coverage of valuable natural resources.

Responsible/Concerned Agencies-Institutions

9. ENERGY

Description, Setting, Impacts

___ Discuss the energy requirements of the particular project.

Mitigation Measures-Energy

X Mitigation measures for the project should include site specific and management methods to decrease energy consumption. Examples might include:

- Project siting for increased efficiency in energy consumption for heating and cooling.
- Landscaping methods to conserve heating and cooling energy.
- Use of building materials and techniques to increase building energy efficiency.
- Providing alternative transportation methods for the project to lessen fuel consumption.

Responsible/Concerned Agencies-Institutions

Pacific Gas and Electric

10. LAND USE

Description, Setting, Impacts

___ Describe the project in the following terms:

- Existing land use designation
- Change in land use designation to accommodate the project.
- Existing zoning designation
- Change in the existing zoning designation to accommodate the project.

___ Discuss how the project will affect adjacent land uses:

___ Describe conflicting uses of the project compared to the surrounding area.

___ Describe long term impacts on surrounding uses and changes in surrounding uses that may be anticipated by project approval.

Mitigation Measures-Land Use

___ Discuss alterations in project plans, specifications and daily operations, or added measures that would make the project more complementary to the surrounding land use.

Responsible/Concerned Agencies-Institutions

Monterey County Planning and Building Inspection Department
Monterey County Local Agency Formation Commission

11. TRANSPORTATION/CIRCULATION/TRAFFIC ANALYSIS

Description, Setting, Impacts

___ Review and incorporate the traffic report prepared for the project by Dowling Associates dated December 1994. This report shall be summarized and major points emphasized with the format of the EIR. Reference the report as an appendix to the Environmental Impact Report.

X Discuss transportation and circulation both separately and collectively when assessing project impacts. Most projects have some significant impacts on transportation or circulation aspects of environment. Be sure to include a comprehensive evaluation of these important issues.

X Describe project consistency with the Monterey County Agency Congestion Management Program (CMP) to include conflicts and impacts. The project must be reviewed for its Level of Service (LOS) impacts on the CMP network. The Impact Area of a project would include all impacted CMP segments and all arterials and collector streets to freeway interchanges or other Impact Areas as directed by future fee ordinances, assessment districts, or the County Public Works Department.

Circulation - Traffic Analysis

X Describe how the project will affect the circulation system in terms of either a Site Specific or Program project.

X Identify interior circulation and parking design, including pedestrian and bike facilities.

X Describe existing and proposed uses for the site.

X Define the "Impact Area" through consultation with the traffic engineer for the Monterey County Department of Public Works using the following criteria:

- The "Area" should include all surrounding arterial streets, including those not necessarily contiguous to the project site, which extends to include the nearest interchanges.

- Include critical intersections operating at LOS C or below which will be impacted by the project.

X The defined "Impact Area" shall be described and evaluated using the following criteria:

The description shall include:

- Existing annual average daily trip counts.
- Peak Hour volumes.
- Volume to capacity ratios.
- Level of service.

X The descriptive data shall be supplied for roadways within the "Impact Area" as predetermined by consultation with the County Traffic Engineer. These may include:

- All arterial streets.
- Impacted connector streets.
- Local streets.
- Critical intersections.
- Interchanges and State Highways

Other descriptive information that should be included:

- Traffic control devises.
- Transit services-routes, schedules, facilities.
- Bicycle facilities, bikeways, parking facilities.
- Pedestrian facilities, sidewalks, and paths.

X Using the above descriptive information, develop the following descriptive analysis:

X **Travel Demand and Trip Generation**

Estimate the increase in travel demand by model split with trip generation for proposed project according to:

- Present land-use category.
- Buildout for land-use category for both daily and peak hour conditions.

***NOTE: Model splits shall be approved by the Monterey County Traffic Engineer.

Provide trip generation rates and sources. (Acceptable sources are Cal-Trans Studies and ITE Studies)

Provide a summary table: "Travel Demand and Trip Generation", that indicates the following:

*Trip generation by each type of Land-use.
*The units involved.
*Total daily A.M.-P.M. peaks,
*Rates used.

X Trip Distribution

Estimate the existing distribution of trips from the "Impact Area" to the surrounding region using maps showing the impact area boundary, affected intersections, and directions of trip distributions.

Estimate the effect of the proposed development on trip distribution for the "Impact Area " and the surrounding region, and distribute trips generated from the proposal over the existing distribution of trips by travel mode.

X Trip Assignment

Assign proposed trips(typical 24 hour, AM Peak, And P.M. Peak) to existing circulation system. Include the proposed changes to the existing system identified by the Public Works Department.

Present results on maps showing the project site, impact area boundary, and affected intersections.

X **Traffic Impact Evaluation**

A thorough evaluation shall be provided indicating the impacts of the proposed development on the circulation system using the previous descriptive information and by providing the following items analysis:

- Show the existing street network utilizing current traffic volumes.
- Show future street network utilizing the 20 year traffic volume projection. (Derived through consultation with the Monterey County Traffic engineer)
- Evaluate all project site access points to the existing system.
- Estimate and evaluate the effect of increased ridership of transit and the effect on pedestrian and bicycle facilities.
- Analyze interior circulation and parking design for safety, circulation, and standards which should include the following:
- Review street geometry (turning radii, street width).
- Parking Areas (Design, size, number of spaces).
- Pedestrian and bicycle circulation.
- Deviations from County Standards.

Mitigation Measures-Transportation, Circulation

X Discuss methods to provide additional required transportation services because of increased demand from the approval of the project.

X Identify funding instruments either existing or needed to fund improvements to the transportation system to accommodate the new project.

X Identify transportation management measures to reduce travel demand. Make recommendations

X Identify measures to increase pedestrian, bicycle and transit travel and to lessen demand for auto travel space.

X Recommend measures/improvements to mitigate impacts of the proposed development to bring all locations within the "Impact Area" to Level of Service C or better.

X Identify locations where new traffic signals or other traffic control devices would be warranted, or recommend to mitigate impacts.

X Discuss the feasibility of implementing the various mitigations.

Responsible/Interested Agencies-Institutions

Monterey County Public Works Department
California Department of Transportation District 5
Association of Monterey Bay Area Governments

12. PUBLIC SERVICES

Description, Impacts, Mitigation Measures and Monitoring should only be assessed for those services for which the project may have some direct, indirect, or cumulative impacts.

DRAINAGE

Description, Setting, Impacts

___ Describe the existing and proposed drainage system for the project site, and if needed, the comprehensive areawide (adjacent and distant trunklines, pumping stations) drainage system including capacities and condition.

___ Show how the project will/will not impact the drainage system as a numerical increase in volume and as a percentage increase both compared to existing and future capacity of adjacent and downline trunklines and infrastructure.

Mitigation Measures-Drainage

___ Describe drainage system improvements needed to accommodate project related drainage.

___ Identify funding instruments either existing or needed to fund improvements to the drainage system to accommodate the new project.

Responsible/Interested Agencies-Institution

Monterey County Department of Public Works
Monterey County Water Resources Agency

WASTEWATER TREATMENT

___ **Review and incorporate the Comprehensive Wastewater Disposal Plan and the supplemental nitirogen loading study prepared for the project by Camp Dresser & McKee, Luhdorff and Scalmanini. This report shall be summarized and major points emphasized within the EIR. Reference the report as an appendix to the Environmental Impact Report.**

Description, Setting, Impacts

___ Describe the existing wastewater treatment system that serves the project site in terms of maximum capacity, existing demands, and future demands (with and without project).

___ Describe any physical improvements required for the project including expansions, enlargements, and appurtenant installations for both volume expansions and increased treatment levels.

___ Describe the existing/proposed wastewater system in terms of extent and type of wastewater treatment. Compare this treatment level to the specific treatment requirements of the State Department of Health Services, the RWQCB, and the Monterey County Health Department.

___ Describe any legal procedures and/or agreements necessary to facilitate treatment improvements and/or to serve the subject property such as: easements, service districts, Public Utilities Commission approval, incorporations, annexation procedures, spheres of influence, etc.

Mitigation - Wastewater Treatment

___ Water supply for makeup irrigation water, if any, over that available quantity of treated wastewater shall be adequately separated from domestic water supplies by appropriate backflow prevention devices. There shall be no cross-connection between the irrigation system and any domestic water system.

Responsible/Interested Agencies-Institution

Monterey County Division of Environmental Health
State Department of Health Services
California Regional Water Quality Control Board

WASTEWATER DISPOSAL

___ **Review and incorporate the Comprehensive Wastewater Disposal Plan and the supplemental nitirogen loading study prepared for the project by Camp Dresser & McKee, Luhdorff and Scalmanini. This report shall be summarized and major points emphasized within the EIR. Reference the report as an appendix to the Environmental Impact Report.**

Description, Setting, Impacts

X Submit a detailed soils and percolation testing report as approved by the Division of Environmental Health. Contact the Division prior to proceeding to determine the scope of work and oversee soil testing.

X Evaluate the soil types and percolation rates for potential groundwater contamination due to proximity to groundwater and/or waterways.

X Evaluate the existing disposal fields for size, capacity, location, and proposed utilization for the project. Describe the proposed projects impacts on the expansion and/or replacement of the system.

X Evaluate the use of a disposal system's potential constraints on the proposed project. Include:

- o Maximum discharges allowed by State and County regulations.
- o Maximum area available for disposal meeting State and County setback criteria.
- o Proposed drainage, hydrology, and grading improvements required for the project and subsequent disposal impacts.
- o Vegetation or tree removal necessitated by the system's installation.
- o Maximum allowed design rates and effluent loading rates.
- o Special buffer zones or setbacks from treatment facilities, disposal areas, and adjacent properties.

Mitigation - Wastewater Disposal

X Submit a detailed disposal system design(s) for review and approval including elevations, distribution systems, expansion areas, and traffic engineering as necessary.

X Describe alternative measures that can lessen adverse impacts associated with the approval of the projects disposal system, i.e., lower loading/design rates, alternative locations, shallow installations, alternative designs, etc.

X Wastewater shall not be permitted to flow, seep or drain into any natural waterway, pond or lake. A continuous program of rodent control and inspection of pond berms shall be maintained.

X All reclaimed wastewater for spraying or irrigation shall be maintained in the designated irrigation areas at all times.

X Appropriate mosquito control measures for the reservoir shall be designed in keeping with standard practices of mosquito abatement and control for open reservoirs.

X The storage pond and the reclaimed wastewater usage area shall be fenced and posted and not accessible to the public.

X The reclaimed wastewater irrigation application rate shall not exceed 10,000 gallons per acre per day. Adequate reserve area shall be maintained to allow for periodic rotation of irrigated areas.

X Install or bond the wastewater disposal improvements to and within the project area and any appurtenances needed. Submit final improvement designs and associated fees for review and approval prior to installation and/or bonding.

DOMESTIC/COMMERCIAL WATER DELIVERY SYSTEM

___ **Review and incorporate the supplemental water supply plan prepared for the project by Camp Dresser & McKee, Luhdorff and Scalmanini. This report shall be summarized and major points emphasized within the EIR. Reference the report as an appendix to the Environmental Impact Report.**

Description, Setting, Impacts

X Describe the existing water supply and delivery system to the project site including area wide aspects.

X Show how the project will impact the system by describing the expected short term/long term demands imposed by the project. These demands should be expressed in terms of numerical volume, fire flows, and as a percentage both compared to existing and future capacity of adjacent and area wide delivery systems.

X Discuss temporary water capacity (storage facility) and demand for long term capacity (stream flows, reservoirs, groundwater capacity). Link these issues and the delivered water supply, and discuss cumulative and indirect impacts (see Hydrology).

X Describe how increased demand from the project might degrade existing and future conditions, maintenance and operation of the water system.

X Discuss alternative water supply options including expansion of adjacent water systems, forming or annexing to water districts or service areas, etc.

X Describe and discuss any legal requirements necessary to provide water service for the project including acquiring and recording easements, water agreements, incorporations, annexing to service districts, spheres of influence, PUC regulations, etc.

X Where water treatment will be required to comply with drinking water standards of Title 22, CCR, describe any additional improvements, easements, service agreements, etc., required.

X Show proposed locations and sizes of existing and proposed well, tank, and access easements.

X Describe water delivery system facility/infrastructure improvements for the short term/long term necessary to provide adequate supplies to the project.

Mitigation - Domestic/Commercial Water Delivery System

X Install or bond the water system improvements and any appurtenances needed to and within the project area. Submit final improvement designs and any associated fees for review and approval prior to installation or bonding.

X Provide a letter from the local fire district prior to installation or bonding that the proposed improvements meet fire flow standards.

X Submit evidence that all necessary easements, dedications, legal agreements have been properly recorded and/or executed.

Responsible/Interested Agencies - Institution

Monterey County Division of Environmental Health
State Department of Health Services
Monterey Peninsula Water Management District

POLICE SERVICE

Description, Setting, Impacts

X Describe existing police services that are available in the project area and to the specific project site.

X Describe how the project will impact police services in terms of:

- Needed additional basic police services required for the site.
- Attracting elements of crime that will require higher levels of police services or special facilities or equipment.
- Special protection for sensitive environments/persons

Mitigation Measures - Police Services

X Describe measures that need to be implemented to maintain existing local and state standards of police protection in the project area.

X Identify funding instruments that are either existing or needed to fund improvements to the police department to accommodate the new project.

Responsible/Interested Agencies-Institution

Monterey County Sheriffs Department
Crime Prevention Officer
California Highway Patrol

FIRE SERVICES/AMBULANCE SERVICE

Description, Setting, Impacts

X Describe existing fire services that are available in the project area and services to the specific project site. Express in terms of local standards(Response Times)(ISO Rating), manpower and equipment.(See fireflows - water service)

X Describe how the project will impact fire service in terms of:

- additional basic fire services required to serve the project site.
- special requirements and equipment needed to service the project.

X Describe Ambulance Service that is available to the project site and area. Describe in terms of response times, life support systems aboard ambulances, and return times to the hospital.

Mitigation Measures - Fire Service/Ambulance Service

X Describe measures that need to be implemented to maintain existing local and state standards for fire protection in the project area. Discuss items such as additional manpower, equipment and fireflows.

X Identify funding instruments either existing or needed to fund improvements to the fire protection service to accommodate the new project.

X Project must conform to local Fire Code Requirements.

X Discuss methods to address increased demand for ambulance service caused by completion of the project. Compare levels of service before and after project completion and to what extent mitigation measures will address project impacts on service.

Responsible/Interested Agencies-Institution

Monterey County Emergency Services Coordinator
California Department of Forestry

13. UTILITIES

Description, Setting, Impacts

X Describe existing and planned facilities and operations for the following utilities:

- Gas and Electric
- Telephone
- Cable - television/radio

___ Detail site specific standards for these utilities as they relate to the project.

___ Describe project impacts as they relate to infrastructure requirements, facilities and capacity.

___ Describe special circumstances or utility requirements for the project.

Mitigation Measures - Utilities

___ Describe measures that need to be implemented to maintain acceptable

levels of service of the previous utilities.

Responsible/Interested Agencies-Institution

Pacific Gas and Electric Co
Pacific Telesis
Monterey Peninsula Cable Television Co

14. NOISE

Description, Setting, Impacts

___ Describe the project and its relation to noise; either as a generator of noise or as a receptor of existing noise, or a receptor of existing or future noise generated by other sources in the area.

___ Consult the Monterey County General Plan(Section 22) and the County Noise Ordinance (County Code Title 10.6) for County Noise Standards and Policies.

Mitigation Measures-Noise

___ Match degree of impact with mitigation measure to provide adequate protection from noise to the project inhabitants or from noise generated by the project onto surrounding inhabitants. Project specific measures might include:

- Sound proofing during construction.
- Double pane glass and special design to reflect sound.
- Re-design of operating facilities to lessen sound.
- Sound proof exterior noise generators contained within the project: air conditioners, pumps, fans.
- Provide sound walls - landscaping.
- Provide effective mufflers for operating machinery.
- Limit operating hours.

Responsible/Interested Agencies-Institution

Monterey County Health Department

15. HAZARDS/HUMAN HEALTH

Description, Setting, Impacts

___ Summarize other topics already describing hazards and reference them for the reader. This section is especially presented to address hazards to human life and property.

___ Describe current and historical hazard conditions surrounding and including the project site and operating conditions. Describe, in the order of scale, both direct and indirect - primary and secondary hazards.

___ Describe project impacts on the surrounding area in terms of possible/probable project induced hazards.

Hazards/Human Health - Mitigation

___ Identify methods for proper siting, construction, or planning which will reduce conditions of surrounding hazard.

___ Identify project operation methods that will reduce hazard.

___ Discuss existing services and County/City operations that are available to respond to the variety of hazardous conditions.

Responsible/Interested Agencies-Institution

California State Department of Emergency Services- Sacramento

Monterey County Emergency Services Coordinator
Monterey County Health Department

16. AESTHETICS

Light and Glare

Description, Setting, Impacts

___ Describe physical attributes surrounding and within the project site to include current and proposed:

- constructed and natural environments
- vista and color
- daytime glare and night time lighting

___ Discuss the siting of the clubhouse against county policies for ridgeline development from a common public viewing area (Robinson Canyon Road). discuss alternative siting and mention impacts of alternative sites.

___ Include possible singular and cumulative impacts such as:

- light and glare.
- view disruption.
- discontinuity of current surrounding design or aesthetic use.

Aesthetics - Light and Glare - Mitigation

___ Describe methods to lessen project impact on surrounding environments by making the project more physically and aesthetically agreeable.

Responsible/Interested Agencies-Institution

Monterey County Planning and Building Inspection Department

17. HISTORICAL/ARCHAEOLOGICAL

Description, Setting, Impacts

___ Discuss existing archaeological reports and reported resources. Will the potential impacts to arachaeological sites be adequately mitigated? What mitigation measures should be applied as conditions? What on-going monitoring is necessary?

Historical/Archaeological - Mitigation

X Consult the "Archaeological Impacts" section located in the appendix of the CEQA Guidelines to identify methods and alternatives for Historical/Archaeological resources preservation. Sections included are:

- Avoiding damaging effects on Archaeological resources.
- Determining archaeological significance and applying an appropriate mitigation program. - Special rules, regulations, and circumstances concerning archaeological resources.
- Discovery of archaeological resources/human remains during project construction or operation. Consult, "A Professional Guide for the Preservation and protection of Native American Remains and Associated Grave Goods" when dealing with a possible site discovered remains of a native American. Published by the Native American Heritage Commission.

X If Archeological resources or human remains are discovered during construction, work shall be halted with 50 meters (150 feet) of the fins until it can be evaluated by a qualified professional archaeologist. If the find is determined to be significant, appropriate mitigation measures shall be formulated and implemented (PD59).

Responsible/Interested Agencies-Institution

Northwest Information Center - Department of Anthropology
Sonoma State University. Sonoma CA.
Native American Heritage Commission
Sacramento, CA.
National Register of Historic Places
Monterey County Historical Coordinator
Society of Professional Achaeologists

Comments Received on Notice of Preparation for the Combined Development Permit for the Golf Trail (PC94218)

MICHAEL H DORMODY
35425 DORMODY ROAD
CARMEL, CA., 93923

March 2, 1995

Dear I-ab.

I am enclosing a list of items which we feel should be addressed by the EIR contractor for the proposed Rancho San Carlos golf course. Some of the items fall under the jurisdiction of your department, and it would be best if they were submitted to the contractor by you. Hopefully, your department has reviewed these topics already, but in case any of them were overlooked, I request you give them your full consideration.

As you know, our property and business of thirty five years, lies downstream on San Clemente Creek from the developers property. We are the most effected of anyone by this proposed project. I therefore have the most concern to protect our business and the health and safety of the one hundred families who have mountain cabins on our land. They and their guests drink our water, fish our creek and lake, and swim in our pools and lake. All drive and enjoy scenic Robinson Canyon Road. Hopefully you will appreciate our situation and extend your upmost attention to help mitigate our concerns.

Thank you for your time and cooperation.

Sincerely,

Michael H. Dormody
President, San Clemente Rancho, Inc.

A-128

SAN CLEMENTE RANCHO'S COMMENTS FOR SCOPE OF WORK ON SANTA LUCIA PRESERVE GOLF COURSE

11. Transportation

Discuss how project will effect traffic on Robinson Cyn. Rd - Including inter ranch and off site traffic.

Mitigation measures; discuss underpass/tunnels, equipment/maintenance traffic, correcting blind intersections and turns.

Monterey County's land use designation and zoning permit requires the developer to avoid using Robinson Canyon Road for their project. Tunneling under Robinson Canyon Road and using vehicle size culverts at strategic crossing points has not been addressed. Electronic gates will not prevent vehicles from turning onto this county road and proceeding to Carmel Valley. Maintenance vehicles, carts, lawn mowers, trucks, etc. driving to and from the ranch maintenance area to Pronghorn Run would have to travel over Robinson Canyon Road to reach the golf course. These are all slow moving vehicles and should cross under the county road instead of across it as they would create a very dangerous condition to traffic on Robinson Canyon Road. If ranch traffic is allowed access to Robinson Canyon Road, as the project grows and the golf course expands, Monterey County will be forced to rebuild the road to safe standards which will destroy a Scenic County Road. Once the residents, guests and employees of the development gain access to this road, Monterey County will never be able to keep them off. Tunnels are imperative, and the only workable solution.

Describe hazards the golf course will create to local roads, both public and private.

The 13th Tee on Dormody Road is on a knob directly over this road and only a few feet to the south. This Tee must be relocated to the North of Dormody Road to avoid serious accidents. Note: Dormody Road is the official name for this road, as designated by Monterey County and not San Clemente Road as shown by the developers map, see errors and omissions on Page 4.

The Rancho San Carlos Road and Carmel Valley Road intersection has not been accurately assessed. The report of the increase in accidents in the past few years was totally omitted from the application. Even though this intersection was improved in 1993, there have still been accidents. [illegible] accident report over the [illegible] must be [illegible]

9503009

Mitigation measure; Investigate major tunnel on Carmel Valley Road.

A tunnel at this intersection would be a very positive solution. Has added golf course traffic will only add to the present problem. Monterey County required Carmel Valley Ranch to tunnel Carmel Valley Road for their subdivision, hotel and golf course development. This tunnel works very well for traffic from Robinson Canyon Road on to Carmel Valley Road. Cross traffic is avoided at this point, thus leaving a very safe and workable intersection with no waiting for traffic in any direction. This would be a very workable solution and could save lives. Compare the accident rate of the two intersections and see which one is currently the safest.

5 Water Quality

Require monitoring stations at property lines.

Water quality must be monitored at all offsite property lines to insure that no foreign toxic substances get into the downstream water supply and fisheries. The use of "Native Carmel Stone" for any purpose in the drainage, as proposed by the developers report, is not a good environmental practice. Carmel Stone is not native to the San Clemente or Las Garzas watersheds. Carmel Stone is soft, porous, and will deteriorate rapidly when used as material in drainages. Use of Carmel Stone, along with the potential of secondary sewage and chemical spills in the San Clemente Creek and Las Garzas drainages could change the chemical trace make up of these waters and confuse the "homing" capacity of the native Steelhead Trout. The fish would therefore seek another drainage to spawn and propagate their species elsewhere. This must not be allowed to happen. Safeguards must be prescribed in the permit to protect the fisheries and humans downstream if any adverse change in water quality shows up at the offsite monitoring stations. Overflows of settlement ponds, human errors, power shortages and the like are more apt to occur in winter months. Winter, with the heavy rains and rapid runoff, is the time steelhead are in the system.

4 Hydrology, Water Quantity

Provide monitoring stations with minimum flow standards, with an implementation plan.

Water quantity must be controlled at monitor stations. If pumping upstream effects creek flow and water level in the wells of property downstream, controls must be implemented to immediately remedy this

A-129

[illegible] outside watering [illegible] golf course, [illegible] water [illegible] the drainage [illegible] well [illegible]

[illegible] impacts from the additional wells for project [illegible]

[illegible] estimated that [illegible] will be needed [illegible] the impact [illegible] the water table [illegible] will probably be drilled [illegible] public [illegible] has subsided [illegible] these wells dry up [illegible] weeks? What [illegible] of the 50 well [illegible] dry this is what the phase one drilling already has [illegible] will [illegible] more wells be [illegible]

16 Viewshed

Discuss projects expansion of storage, maintenance, and sewage treatment facilities to accommodate golf course and their impact on the scenic viewshed.

Robinson Canyon Road is an historic scenic County Road. To locate a large enough maintenance facility to serve the golf course and the remaining 2000 acres of improvements, hotel, lodge, roads etc., within 100 feet of this scenic corridor is unacceptable. All maintenance facilities must be hidden in various canyons and out of sight of Robinson Canyon Road. This should apply to the sewage treatment facility as well. People drive from all parts of the County to view the spectacular array of wildflowers in this area, and do not wish to see heavy equipment, garbage trucks, and supplies stored behind a fence. The sewage storage ponds are large and in clear view of Robinson Canyon road. These ponds are to be fenced by a large plastic fence, not at all in keeping with the local aesthetics. Will they have large aerator like the ponds along to road to Hollister?

3 Air Quality, Obnoxious Odors

Discuss the odors associated with the golf course, holding ponds, sprays, fertilizers, and the entire projects cumulative impacts to Air Quality.

Obnoxious smells must be addressed. Chemicals sprays used on the golf course will smell and must be mitigated. The odor from the sewage treatment plant and settling ponds could become overpowering especially on extremely hot days. (Mission Fields in Carmel has some days when the Carmel sewer plant odors are highly offensive.) All of these smells

along with an equestrian center of "72" horses in a confined area known for inversion and dead air pockets is significant and must be addressed in the EIR.

6 Wildlife

Discuss the adverse effect on off-site wildlife.

This topic needs to be addressed further. Eagles and other bird and wildlife which have historically used the proposed area of the golf course for feeding will either be exterminated or move on out of the area. They will not nest and propagate near an area with no feed, a vastly increased amount of human activity, and chemically treated ground. It should be noted that Eagles have been observed recently circling their established nest, near the golf course. Only a few hundred yards east of the proposed 13th tee is a historic mountain lion crossing. Lions have been observed moving across this area on a regular basis since travel started on Dormody Road. Where will this protected species move to? This must be addressed. Between the 8th and 11th fairways are the hunting grounds of the "10 o'clock Coyote". For years he has been observed feeding on squirrels in this area around 10 a.m. Where will he and his other predator friends be relocated to be able to find such easy hunting? This must be addressed.

Pesticides

Discuss the impacts to the local environment when airborne pests become a nuisance.

During the months of July through September the several species and numbers of fly population in this area can become unbearable. To effectively spray for these resident pests will take daily applications of highly residual pesticides. The offsite areas will also have to be sprayed. This will adversely effect birdlife. The effective use of pesticides will have to be strictly monitored, as the amount needed to rid the golf course area of these pests would exceed safe limits for humans. The bites from some species of these flies cause sores and welts to humans. Many draw blood. This problem should be addressed by Monterey County Health Department.

7 Plant life

Review information and recommendations found in developers reports prior to inclusion in the EIR.

The vast carpets of spring wildflowers (some of the last big fields left in the State) and their elimination by the Golf Course (see enclosed photos) needs to be reviewed in depth. The list of plant life in the proposed golf course area is not complete. Limnanthes douglasii or Meadow foam which grows abundantly in the area of Fairways 11 and 12 in the spring months indicates the area is more of a wetland than just grasslands.

Discuss projects impacts to local wetland habitats.

This area also has large areas of Ranunculus californicus, Platystemon californicus, Oenothera covata, and Calandrinia ciliata, Nemophila menziesii, Collinsia sparsiflora, Sisyrinchium bellum, most of which indicate moisture. Also Brodiaea hyacinthina and Calochortus luteus grow along the 10th. fairway. Minulus guttatus grows in the south boundary of 13th. fairway, also indicating a wetlands. The list of typical plants mentioned in the report are some of the least found plants in the area, and those plants that cover acres and acres are not even mentioned (Lupine, Viola pedunclulata, Sidalcea malvaeflora and Plagiobothrys nothofulvus, etc.).

Mitigations for Oak tree removal is inadequate.

The developers state there are close to 300 trees in the area, and they will only have to remove half of them. Many of these trees are endangered Valley Oaks with diameters up to 50-60 inches. The developers say the Valley Oaks which will be removed are old or pose a danger. The beauty of the Valley Oak comes with age. These trees must be protected. This must be addressed in more detail. To mitigate the removal of trees that are hundreds of years old is not practical, if not possible.

A note on plant life and animal observation. We have roamed this area for over 50 years. We have spotted road runners, magpies, redlegged frogs, many plants and animals which we could not identify. Some we have never seen again. This does not mean they are not there. It only could mean they were not there when we were. This most assuredly applies to a professional who only can survey an area a few times.

9 Energy use

Discuss the excessive use of power for the proposed project in more detail vs other recent developments.

The developer claims the project will only use water from deep wells in fractured granite. These wells are to be 200 to 600 feet deep or deeper. Well logs are unavailable by the developer. The total number of these deep wells needed is also unknown, but it is estimated in excess of 50 more than they now have. The energy required to transfer water from one holding pond to another to sprinkle the golf course, to pump fresh water from the deep wells and to operate the sewage treatment plant pumps must be addressed to see if it is within the norms of an energy efficient project. It must be taken into account that this project will be limited to 300 memberships which results in a significant depletion of water and use of energy for only 300 members.

Discuss use of emergency generators

If the power goes out during a storm how will all their proposed pumping stations work?

17 Cultural Resources

Discuss added golf course "sightseeing" to Robinson Canyon Road and its effect to the historic Stevenson Cabin.

The Stevenson Cabin has to be addressed in this application. What will be done to preserve it? Who may visit it? Who will be responsible for its preservation? Could it be transferred to the County Parks Dept? This historic cabin and surrounding site has been left to deteriorate to an almost unsalvageable condition and should not be allowed to be lost as it is part of Monterey County's heritage. The cabin is located a short distance from the proposed golf course. Extra traffic generated on Robinson Canyon Road by sightseers for the new golf course and development will most assuredly inspect this historic site, so it must be protected from further decay and vandalism.

12 Wastewater

Discuss and suggest setback requirements for sprinkled wastewater from water course, wetlands, and roadways.

It is common knowledge that wind dries out grass. It is also common knowledge that the proposed project is located in a windy area, especially when the fog is coming in on the coast. There is a strong probability that the wind will blow irrigated wastewater into these sensitive areas unless they are setback a significant distance.

Errors and Omissions

Discuss in depth alternative locations to the project.

The Potrero Canyon is a more suitable location for the golf course from all environmental aspects. Compare the impacts of the San Clemente drainage location with the Potrero Canyon. Most of the major mechanical problems would be lessened. Added traffic on Robinson Canyon Road would be resolved. Water use would be lower because of more suitable climate conditions. The Mesa is also a more acceptable location from an environmental standpoint. The San Francisquito Flat Garzas Creek drainage region could contain all of the golf course. The course could be sited around the sewer treatment plant and maintenance yard area which should be moved anyway to more suitable hidden regions of the rancho. It should be noted that the 1969 Riches Research development plan included a golf course in the San Clemente Portion of the Rancho and the County turned the proposal down. In addition the Land Use EIR suggested that all major improvements associated with the development be located west of Robinson Canyon Road. All three of these locations could be served by Rancho San Carlos Road or other means. All three of these locations are on the west side of Robinson Canyon Road. These sites were designated by the developers in 1990 when a total of three golf courses were being considered.

Financial Responsibility

Discuss bonding or other compliance or performance methods which will be used to insure project completion including all mitigation measures.

The developers have made it known that they plan to sell the golf course relieving them of any financial responsibility to it. If the new owners cannot maintain it to planned specifications, who is responsible? (Carmel Valley Ranch recently went into receivership, and was confiscated by the FDIC, all members who purchased lifetime memberships lost their money, what safe guards will be taken to prevent this?

Correct all misinformation of VTM

The developer has purposely changed the name of Dormody Road to San Clemente Road on all papers and maps pertaining to the golf course area. This has been done without County approval and is erroneous and very misleading. The name Dormody Road was officially designated by Monterey County Board of Supervisors. The decision was made from the facts the Dormody's built, maintained and paved the road solely at their own expense for 35 years, for access to their business. Also four Dormody families have homes served by this road. To allow the

developer and his agents to refer to this road by another name could create a dangerous situation with emergency response people for the residents of Dormody Road, as well as the residents of Sleepy Hollow in Carmel Valley, who already live on a road named San Clemente Road. This confusing situation will hinder utilities personnel, repair services, deliveries, as well as guests to the two properties and must be stopped at once. County Staff should be made aware of this problem and inform the developer to use the proper name.

Review numbers of employees

The developer has underestimated the number of employees working on golf course. The project as proposed states that caddies will accompany the golfers. We estimate that at least 20 additional employees will be needed to accomplish this. The traffic report does not take this into account. 50 employee housing units will not begin to accommodate the true number of employees for the entire project.

Play on the golf course must be addressed further, how limited use will be enforced, and how limited irrigation will be enforced.

Show improvements to Robinson Canyon Road on VTM

Specifications on Robinson Canyon Road must be corrected. Some places are only 10 ft wide. Blind curves were not documented. Emergency vehicles traveling up Robinson Canyon Road meeting oncoming traffic must be addressed. Construction workers use, large equipment, and maintenance vehicles use must be addressed. The developers say they are going to improve lines of site, but where are these improvements to be located?

Trip generation plan is inadequate.

The Cypress Point trip generation comparison report must be disregarded due to inclement weather during observation period.

In conclusion, as the property owners downstream of the proposed development, we feel it is imperative to include these topics in this reply to the scoping of the EIR which are very significant to our business and the well being of our members. We realize some of these topics might be repetitious but they have only been included too emphasis in more detail the significant impact this project will have.

SAN CLEMENTE RANCHO
35424 DORMODY ROAD, CARMEL, CA., 93923

MONTEREY COUNTY

LOCAL AGENCY FORMATION COMMISSION

(408) 755-5065 P.O. BOX 180, SALINAS, CALIFORNIA 93902

March 1, 1995

Ms. Wanda Hickman, Associate Planner
Monterey County Planning and Building Inspection Department
P.O. Box 1208
Salinas, CA 93902

Dear Ms. ~~Hickman~~, Wanda

The Local Agency Formation Commission (LAFCO) has had an opportunity to review the Notice of Preparation for a golf course that would be analyzed in the Santa Lucia Preserve Environmental Impact Report (EIR) for the proposed Rancho San Carlos development. The Notice indicates that the proposed project, known as the "Golf Trail", would consist of an 18-hole golf course and a 15,000 square-foot clubhouse, as well as other related amenities, located on 336 acres east of Robinson Canyon Road near Carmel Valley.

LAFCO previously provided responses to the Notice of Preparation for the Santa Lucia Preserve development. Those comments contained in the attached letter of September 8, 1994 are also applicable to the proposed golf facility. LAFCO adopted a conceptual sphere of influence designation for the project area indicating that services would be provided by a County Service Area (CSA). In order for LAFCO to use the EIR as a Responsible Agency when considering approval of the CSA, the following additional issues need to be addressed:

1. The EIR should explain how water, sewer, open space and drainage management services will be provided to the golf course. The EIR needs to define the relationship with the CSA and assure that the capacities of the proposed service systems are adequate.

2. Reclaimed water should be used to the fullest extent possible, and the EIR should include design of an integrated wastewater and storm water reclamation facility. The EIR should discuss the proposed project's consistency with the LAFCO Standards for the Evaluation of Proposals that encourage the use of reclamation.

These comments have been presented to the Commission at their February 28, 1995 meeting. Should you have any questions please contact staff at 755-5065. Thank you for the opportunity to respond to the Notice of Preparation.

Sincerely,

Catherine S. West

Catherine S. West
Acting LAFCO Executive Officer

CW:ms

Attachment

c:\wp51\LAFCO\95-C\95-C.LET

MONTEREY COUNTY

LOCAL AGENCY FORMATION COMMISSION
(408) 755-5065 P.O. BOX 180, SALINAS, CALIFORNIA 93902

JIM COOK
EXECUTIVE OFFICER

September 8, 1994

Ms. Wanda A. Hickman, Associate Planner
Monterey County Planning and Building Inspection Department
P.O. Box 1208
Salinas, CA 93902

Dear Ms. Hickman:

Thank you for providing the Local Agency Formation Commission (LAFCO) an opportunity to comment on the Notice of Preparation for the Santa Lucia Preserve Environmental Impact Report (EIR). The Santa Lucia Preserve project, formerly known as Rancho San Carlos, proposes 350 dwelling units, 150 visitor-serving units, and commercial and recreational uses on 2,000 acres, with nearly 18,000 acres maintained as open space preserve. The proposal area is located south of Carmel Valley between Rancho San Carlos and Robinson Canyon Roads.

LAFCO has adopted a conceptual sphere designation for the project indicating that future service should be provided by a new County Service Area (CSA). LAFCO will act as a Responsible Agency when considering approval of the proposed CSA. In order for LAFCO to use the environmental impact report for this purpose, the following issues need to be addressed:

1. The EIR should explain LAFCO's previous actions of December 14, 1993 establishing a conceptual sphere of influence for the formation of a County Service Area for the proposed development. A CSA could facilitate coordinated service delivery for development on the property, with the ability to provide water, wastewater, fire protection, open space maintenance and other services. The conceptual sphere designation gives formal recognition of a preferred service delivery option that should be analyzed in the EIR. A copy of the LAFCO staff report is attached for additional reference.

2. The EIR should include a thorough discussion of the proposed County Service Area, including the formation process, how the CSA would operate, the relationship with private entities serving the site, the likely services to be provided, and how services would be maintained and funded.

3. The EIR should contain a discussion of project consistency with relevant local agency policies. LAFCO's Standards for the Evaluation of Proposals have been attached for your [illegible]. These policies guide the Commission's decisions in such areas as water use, phasing of development, preservation of open space and provision of services.

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4. The hydrology and water service sections of the EIR should include an analysis of the LAFCO groundwater standards contained in the attached Standards for the Evaluation of Proposals. The Notice of Preparation already mentions most of the informational requirements. A five-year history of water use and review by the appropriate water resources agency would satisfy the requirements in the Standards.

5. The sewage disposal section of the EIR should describe all types of sewage disposal methods that would be used to serve the proposed development. The EIR should include how implementation and maintenance would occur under CSA management, and how reclamation can be used to the maximum extent possible.

6. The EIR should describe how fire safety services will be provided, including an evaluation of the various agencies that could serve the proposed development.

7. The EIR should include a discussion of road maintenance standards and whether the CSA could provide such services. The EIR should evaluate the need for on-site quarries for road construction and maintenance materials, how the quarries would be managed and how they will be reclaimed.

These comments will be presented to the Commission on September 27, 1994. We will notify you if there are any additional concerns after the meeting. Meanwhile, please call me at 755-5065 if you have any questions.

Sincerely,

Catherine S. West

Catherine S. West
LAFCO Senior Analyst

CSW:em

Attachment

MEMORANDUM

WATER RESOURCES AGENCY

County of Monterey

VIA FAX

DATE: March 9, 1995

TO: Wanda Hickman, Associate Planner

FROM: Al Mulholland, Hydrologist/Water Resources Planner

SUBJECT: NOP for the Santa Lucia Preserve Golf Trail

The staff of the Monterey County Water Resources Agency has reviewed the Initial Study and the Scope of Work for the Santa Lucia Preserve Golf Trail and believe that they adequately address the issues that need to be discussed in the Environmental Impact Report. The Agency has no additions to the Scope of Work.

TOTAL P.02

A-135

MONTEREY BAY
Unified Air Pollution Control District
serving Monterey, San Benito, and Santa Cruz counties

INTERIM AIR POLLUTION CONTROL OFFICER
Doug Quetin

24580 Silver Cloud Court • Monterey, California 93940 • 408/647•9411 • FAX 408/647•8501

February 22, 1995

Wanda A. Hickman
Monterey County Planning &
Building Inspection Department
P.O. Box 1208
Salinas, CA 93902-1208

SUBJECT: NOTICE OF PREPARATION FOR SANTA LUCIA PRESERVE PROJECT

Dear Ms. Hickman:

Staff has reviewed the Notice of Preparation of a Draft Environmental Impact Report to expand the analysis of the Santa Lucia Preserve project to include an 18-hole golf course, practice range, and clubhouse. Since these developments would result in air quality impacts during construction and operation (e.g., indirect source emissions), staff incorporates the comments in our August 8, 1994 letter by reference to the expanded scope of the project.

If you have any questions, please do not hesitate to call Douglas Kim of our planning staff.

Sincerely,

Janet Brennan

Janet Brennan
Senior Planner, Planning and
Air Monitoring Division

cc: Nicolas Papadakis
File: 3442
PAM/dk

DEPARTMENT OF PUBLIC WORKS
COUNTY OF MONTEREY

MEMORANDUM

TO: Planning & Building Inspection Department
Attn: Wanda Hickman

FROM: Development

SUBJECT: **NOP - SANTA LUCIA PRESERVE PROJECT**

DATE: March 2, 1995

We have reviewed the above Notice of Preparation and recommend that the following be included in Section II - Transportation/ Circulation/Traffic Analysis:

___ Recommend standards for driveway and roadway intersection minimum sight distance requirements.

___ Study the adequacy of the existing bridge on Rancho San Carlos Road over the Carmel River.

___ Study the appropriateness of a traffic signal or grade separation as a mitigation for traffic impacts at Rancho San Carlos Road and Carmel Valley Road.

___ Project should comply with the County's trip reduction ordinance.

HCN/cw

d-22,luc1395.mem
Subdivision Standards

Appendix B. Mitigation Monitoring Program

ISSUE AREA Mitigation Measure [a]	Party Responsible for Implementing Mitigation Measure	Timing of Mitigation Measure Implementation	Monitoring Activity	Party Responsible for Monitoring	Check if Complete
LAND USE (Chapter 3)					
No mitigation measures are required	--	--	--	--	
POPULATION AND HOUSING (Chapter 4)					
No mitigation measures are required	--	--	--	--	
ECONOMICS (Chapter 5)					
No mitigation measures are required	--	--	--	--	
GEOLOGY AND MINERALS (Chapter 6)					
Implement a paleontological site mitigation plan (Additional)	Applicant	Prior to grading operations in the Temblor/Chamisal formation bedrock	Review by Monterey County Planning and Building Inspection Department	Monterey County Planning and Building Inspection Department	
Establish 50- or 100-foot (depending on the degree of fault trace definition) habitable structure setbacks from fault lines (Applicant)	Applicant	Prior to issuance of a building permit	(Already incorporated into the Vesting Tentative Map)	Monterey County Planning and Building Inspection Department	
Provide sufficient setback from additional faults or provide mat or other engineered foundation (Additional) [b]	Applicant	Prior to issuance of a building permit	Review of site-specific geotechnical investigation and building plans	Monterey County Planning and Building Inspection Department	
Design and construct new buildings in accordance with current standards of earthquake-resistant construction (Applicant)	Applicant	Prior to approval of design and occupancy of habitable structures	Design review and construction inspection	Monterey County Planning and Building Inspection Department	
Provide 50-foot building envelope setbacks from the base of slopes, dormant or active landslide scarps, stream cutbanks, erosion gullies, and steep slopes for lots 8, 188, and 247 (Applicant)	Applicant	Prior to approval of design and occupancy of habitable structures	Design review	Monterey County Planning and Building Inspection Department	

ISSUE AREA Mitigation Measure[a]	Party Responsible for Implementing Mitigation Measure	Timing of Mitigation Measure Implementation	Monitoring Activity	Party Responsible for Monitoring	Check If Complete
Provide setbacks from unstable slopes for additional lots or implement appropriate engineering design as required (Additional)[b]	Applicant	Prior to issuance of building permits	Design review	Monterey County Planning and Building Inspection Department	
~~Provide setbacks for lots 194 to 200 if required based on additional field investigations at Potrero Fault Trace/landslide slip surface~~	~~Applicant~~	~~Prior to issuance of building permits~~	~~Design review~~	~~Monterey County Planning and Building Inspection Department~~	
Prepare contingency plan that provides alternative access route	Applicant	Prior to issuance of building permits	Design review	Monterey County Planning and Building Inspection Department	
Use appropriate engineering techniques to reduce liquefaction hazard (Applicant)	Applicant	Prior to approval of design and occupancy of habitable structures	Design review and construction inspection	Monterey County Planning and Building Inspection Department	
~~Avoid development in areas of liquefaction potential or use appropriate engineering~~ foundation (Additional)[b]	~~Applicant~~	~~Prior to issuance of building permits~~	~~Conduct liquefaction hazard assessment in all areas of recent alluvium; avoid development in areas with unacceptable liquefaction hazard, reconfigure building envelopes, or specially engineer foundations, as required~~	~~Monterey County Planning and Building Inspection Department~~	
SOILS (Chapter 7)					
Implement erosion control plans (Applicant)	Applicant	During project construction	Comply with monitoring requirements of the applicant's erosion control plans	Applicant's onsite erosion control specialist and Monterey County Planning and Building Inspection Department	
Monitor effectiveness and modify erosion control measures as necessary (Additional)	Monterey County Planning and Building Inspection Department	During project construction	Monitor effectiveness of erosion and sediment control measures	Monterey County Planning and Building Inspection Department	
Prepare an erosion and sediment control/revegetation plan for new borrow site (Additional)	Applicant	Before removal of aggregate from borrow site begins	Review by qualified third-party, revegetation/ restoration professional; report to Monterey County Planning and Building Inspection Department	Monterey County Planning and Building Inspection Department	

ISSUE AREA Mitigation Measure[a]	Party Responsible for Implementing Mitigation Measure	Timing of Mitigation Measure Implementation	Monitoring Activity	Party Responsible for Monitoring	Check if Complete
GROUNDWATER HYDROLOGY, STREAM BASE FLOW, AND WATER SUPPLY AND DEMAND (Chapter 8)					
Maintain a water supply equal to or greater than connected water demand at all times (Additional)	Applicant	During construction	Review annual reports from water system operator when approving building permits	Monterey County Division of Environmental Health	
Monitor groundwater levels (Additional)	Applicant	At least *monthly* ~~quarterly~~ in perpetuity	Review annual or biennial water system operations reports from applicant	Monterey County Division of Environmental Health and Monterey County Water Resources Agency	
Delay pumping at wells near base flow reaches (Applicant/Additional)	Applicant	Every dry season, in perpetuity	Review annual or biennial water system operations reports from applicant	Monterey County Division of Environmental Health and Monterey County Water Resources Agency	
Drill new wells away from base flow reaches (Applicant/Additional)	Applicant	During construction	Review well drilling permit applications	Monterey County Division of Environmental Health	
Monitor base flow in creeks and provide supplemental water if necessary (Additional)	Applicant	Daily monitoring at gages and annual stream surveys, for at least 20 years	Review reports submitted by applicant every 5 years	Monterey County Water Resources Agency, Monterey Peninsula Water Management District, and California Department of Fish and Game	
Monitor riparian vegetation and maintain total area of riparian vegetation (Additional)	Applicant	Every 3 years, *on average with no periods of more than 4 years between surveys,* in perpetuity	Review reports submitted by applicant every 3 years	Monterey County Water Resources Agency, Monterey Peninsula Water Management District, and California Department of Fish and Game	
RUNOFF, FLOODING, AND WATER QUALITY (Chapter 9)					
Implement best management practices to attenuate peak floodflows (Applicant)	Applicant	During construction of infrastructure	Review plans and specifications and field check installation	Monterey County Planning and Building Inspection Department	

ISSUE AREA Mitigation Measure[a]	Party Responsible for Implementing Mitigation Measure	Timing of Mitigation Measure Implementation	Monitoring Activity	Party Responsible for Monitoring	Check if Complete
Design and implement stormwater runoff best management practices so that flooding in the Carmel River Valley is not aggravated (Additional)	Applicant	Prior to construction and during construction of infrastructure	Review plans and specifications	Monterey County Water Resources Agency	
Implement nitrate monitoring program (Additional)	Applicant	Monitor regularly	Review annual reports	Monterey County Division of Environmental Health	
Develop and implement stormwater pollution prevention plan (Additional)	Applicant	Prior to construction	Review plans and specifications and field check installation	Regional Water Quality Control Board	
Limit removal of riparian vegetation, revegetate affected areas, and protect vegetation in areas adjacent to protected base flow reaches	Applicant	During construction	Review plans and field check installation	Monterey County Planning and Building Inspection Department	
Implement best management practices to control urban pollutants (Additional)	Applicant	During construction	Review plans and field check installation	Monterey County Planning and Building Inspection Department and Monterey County Division of Environmental Health	
FISHERIES (Chapter 10)					
Implement appropriate construction practices (Applicant)	Applicant	During project construction	Comply with construction practices of the applicant's mitigation measures	Applicant's onsite erosion control specialist	
Implement erosion control plans (Applicant)	Applicant	During project construction	Comply with monitoring requirements of the applicant's erosion control plans	Applicant's onsite erosion control specialist	
Develop and implement stormwater pollution prevention plan	*Applicant*	*During project construction*	*Comply with monitoring requirements of the stormwater pollution prevention plan*	*Applicant's onsite stormwater pollution specialist*	
Minimize sediment-laden runoff that enters creeks (Applicant)	Applicant	Prior to approval of drainage plan	Comply with monitoring requirements of the applicant's erosion control plans	Monterey County Department of Public Works and the Conservancy	
Implement drainage plan (Applicant)	Applicant	Prior to project construction	Comply with monitoring requirements of the applicant's drainage plan		

ISSUE AREA Mitigation Measure[a]	Party Responsible for Implementing Mitigation Measure	Timing of Mitigation Measure Implementation	Monitoring Activity	Party Responsible for Monitoring	Check if Complete
BIOLOGICAL RESOURCES (Chapter 11)					
Enhance oak woodland and savanna habitat by planting oak species removed onsite (Applicant)	Applicant	Before oak trees to be replaced are removed	Annual field inspection	Monterey County Planning and Building Inspection Department	
Modify grazing regime to increase the density of native grasses in annual grassland (Applicant)	Applicant	Ongoing	Annual field inspection	Monterey County Planning and Building Inspection Department	
Avoid special status plant species occurances when conducting fuel modification activities	*Applicant*	*Ongoing*	*Annual field inspection*	*Monterey County Planning and Building Inspection Department*	
Delay construction until the young Cooper's hawks and golden eagles have fledged (Additional)	Applicant	Within 60 days of initiation of construction activities in potential Cooper's hawk and golden eagle nesting sites	Random field investigations by Monterey County Planning and Building Inspection Department	Monterey County Planning and Building Inspection Department	
Compensate for loss of landmark trees by planting in-kind onsite at a 5:1 replacement ratio (Applicant)	Applicant	Before landmark trees to be replaced are removed	Annual field inspection	Monterey County Planning and Building Inspection Department	
Monitor riparian vegetation and maintain total area of riparian vegetation (same measure as described above under Chapter 8) (Additional)	Applicant	Every 3 years, *on average with no periods of more than 4 years between surveys,* in perpetuity	Review reports submitted by applicant every 3 years	Monterey County Water Resources Agency, Monterey Peninsula Water Management District, and California Department of Fish and Game	
AESTHETICS (Chapter 12)					
Relocate or redesign the ranch operations center and employee recreation center (Additional)	Applicant	Prior to approval of the Final Map	Final Map review	Monterey County Planning and Building Inspection Department	

ISSUE AREA Mitigation Measure[a]	Party Responsible for Implementing Mitigation Measure	Timing of Mitigation Measure Implementation	Monitoring Activity	Party Responsible for Monitoring	Check if Complete
TRAFFIC (Chapter 13)					
Upgrade Rancho San Carlos Road to include two 10-foot travel lanes to the south of the Quail Meadows subdivision entrance (Applicant)	Applicant	Prior to project generating appreciable traffic volumes	Monterey County Department of Public Works shall review the engineering design plans and verify that the roadway has been widened and conduct a field inspection to ensure the improvements are implemented	Monterey County Department of Public Works	
Reconstruct and realign Rancho San Carlos Road between Quail Meadows Drive and the main gate to provide adequate corner sight visibility for motorists using the Carmel Racquet Club driveways on Rancho San Carlos Road (Applicant)	Applicant	Prior to project generating appreciable traffic volumes	Monterey County Department of Public Works shall review the engineering design plans and verify that the adequate sight distance is provided and conduct a field inspection to ensure the improvements are implemented	Monterey County Department of Public Works	
Upgrade the Rancho San Carlos Road bridge across the Carmel Valley River to conform with ASHTO HS20-44 loading requirements to handle emergency vehicles, with two 10-foot travel lanes in each direction, and add a pedestrian footpath (Applicant)	Applicant	Prior to project generating appreciable traffic volumes	Monterey County Department of Public Works shall review the engineering design plans and verify that the improvements are provided, and conduct a field inspection to ensure the improvements are implemented	Monterey County Department of Public Works	
Establish a transportation management association and implement a trip reduction program to provide means to reduce both onsite and offsite trip generation (Applicant)	Applicant	Prior to project generating appreciable traffic volumes	Monterey County Department of Public Works shall review the trip reduction program and request progress reports from the transportation management agency to ensure the program is being implemented	Monterey County Department of Public Works	
Contribute toward the traffic mitigation fund for Carmel Valley Road (Applicant)	Applicant	Prior to approval of the Final Map	Monterey County Department of Public Works shall determine the applicant's fair share and collect the amount	Monterey County Department of Public Works	
Add a left-turn acceleration lane on Carmel Valley Road for the northbound to westbound left-turning vehicles and extend the eastbound right-turn lane (Applicant)	Applicant	Prior to project generating appreciable traffic volumes	Monterey County Department of Public Works shall review the engineering plans and verify the design and conduct a field survey to ensure that improvements are implemented	Monterey County Department of Public Works	
Contribute to a fund for signalizing the intersection of Carmel Valley Road and Rancho San Carlos Road or constructing an underpass for the northbound left-turn movement (*Alternate* ~~Alternative~~)	Applicant	Prior to project generating appreciable traffic volumes	Monterey County Department of Public Works shall review the engineering plans and verify the design and conduct a field survey to ensure that improvements are implemented	Monterey County Department of Public Works	

ISSUE AREA Mitigation Measure*	Party Responsible for Implementing Mitigation Measure	Timing of Mitigation Measure Implementation	Monitoring Activity	Party Responsible for Monitoring	Check if Complete
Contribute toward the traffic mitigation fund for Highway 1 (Applicant)	Applicant	Prior to issuance of building permit	Monterey County Department of Public Works shall determine the applicant's fair share and collect the amount	Monterey County Department of Public Works	
Develop and implement a traffic control plan for the construction site (Applicant)	Applicant	Prior to start of construction	Monterey County Department of Public Works shall review and verify the traffic control plan and conduct a field survey to ensure that the plan is implemented	Monterey County Department of Public Works	
Improve Rancho San Carlos Road and existing bridge across Carmel River to conform with the county and California Department of Forestry and Fire Protection standards (Applicant)	Applicant	Prior to project generating appreciable traffic volumes	Monterey County Department of Public Works shall review the engineering plans and verify the design and conduct a field survey to ensure that improvements are implemented	Monterey Department of Public Works	
Provide adequate sight distance, and install appropriate traffic control devices (Additional)	Applicant	During construction	Monterey County Department of Public Works shall review the engineering plans and verify that adequate sight distance is provided and that appropriate traffic control devices are proposed, and conduct a field survey to ensure that improvements are implemented	Monterey Department of Public Works	
CLIMATE AND AIR QUALITY (Chapter 14)					
Implement PM10-reducing construction practices (Applicant/Additional)	Applicant	During entire construction period	Random field inspections during construction period	Monterey County Planning and Building Inspection Department or the Conservancy	
Phase construction so that estimated construction-related daily PM10 emissions fall below Monterey Bay Unified Air Pollution Control District daily thresholds (Additional)	Applicant	During entire construction period	Random field inspections during construction period	Monterey County Planning and Building Inspection Department	
Avoid operation of portable asphalt batch plant within 0.25 mile of an occupied sensitive odor receptor (Additional)	Applicant	During entire construction period	Random field inspections during construction period	Monterey County Planning and Building Inspection Department or the Conservancy	
Employ odor-reducing design and implement odor-reducing maintenance practices for the expanded equestrian center	Applicant	During operation of the equestrian center	Periodic field inspection	Monterey County Planning and Building Inspection Department	

ISSUE AREA Mitigation Measure[a]	Party Responsible for Implementing Mitigation Measure	Timing of Mitigation Measure Implementation	Monitoring Activity	Party Responsible for Monitoring	Check if Complete
NOISE (Chapter 15)					
No mitigation measures are required	--	--	--	--	
PUBLIC SERVICES AND UTILITIES (Chapter 16)					
Implement school impact fees	*Carmel Unified School District* ~~Monterey County Planning and Building Inspection Department~~	Prior to issuance of a building permit	Determine that fees have been collected	Monterey County Planning and Building Inspection Department	
Implement a year-round elementary school	Carmel Unified School District	Prior to Phase 10 of project development	Determine whether a year-round elementary school will be implemented	Carmel Unified School District	
Reopen Carmelo School	Carmel Unified School District	Prior to Phase 10 of project development	Determine whether Carmelo School reopens	Monterey County Planning and Building Inspection Department	
CULTURAL RESOURCES (Chapter 17)					
Relocate or redesign facilities, whenever possible, to avoid cultural resources, regardless of whether they are considered significant under CEQA (Applicant)	Applicant	Ongoing during planning process and prior to construction	Review of final cultural resources mitigation plans and cultural resources management and monitoring plan	Monterey County Planning and Building Inspection Department	
Avoid direct impacts on significant prehistoric and historic resources (Applicant)	Applicant	Prior to approval for each phase of development	Review of final cultural resources mitigation plan for each phase	Monterey County Planning and Building Inspection Department	
Conduct monitoring at site CA-MNT-1481 (Applicant)	Applicant	During construction	Review of monitoring and data recovery reports	Monterey County Planning and Building Inspection Department	
Place fill on sites CA-MNT-1482 and -1483 and conduct data recovery for minor impacts (Applicant)	Applicant	Prior to construction	Review of fill plans and data recovery reports	Monterey County Planning and Building Inspection Department	

ISSUE AREA Mitigation Measure[a]	Party Responsible for Implementing Mitigation Measure	Timing of Mitigation Measure Implementation	Monitoring Activity	Party Responsible for Monitoring	Check If Complete
Construct road through site CA-MNT-1481 in existing location and maintain unimproved road through CA-MNT-1482 (Additional)	Applicant	During construction	Review of final cultural resources mitigation plans	Monterey County Planning and Building Inspection Department	
Incorporate avoidance procedures into final cultural resources mitigation plan for sites CA-MNT-1484, -1485, -1486/H, and -1702 (Applicant)	Applicant	Prior to approval for each phase of development	Review of final cultural resources mitigation plans	Monterey County Planning and Building Inspection Department	
Conduct test excavations and conduct data recovery excavation for site CA-MNT-1704 (Applicant)	Applicant	Prior to construction	Review of test excavation and data recovery excavation reports	Monterey County Planning and Building Inspection Department	
Monitor and conduct data recovery excavation for site CA-MNT-1700 (Applicant)	Applicant	Prior to construction of golf course	Review of test excavation and data recovery report	Monterey County Planning and Building Inspection Department	
Prepare Historic American Building Survey photographic and written documentation (Additional)	Applicant	Prior to issuance of building permits	Review of completed documentation	Monterey County Planning and Building Inspection Department	
Demolish garage by hand (Additional)	Applicant	Prior to issuance of building permits	Periodic site inspection during demolition	Monterey County Planning and Building Inspection Department	
Conduct historical research and document historic archaeological and architectural resources (Additional)	Applicant	Prior to issuance of building permits	Review of cultural resources management and monitoring plan	Monterey County Planning and Building Inspection Department	
Prepare historical sensitivity analysis and identify historically sensitive, unsurveyed areas (Additional)	Applicant	Prior to issuance of building permits	Review of cultural resources management and monitoring plan	Monterey County Planning and Building Inspection Department	
Cease grazing on sites CA-MNT-1484, -1485/H, -1486/H, -1487, and two adobe sites and place grazing improvements away from known cultural resources (Additional)	Applicant	Ongoing	Review of cultural resources management and monitoring plan	Monterey County Planning and Building Inspection Department	
Develop long-term management and monitoring plan to protect prehistoric- and historic-period resources from secondary impacts (Additional)	Applicant	Prior to issuance of building permits	Review of cultural resources management and monitoring plan	Monterey County Planning and Building Inspection Department	

ISSUE AREA Mitigation Measure[a]	Party Responsible for Implementing Mitigation Measure	Timing of Mitigation Measure Implementation	Monitoring Activity	Party Responsible for Monitoring	Check if Complete
Stop work and consult with appropriate parties (Additional)	Applicant	When unanticipated discoveries are identified during construction	Review of final cultural resources mitigation plans	Monterey County Planning and Building Inspection Department	
SOCIAL EFFECTS (Chapter 18)					
No mitigation measures are required	--	--	--	--	

[a] At the end of each mitigation measure, in parentheses, "Applicant" indicates the measure was proposed by the project applicant, and "Additional" indicates the measure is in addition to those proposed by the applicant. Details of the mitigation measures are contained in respective chapters of the EIR text.

[b] Monterey County Health Department requires that any mitigation that may relocate the house or septic system (i.e., road realignment, fault setbacks, landslide mitigation) may also require approval by the Director of the Division of Environmental Health. Therefore, the following requirement is included for the noted mitigation measures: The mitigation measure shall meet the standard set forth in Chapter 15.20 (septic ordinance) and be subject to review and approval by the Director of Environmental Health; otherwise, the lots shall be combined with an adjacent lot prior to filing the Final Map.

Appendix C. Review of Geological and Geotechnical Investigation

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January 5, 1995

Mr. Joel Butterworth
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Sacramento, California 95818-1914

Re: Review of:
Geological and Geotechnical Investigation
Vesting Tentative Map Submittal
Rancho San Carlos Project
Monterey County, California
Report by Cleary Consultants
Report Date 2/15/94

Dear Mr. Butterworth:

At your request, we have completed our review of the above referenced document. The Cleary Consultants report was submitted in support of a proposed subdivision of the 20,000 acre Rancho San Carlos into some 239+ lots for residential use. The purpose of our review was to satisfy the Monterey County requirement for technical review of the geology and geotechnical reports and to determine whether the reports are complete and sufficient to support the current level of project planning. This report summarizes our findings and conclusions.

Our scope of services for the project included the following tasks:

I. Detailed review of Cleary Associate's report (date 2/15/94)

II. Stereographic aerial photo inspection of the subject property to evaluate potentially active geologic processes such as landsliding and faulting. Our aerial photo analysis included review of 1939, 1968, and 1989 flight lines.

III. Site reconnaissance for evaluation of the accuracy of the report's geologic mapping.

IV. Preparation of a letter report outlining our findings, conclusions and recommendations.

Weber, Hayes and Associates has provided review services for the geologic portion of the report. Review of the geotechnical portion of the report was performed by Mr. Mike Kleames, P.E., of Sampson Engineers on a subcontract basis. Three man-days of time were devoted to the geologic review, one day to the engineering review. Accompanying this review letter are two figures depicting our aerial photo mapping of landslides and faults accomplished as part of this review and Table 1 summarizing potential hazards associated with individual homesites. Appendix A is the review letter furnished by Sampson Engineers, summarized in the text.

Project Description

The Santa Lucia Preserve project, also referred to as the Rancho San Carlos Subdivision, is a proposed 266 lot sub-division of a large rancho occupying the rugged uplands of the northern Santa Lucia Mountains. The property is a few miles south of the Carmel Valley and about four to eight miles east of the coastline. Bedrock in the area consists primarily of Mesozoic age plutonic igneous rock with local cover of early to mid Tertiary sedimentary rocks. There are several faults of unknown activity mapped on the property and a number of large landslide complexes, primarily in the fissile Monterey Formation shales that crop out on the northern portion of the property.

Project plans provided with the geologic report are 1"=400' scale topographic maps that show proposed lot boundaries, development envelopes on all residential lots, and planned road and driveway alignments. We were not provided with grading plans of any sort. Most planned residences will be served by septic systems. The subject report does not discuss septic feasibility and we were not provided with results of the septic investigation. Water for the project will be provided by wells. Groundwater supplies were subject to extensive investigation and are described in separate reports not reviewed for this study.

Report Summary

In general, the geologic/geotechnical report presents a comprehensive and competent overview of the project geology with sufficient focus on the principal geologic hazards on the property, faulting and landsliding. The geologic evaluation was based on aerial photo inspections and existing published geologic mapping and did not include comprehensive geologic mapping of the property by the consultant. The existing mapping appears correct at gross scale, and has been locally verified and refined by test pitting and trenching along mapped faults. The limited scope

of our review did not permit detailed evaluation of the accuracy of the geologic mapping. The following sections are separated into discussions of each geologic hazard identified on the property, followed by our recommendations.

Faulting Hazard

Mapped faults were trenched at intervals to verify their locations. No specific attempt was made to evaluate fault activity, and all faults were zoned with setbacks as if they were active. This mitigation approach is conservative and provides appropriate mitigation for ground surface rupture hazard. In general, the fault locations are known with sufficient accuracy to support the mitigation recommendations contained in the report. There are, however, several fault issues that we believe should be further addressed.

1). There is a strong photo/topographic lineament parallel to and south of the San Clemente thrust, in a similar position to the thrust as the San Francisquito fault is to the San Jose thrust fault. The lineament does not appear to be associated with a simple geologic contact. The lineament is indicated on figure 2. This feature should be evaluated. (The San Clemente may be an extension of the San Jose thrust offset by the Robinson fault)

2). There are several lots that are situated on the lip of the overthrust block of the San Clemente Thrust. Typically, the leading edge of an overthrust block is highly deformed. This type of complex deformation includes multiple thrust surfaces and extensional collapse behind the leading edge. The multiple thrust surface nature was observed on the property on lot 206. Furthermore, the filled ground cracks noted in trench are suggestive of extensional collapse that occurs on the overthrust block and they imply activity on the thrust system. Even if they are not related directly to movement on a fault plane, as is implied in the report, they clearly represent a ground rupture hazard and should be zoned. All sites on the over thrust block of either of the thrust faults within several hundred feet of the fault should be validated with site trenching.

3). The exposure of the Potrero fault in trench 2 is inconsistent with the mapped fault trace. The fault strike measured in the trench is nearly perpendicular to the mapped trace, and the low dip is incompatible with the linear trace that cuts across topography. The observed slip surface more closely resembles a landslide slip surface in orientation, and it is associated with geomorphic expression on the downslope side that could be interpreted as an older, dissected landslide. This potential landslide includes homesites 194 to 200.

4.) The exposures in trench 11 and associated test pits have been interpreted as indicating an overturned sedimentary section with older sandstones resting on younger Monterey shales. The structural data presented on the map and trench logs do not uniquely support this interpretation and do not rule out the possibility that the Monterey/Temblor contact is a splay of the San Jose thrust.

5). Table 1 lists a few lots where we think the fault location should be verified prior to construction of a residence.

Landsliding

Landslide mapping on the parcel was generally complete. Figures 1 and 2 present our landslide mapping from aerial photos. As is commonly found, no two investigators ever produce precisely the same aerial photo interpretation, and our interpretation is based on a limited review. There are, however, a few discrepancies that bear discussion.

1.) On figure 1, landslides labelled #1 and #2 both show geomorphic evidence of youthful activity. Although landslide #1 is outside the are being studied, both it and landslide #2 will interdict the access road to the subdivision if they move. Both landslides should be studied and associated hazards mitigated, if required by the risk analysis. Landslide #2 is also associated with homesites. Unless a thorough stability analysis of this landslide indicates that it is stable, all homesites should be set back from the landslide mass (lots 1 and 5).

2). On figure 1, the spur ridge indicated by #3 has not previously been included within landslide boundaries. Road cuts through this ridge show disaggregated bedrock suggestive of landslide deposits. This ridge should be evaluated to determine whether it is part of a larger landslide mass. There are also previously unmapped secondary landslides on this ridge.

3). We have tentatively mapped a small landslide across the access road at #4.

4.) The report is confusing as to the status of the "Mesa" landslide. It is identified on cross sections and was modelled for stability, but the report states that the landslide was not found in the drilling program. We have mapped as a landslide based on aerial photo inspection. The nature and existence of this landslide needs to be clarified.

5). As discussed in the faulting section, above, the Trench 2 log depicts a slip surface of questionable interpretation. We think that additional geologic mapping showing bedrock

distributions and attitudes in the area denoted #6 on Figure 1 should be used to prove or disprove a landslide origin for the slip surface.

6). We mapped a small landslide that crosses an access road, labelled #7 on figure 2.

Debris Flow Hazard

The report does not sufficiently address debris flow hazard. Debris flow hazard specifically applies to any site located at the base of a steep slope, especially if a structure is to be located below a swale or channel cutting the slope, because such channels act as conduits for debris flows. In our experience, debris flows offer the single greatest threat to structures and human life of any landslide related hazard. Debris flow hazard can generally be evaluated by site inspection and is generally evidenced by lobate deposits or fans formed from older debris flows and small debris flow scars on steep slopes. Debris flow hazard cannot be effectively evaluated from aerial photos or visual inspection from a distance because specific features are too small.

Debris flow hazard can generally be mitigated by careful placement of structures or by construction of diversion walls, catchment basins, etc. However, such mitigation can render a site economically or aesthetically non-viable. Therefore, we consider evaluation of debris flow hazard to be an important part of the tentative map stage studies. Lots that we think may be subject to debris flow hazard are summarized on table 1. In particular, we reference lots 18,19,20,21,22,49,50,51,66,67,92, and 101.

Dipslope Failures

Dipslopes in the Monterey Formation are particularly susceptible to slope failure, as indicated by the pattern of landsliding mapped for the project. Dipslope failures may occur at inclinations normally considered too shallow for other types of landsliding. For the purposes of project planning, we recommend that all dip slopes formed in Monterey Formation on the property should be identified and such information should be incorporated into all project plans, with specific recommendations for grading in these areas.

Steep Slopes

Many of the proposed homesites verge on steep slopes. Placement of structures on these sites and foundation design will have to be guided by site specific investigations prior to construction to insure adequate setbacks from areas of potential slope failure.

Slope Stability Calculations

As part of the hazards analysis for the project, the consultant performed stability analyses of several landslides proposed for development. It is the opinion of ourselves and the geotechnical reviewer (Appendix A) that the slope stability analyses are insufficient to support development of the landslide masses. We raise the following objections to the stability modelling.

a. The use of peak rock strengths in the stability models is inappropriate. Rocks along the slip surfaces of major landslides, such as those modelled, have been mechanically reduced by shear and are characterized by yield strengths far smaller than the peak shear strength of intact or even highly fractured rock (often smaller that residual strengths). In general, accurate, in situ strengths can only be determined from oriented samples visually selected from a slip surface, such as can be done by downhole inspection in a large diameter boring. In lieu of such expensive and time consuming sampling and testing, some workers substitute resheared strengths. In that case, conservative values should be employed.

b. There is insufficient subsurface information to adequately define the geometry of the modelled landslides.

c. The modelling procedure used forces failure along a tightly constrained, predetermined slip surface. Insufficient attention has been given to investigating secondary failures within the landslide masses or alternate slip surface geometry.

The argument advanced in the report that the observed landslides formed in a wetter climatic regime and are now "at rest" is misleading. A similar reasoning was formerly applied during residential development of large, old landslide complexes in the Santa Cruz Mountains. Most of these landslides moved during the 1989 Loma Prieta earthquake in increments ranging from inches to 10 to 20 feet. While it is true that these large landslides probably formed many thousands of years ago, they can be and are reactivated by seismic shaking and/or extreme rainfall events. The discovery of open voids at the base of the Animus landslide complex suggests youthful movement of this landslide complex. Such voids are infilled over time by sediment carried by infiltrating rainfall or percolating ground water. If there had been no movement of this landslide for 10,000 or 15,000 years, one might not expect to find open voids. The hazard posed by incremental, coseismic reactivation of a landslide does not preclude development, but the hazard must be recognized and mitigated.

We concur with the report conclusion that septic systems are unlikely to affect the stability of large landslides at the proposed development density. However, septic leachate could impact small landslides. We expect that impacts on small landslides can be mitigated by careful system placement, given the large lot sizes.

Liquefaction Potential

The report addresses liquefaction hazard, and has identified the general area susceptible to liquefaction. In our opinion, liquefaction hazard should be evaluated for all proposed sites located on recent alluvium. Where the site is located in a broad flat, liquefaction induced settlement can be mitigated by foundation design. However, where the site is located adjacent to a stream cut bank, liquefaction can result in lateral spreading, which may not be subject to design mitigation. Table 1 identifies sites located on alluvium as subject to potential liquefaction. Particular sites we noted where lateral spreading may be a hazard include lots 18,19,20,21,22 and possibly 84,94.

Seismic Shaking

The listed seismic shaking parameters are within the range of reasonable values. The maximum credible magnitude we generally cite for the San Gregorio fault is Mw 7.7 (Wesnousky, 1986), slightly larger than the 7.4 listed in the report. We consider the larger magnitude appropriate because structural considerations and coastal tectonics suggest that the San Gregorio connects with Hosgri fault off the central California coast and does not die out along the Palo Colorado fault. The increase in magnitude does not make much practical difference in the predicted ground shaking; ground shaking magnitudes are more sensitive to the attenuation relationship chosen. For a Mw 7.7. on the San Gregorio fault at a distance of 5 miles, we obtained the following shaking intensities with different attenuation relationships:

Attenuation Relationship	Mean Peak Horizontal Acceleration on rock
Campbell (1993)	0.51g
Boore et al (1993)	0.46g
Idriss (1993)	0.59g

The report lists repeatable high ground accelerations in addition to peak accelerations. The repeatable acceleration values should not be used for design or evaluation of ridge top sites

because of the effect of topographic amplification. It should also be noted that, although the recurrence interval for events on the San Gregorio may be 225 to 400 years, there does not appear to have been a major earthquake on the fault for at least 100 to 200 years, making an event in the next 100 years appear far more likely.

Stock Ponds

We observed a number of stock ponds on the property. There is some potential for pond embankments to fail, inundating downstream areas. If there are ponds that are to remain in use upstream from development sites, the risk posed by dam failure should be evaluated and dam embankments should be evaluated for seismic stability if there is a significant risk.

Recommendations

Based on the foregoing discussions, we make the following recommendations for additional work. Some of the hazard issues raised above relate to individual building site viability. In our opinion, these issues should be resolved prior to acceptance of the subdivision map. Other issues relate to development of individual homesites, but are not expected to render individual lots non-viable. These issues should be resolved by site studies at the time of lot development. The two categories are separated out in the following recommendations.

Tentative Map Stage Recommendations

1. The stability of any recognized landslides containing sites for development should be reanalyzed using appropriately conservative strength parameters and landslide geometries. The potential for secondary or "piggy-back" landsliding should be included in the evaluation.

2. Areas suspected of landsliding based on previous mapping or as discussed above must be definitively evaluated for landslide origin (in particular areas 3, 5 and 6, figure 1).

3. Debris flow hazard should be evaluated for all sites

4. Areas susceptible to liquefaction induced lateral spreading should be identified and impacted homesites validated.

5. The existence of suspected faulting paralleling the San Clemente thrust to the south (Figure 2) should be evaluated

6. Fault setbacks for homesites on the overthrust block of the San Clemente or San Jose thrust faults should be re-evaluated and changes in building sites made accordingly. Where setbacks are not large, individual homesites should be validated by trenching.

7. The potential for a splay of the San Jose thrust fault to project between test pits fp-5 and fp-6 should be evaluated and adjacent building sites reconfigured, if necessary.

Pre-development Recommendations

1. Areas of potential dipslope hazard should be specified and mitigating recommendations incorporated into project plans.

2. The risk posed to access roads by youthful landslides, in particular landslides #1, 2, 3, &4, figure 1, and landslide #7, figure 2, should be evaluated and mitigation recommendations incorporated into project plans.

3. The risk associated with failure of stock pond embankments should be evaluated.

4. Individual homesites should be subject to site specific geotechnical investigations prior to design in order to address potential site hazards and foundation design. Such site studies should include: developing appropriate setbacks from steep slopes, site selection to minimize debris flow or liquefaction hazard, evaluation of dip slope hazards, validation of setbacks from faulting or recognized landslides, and placement of septic systems to minimize impacts on slope stability and groundwater quality.

Adverse Impacts

The foregoing review has focussed on geologic hazards posed to development. In addition to the risks posed to development by geologic hazards, there is a potential for adverse impacts on the geologic environment by the development. These include:

1. degradation of water quality
2. accelerated erosion due to disruption of natural drainage systems
3. decreased slope stability due to grading, concentrated run off from developed surfaces and septic leachate.

The issue of water quality impacts is outside the scope of this review. In our opinion, erosion and slope stability impacts can be mitigated by proper design. We make the following recommendations to minimize project impacts.

Adverse Impact Mitigation Recommendations

1. All development should include an engineered drainage system to collect run off and discharge it to natural drainages or storm drains. All discharge points shall be protected from erosion by engineered erosion control measures.

2. All septic systems should be sited by a qualified engineering geologist or geotechnical engineer to minimize impacts on slope stability.

3. In our opinion, the erodability of site earth materials is low to moderate. Nevertheless, all construction activity should incorporate standard temporary erosion control measures during the rainy season (Approximately October to April).

4. A qualified engineering geologist should review preliminary and final grading plans to evaluate impacts on slope stability.

This concludes our review. If you have any questions regarding this report, please do not hesitate in contacting me. If we are to be involved in future review of the geologic hazards evaluation for the project, we recommend a meeting with the applicant's geologist/geotechnical engineer prior to proceeding on additional work to insure that our concerns are being addressed.

Very truly yours,

WEBER, HAYES AND ASSOCIATES
A California Corporation

by Jeffrey M. Nolan
Senior Geologist

attachments: Figures 1 and 2; Table 1; Appendix A

References

Aerial Photos

date	flight line	frames
6-6-39	ABG	253-77 TO 84, 95 TO 103 262-1 TO 6 267-14 TO 16
5-18-68	GS-VBZK	1-200 TO 205, 210 TO 214 2-128 TO 133
6-15-89	NAPP	1889-65 TO 74, 86 TO 94

Literature

Boore, D.M., Joyner, W.B., and Fumal, T.E., 1993, Estimation of response spectra and peak accelerations from Western North America. U.S. Geological Survey Open File Report 93-509, 15pp.

Campbell, K.W., 1993, Empirical predictions of near-source ground motion for the diablo canyon power plant site, San Luis Obispo County, California. US Geological Survey Open File Report 89-484.

Idriss, I.M., 1993, Procedures for selecting earthquake ground motions at rock sites, National Institute of Standards and Technology, NIST GCR 93-625.

Wesnousky, S.G., 1986: Earthquakes, Quaternary faults, and seismic hazard in California, Journal off Geophysical Research, v.91, p. 12, 587-612, 631.

Table 1: Summary of Potential Geologic Hazards By Lot Number

Lot #	Check	On mapped landslide or headscarp of landslide	Adjacent to steep slopes or landslide scar	Monterey Formation dipslope	Other dipslope	Liquefaction potential	Debris flow potential	Fault	
1		X	X				X		Landslide looks active/dormant. Adjacent to stock pond. Below steep slope formed by Monterey formation.
2		X							
3		X							
4		X	X	?					
5		X							Landslide judged to be better classified as active/dormant.
6		X							
7		X			X				Tts dipslope, but adjacent to TM.
8			X						Building envelope verges on active landslide headscarp.
9			X						
10				X					Potential dipslope condition may affect grading, adjacent to landslide not mapped for original study.
11				X					Small active landslide may affect grading for access road.
12				X					Tm may affect grading.
13				X					Tm may affect grading.
14			X	X					
15			X	X					
16				X					
17				X					
18							X	X	Adjacent to creek. Flooding potential evaluated? Stability of cut banks debris flow potential from opposite side of the creek. Lateral spread hazard.
19							X	X	Looks to be at mouth of small swale (debris flow hazard) flood potential due to upstream dam? Lateral spread hazard?
20							X	X	Homesite apppears to be on alluvial fan at mouth of steep canyon. Lateral spread hazard? Flooding?
21							X	X	
22							X	X	
23			X	X					
24			X	X					Homesite appears to be o.k. with respect to dipslope.
25		?							
26				X					Homesite may verge on dipslope.
27								X	
28								X	
29								X	
30								X	
31								X	

Note: This table was updated (August 8, 1995) subsequent to publication of the draft EIR to reflect additional geotechnical analysis that has been conducted. Changes made to this table do not affect any significance conclusions.

Table 1: Summary of Potential Geologic Hazards By Lot Number

Lot #	Check	On mapped landslide or headscarp of landslide	Adjacent to steep slopes or landslide scar	Monterey Formation dipslope	Other dipslope	Liquefaction potential	Debris flow potential	Fault	
32	X								
33	X								
34	X								
35	X								
36									
37									
38									
39									
40									
41									
42									
43	X								
44						X			Appears to be older alluvium.
45						X			Appears to be older alluvium.
46									
47									
48						X	X		
49						X	X		
50						X	X		
51							X		At mouth of small drainage.
52							X		Base of steep slopes.
53	X								
54	X								
55	X								
56	X								
57							X		
58							X		At mouth of swale.
59							X		
60			X						
61	X								
62							X	X	At mouth of steep swale, possible fault related shear zone in trench 14 at station 65.
63							X	X	Verify fault location during site inspection.
64							X		
65						X	X	X	Verify fault location.
66							X		
67							X		
68	X								
69	X								
70							X		
71							X		
72	X								
73	X								
74	X								
75	X		X						

Table 1: Summary of Potential Geologic Hazards By Lot Number

Lot #	Check	On mapped landslide or headscarp of landslide	Adjacent to steep slopes or landslide scar	Monterey Formation dipslope	Other dipslope	Liquefaction potential	Debris flow potential	Fault	
76			X						
77			X						
78			X						
79			X						
80			X						
81			X						
82			X					X	Possible unrecognized fault on parcel.
83						X	X		
84						X			
85	X								
86							X		
87							X		
88							X		
89							X		
90							X		
91							X		
92							X		
93			X						
94						X			
95						X			
96						X			
97						X			
98							X		
99	X								
100	X								
101							X		
102	X								
103							X		
104							X		
105			X						
106	X								
107	X								
108			X						
109			X						
110			X						
111			X						
112			X						
113			X						
114			X						
115			X						
116	X								
117	X								
118								X	Possible unrecognized fault on parcel.
119	*								
120	*								
121	X								
122								X	Possible unrecognized fault on parcel.
123								X	Possible unrecognized fault on parcel.

Table 1: Summary of Potential Geologic Hazards By Lot Number

Lot #	Check	On mapped landslide or headscarp of landslide	Adjacent to steep slopes or landslide scar	Monterey Formation dipslope	Other dipslope	Liquefaction potential	Debris flow potential	Fault	
124		*							There is a topographic feature that has scarp like appearance crossing these lots. It may be associated with older landsliding.
125		*							
126	X								
127	X								
128	X								
129								X	Possible unrecognized fault on parcel.
130	X								
131	X								
132								X	Possible unrecognized fault on parcel.
133	X								
134	X								
135	X								
136	X		X						
137			X						
138				X					
139	X			X					
140	X								
141	X								
142	X								
143	X								
144	X								
145	X								
146	X								
147	X								
148	X								
149	X								
150	X								
151	X								
152	X								
153	X								
154			X						
155	X								
156	X								
157								X	Uphill portion of building envelope is on over thrust block, may need larger setback.
158	X								
159	X								
160	X								
161			X						
162	X								
163	X								
164	X								
165	X								
166	X								
167	X								
168	X								
169			X				X		
170	X								
171	X								

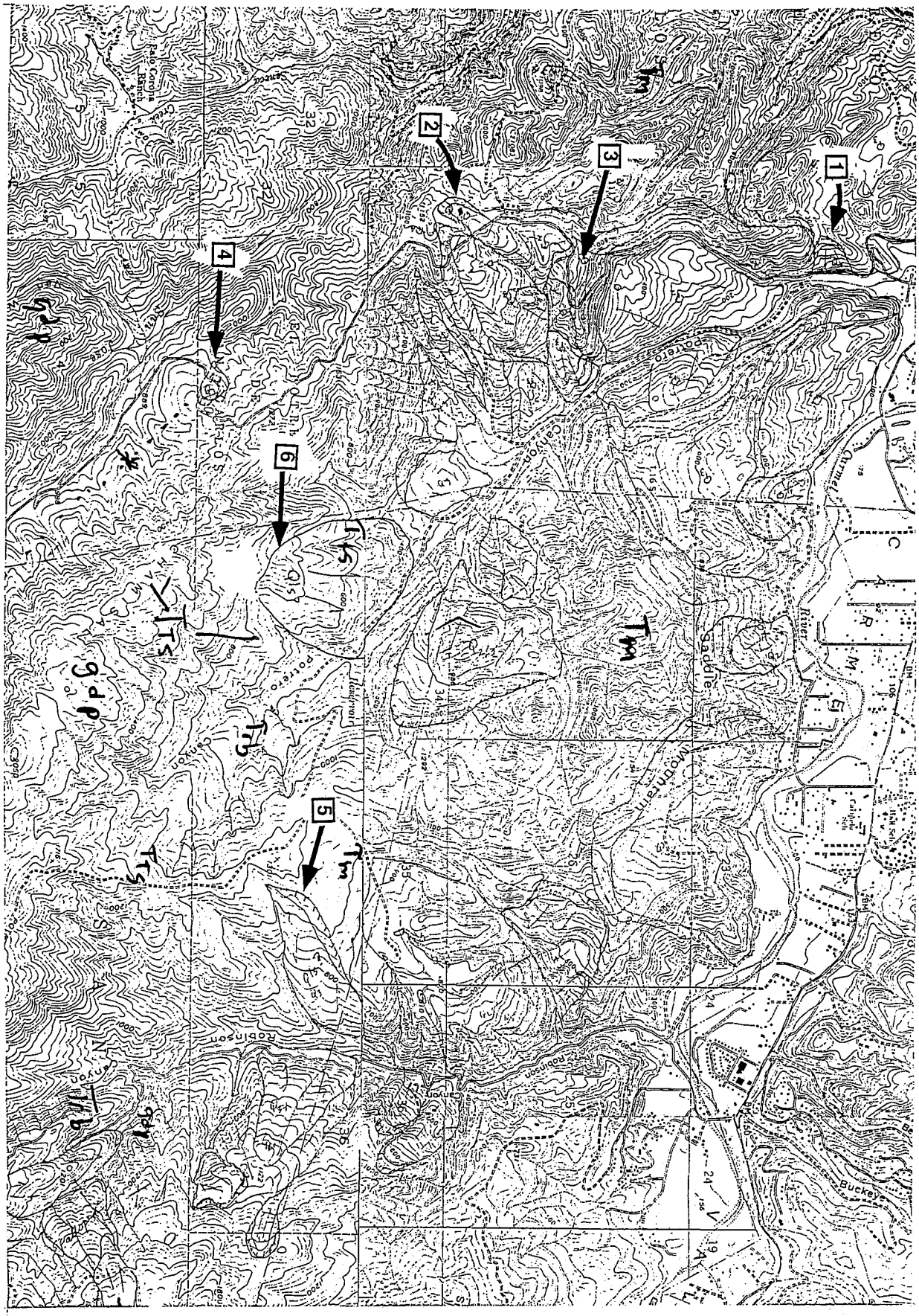
Table 1: Summary of Potential Geologic Hazards By Lot Number

Lot #	Check	On mapped landslide or headscarp of landslide	Adjacent to steep slopes or landslide scar	Monterey Formation dipslope	Other dipslope	Liquefaction potential	Debris flow potential	Fault	
172	X								
173	X								
174			X						
175			X						
176	X								
177	X								
178	X								
179	X								
180			X						Older unmapped small landslide on parcels, doesn't impact homesites, but Vasquez Trail crosses the landslide. Could be impacted.
181	X								
182	X								
183	X								
184			X						
185			X						
186			X						
187		X			X				
188		X		?			X		Active landslide mapped at head of drainages above site.
189							X		
190		X							
191		X					?		
192							X		
193						?			
194			X						
195			X						
196	X								
197							X		
198							X		
199							X		
200	X								
201							X	X	Possible unrecognized fault on parcel.
202							X	X	Possible unrecognized fault on parcel.
203								X	Possible unrecognized fault on parcel.
204	X								
205							X		
206								X	Homesite lies on overthrust block, may need larger setback from fault.
207							X	X	Possible unrecognized fault on parcel.
208								X	Unrecognized fault on parcel, may be on old, disected landslide block.
209								X	Unrecognized fault on parcel, may be on old, disected landslide block.
210							X	X	Unrecognized fault on parcel?
211	X								
212	X								
213	X								
214	X								
215	X								
216	X								

Table 1: Summary of Potential Geologic Hazards By Lot Number

Lot #	Check	On mapped landslide or headscarp of landslide	Adjacent to steep slopes or landslide scar	Monterey Formation dipslope	Other dipslope	Liquefaction potential	Debris flow potential	Fault	
217	X								
218			X						
219			X						
220		X							Rests on shallow dipslope.
221			X						
222		X							
223	X								Shallow dipslope.
224		X							224 is on small mapped L.S. Both lots may be on a larger unmapped old landslide.
225									
226	X								
227		X							
228		X							
229		X							
230		X							
231			X						
232			X						
233			X						
234	X								
235	X								
236			X						
237	X								
238			X						
239	X								
240	X								
241			X						
242	X								
243			X						
244			X						
245			X						
246			X						
247			X						
248			X						
249			X						
250			X						
251			X						
252			X						
253			X						
254			X						
255	X								
256							X		
257						X			
258						X			
259						X			
260						X			
261						X			
262	*								
263	*								
264	X								
265								X	Unrecognized fault on parcel.
266									Possible unmapped landslide on parcel.

* Unable to locate lot.
Tm.= Monterey formation
LS = Landslide
Tts = Sandstone formation

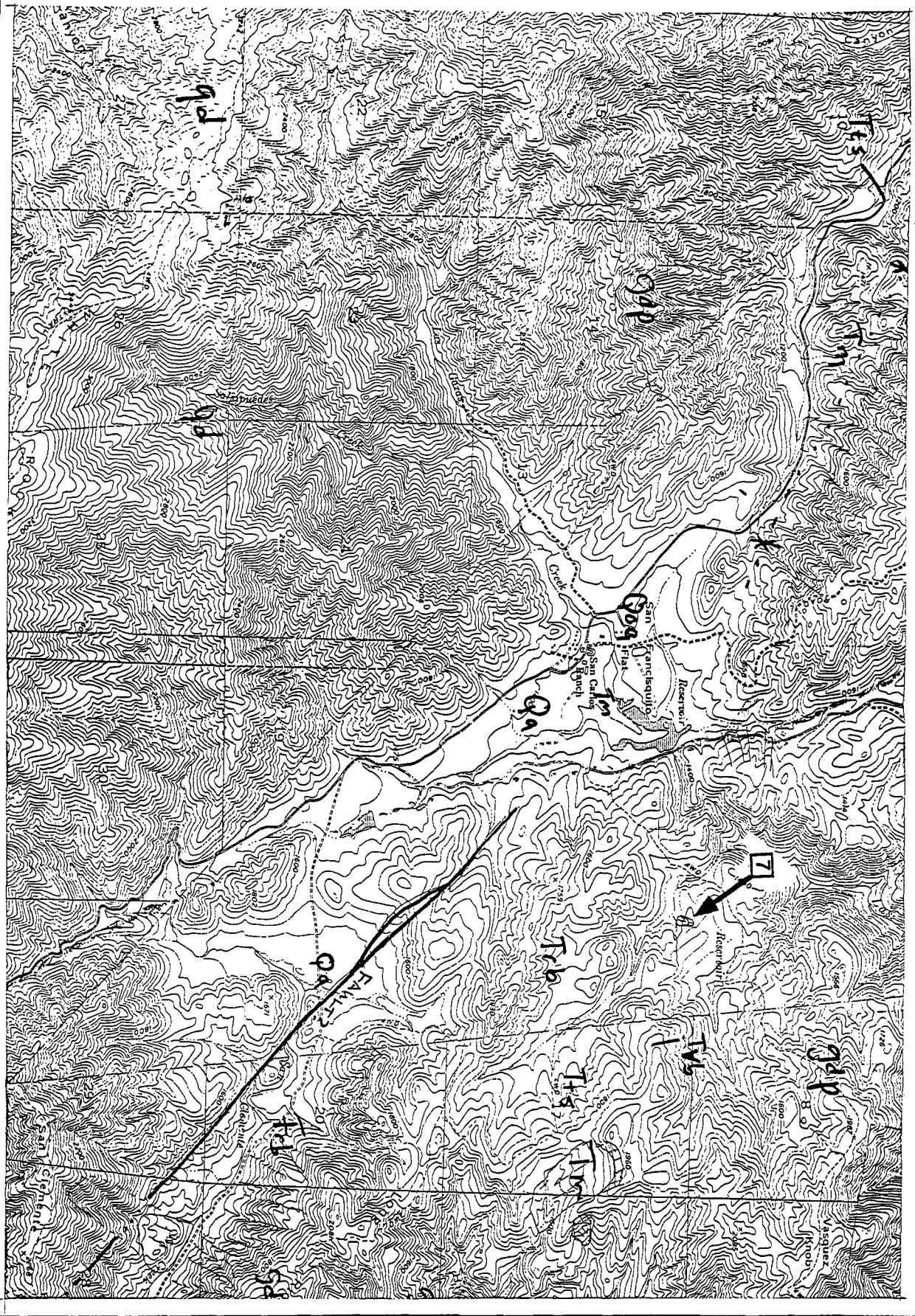


Weber and Associates
Engineering Geology and Hydrogeology
120 Westgate Dr., Watsonville, CA 95076
(408) 722-3580 (408) 662-3100

SANTA LUCIA PRESERVE
GEOLOGY/GEOTECHNICAL REVIEW

FIGURE

1



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SANTA LUCIA PRESERVE
GEOLOGY/GEOTECHNICAL REVIEW

FIGURE
2

Appendix A

Sampson Engineering Inc.

6 Hangar Way, Suite C
Watsonville, CA 95076
(408) 761-6222
Fax (408) 761-1121

January 4, 1994

Weber, Hayes and Associates
120 Westgate Drive
Watsonville, CA 95076

Attention: Mr. Jeff Nolan

Subject: Geotechnical Review of Geological and Geotechnical Investigation
Santa Lucia Preserve (Rancho San Carlos)
Monterey County, California
SEI Project No. 94089

Dear Mr. Nolan:

As requested, we have reviewed the Geological and Geotechnical Investigation prepared for the property by Cleary Consultants, Inc. and dated February 15, 1994. This review was limited to the geotechnical aspects of the report preparation, and included a site reconnaissance with you on December 22, 1994. Sections of the report specifically reviewed by Sampson Engineering Inc. (SEI) included the following: Liquefaction Potential (Section VI.C.); Strong Groundshaking (Section VI.D.); Landslide Stability (Section VII.B.); Geotechnical Evaluation (Section VIII.A to VIII.F.) and appendices A through D.

It is our understanding that the report was completed for the Vesting Tentative Map Submittal for the proposed development, and as such, the report is a preliminary document to be used for initial siting and development plans. Our review indicates the report is substantially complete in all geotechnical aspects pertaining to the proposed development. However, we do take issue with several items related to the slope stability analyses that were performed on the major landslide masses.

The first item is the use of peak strength rather than residual strength values from the direct shear tests. The reports reasoning is that the peak strength test results were considered to be the most representative of the two values since they most closely represent the strength of the in-place "disturbed" materials in which failure occurred. However, without the benefit of downhole logging to verify bedding planes within the landslide mass and slip surface conditions, we feel the use of the residual shear value is more appropriate. Also, it is our opinion that initial siting of any development warrants conservatism when performing such limited analyses, and the use of the lower residual strength value is more commonly used for analyzing the stability of a landslide slip surface. Based on our review of the residual strength direct shear

values and corresponding Atterberg Limits results of nearby samples, the residual strength values appear to be reasonable (see appendix). We therefore recommend that the slope stability analyses be performed again using only the residual shear strength values from each landslide.

The second item is the lack of investigating the potential for shallower, secondary landslides to occur within the main landslide mass, especially along steeper portions of the landslide and at the toe and headscarp areas. Based on limited small diameter borings, a landslide failure plane has been projected and modeled using T-Slope, with only the assumed failure plane being analyzed. We would recommend the use of additional modeling methods to investigate the potential for shallow translational or rotational slides within the main landslide mass. We would consider the use of peak strength direct shear values to be suitable for those failure planes that do not significantly intersect the existing landslide failure plane when performing these additional studies.

In addition, we would recommend consideration to the impact of debris flow landslides for lots and corresponding homesites located immediately above or below slopes greater than 30 percent. This hazard is well documented within Monterey County during periods of prolonged intense rainfall.

Should you have any questions concerning the comments or recommendations outlined herein, please do not hesitate to contact our office. We can be reached at (408) 761-6222.

Sincerely,

SAMPSON ENGINEERING INC.

REGISTERED PROFESSIONAL ENGINEER
MICHAEL D. KLEAMES
NO. 2204
GEOTECHNICAL
STATE OF CALIFORNIA

Michael D. Kleames, G.E.
GE 2204
Expires 3/31/96

APPENDIX

Nelson, J.L., 1992, Clay mineralogy and residual shear strength of the Santa Clara Formation Claystone: Bulletin of the Association of Engineering Geologists, Vol.29, No.3, pp. 299-310.

Skempton, A.W., 1985, Residual strength of clays in landslides, folded strata and the laboratory: Geotechnique, Vol.35, No.1, pp. 3-18.

Voight, B., 1973, Correlation between Atterberg plasticity limits and residual strength of natural soils: Geotechnique, Vol.23, No.2, pp. 265-267.

Appendix D. Common and Scientific Names of Plant and Wildlife Species Mentioned in the Text

Appendix D. Common and Scientific Names of Plant and Wildlife Species Mentioned in the Text

PLANT SPECIES

Common Name	Scientific Name
Alders	*Alnus* spp.
Alkali rye-grass	*Elymus triticoides*
Arroyo willow	*Salix lasiolepis*
Bigleaf maple	*Acer macrophyllum*
Big squirreltail	*Sitanion jubatum*
Black cottonwood	*Populus trichocarpa*
Black oak	*Quercus kelloggii*
Blue blossom	*Ceanothus thyrsiflorus*
Bulrush	*Scirpus californicus*
California bay	*Umbellularia californica*
California blackberry	*Rubus ursinus*
California poppy	*Eschscholzia californica*
California sycamore	*Platanus racemosa*
California wild oatgrass	*Danthonia californica*
Canyon gooseberry	*Ribes* sp.
Canyon live oak	*Quercus chrysolepis*
Chamise	*Adenostoma fasciculatum*
Coast live oak	*Quercus agrifolia*
Coast redwood	*Sequoia sempervirens*
Coast sagebrush	*Artemisia californica*
Coffeeberry	*Rhamnus californica*
Common snowberry	*Symphoricarpos albus* var. *laevigatus*
Coyote brush	*Baccharis pilularis*
Douglas' annual lupine	*Lupinus nanus*
Hairgrass	*Deschampsia* sp.
Himalayan berry	*Rubus discolor*
Iris-leaved rush	*Juncus xiphiodes*
Manna grass	*Glyceria occidentalis*
Madrone	*Arbutus menziesii*
Meadowfoam	*Limnanthes douglasii*
Monterey pine	*Pinus montereyensis*
Narrow-leaved cattail	*Typha latifolia*
Northern barley	*Hordeum brachyantherum*
Ocean spray	*Holodiscus discolor*
Oregon woodsorrel	*Oxalis oregana*

PLANT SPECIES

Common Name	Scientific Name
Parish's wheatgrass	*Agropyron parishii*
Poison oak	*Toxicodendron diversilobum*
Ponderosa pine	*Pinus ponderosa*
Pondweeds	*Potamogeton* spp.
Popcornflower	*Plagiobothrys* spp.
Purple clarkia	*Clarkia purpurea*
Purple needlegrass	*Nasella pulchra*
Red-stemmed filaree	*Erodium cicutarium*
Redwood violet	*Viola sempervirens*
Ripgut grass	*Bromus diandrus*
Rushes	*Juncus* spp.
Salal	*Gaultheria shallon*
Sedges	*Carex* spp.
Shaggy-barked manzanita	*Arctostaphylos tomentosa*
Silvery hairgrass	*Aira caryophyllea*
Slender hairgrass	*Deschampsia elongata*
Soft chess	*Bromus mollis*
Spikerush	*Eleocharis palustris*
Stinging nettle	*Urtica dioica* ssp. *holosericea*
Tan-bark oak	*Lithocarpus densiflora*
Valley oak	*Quercus lobata*
Wake robin	*Trillium ovatum*
Water buttercup	*Ranunculus aquatilis*
Water hemlock	*Cicuta* sp.
White alder	*Alnus rhombifolia*
Wild oat	*Avena fatua*
Willows	*Salix* spp.
Yellow buttercup	*Ranunculus californicus*
Yucca	*Yucca whipplei*

WILDLIFE SPECIES

Common Name	Scientific Name
Insects	
Smith's blue butterfly	*Euphilotes enoptes smithi*
Amphibians	
California tiger salamander	*Ambystoma tigrinum californiense*
California newt	*Taricha torosa*
California slender salamander	*Batrachoseps attenuatus*
Pacific treefrog	*Hyla regilla*
California red-legged frog	*Rana aurora draytoni*
Foothill yellow-legged frog	*Rana boylei*
Reptiles	
Southwestern pond turtle	*Clemmys marmorata pallida*
Western fence lizard	*Sceloporus occidentalis*
California horned lizard	*Phrynosoma coronatum frontale*
Southern alligator lizard	*Gerrhonotus multicarinatus*
Silvery legless lizard	*Anniella pulchra pulchra*
Gopher snake	*Pituophis melanoleucus*
San Francisco garter snake	*Thamnophis sirtalis tetrataenia*
Western rattlesnake	*Crotalus viridis*
Birds	
Pied-billed grebe	*Podilymbus podiceps*
Double-crested cormorant	*Phalacrocorax auritus*
Great blue heron	*Ardea herodias*
Great egret	*Casmerodius albus*
Snowy egret	*Egretta thula*
Green heron	*Butorides striatus*
Black-crowned night-heron	*Nycticorax nycticorax*
Wood duck	*Aix sponsa*
Mallard	*Anas platyrhynchos*
Cinnamon teal	*Anas cyanoptera*

WILDLIFE SPECIES

Common Name	Scientific Name
American wigeon	*Anas americana*
Bufflehead	*Bucephala albeola*
Ruddy duck	*Oxyura jamaicensis*
Turkey vulture	*Cathartes aura*
White-tailed kite	*Elanus caeruleus*
Bald eagle	*Haliaeetus leucocephalus*
Northern harrier	*Circus cyaneus*
Sharp-shinned hawk	*Accipiter striatus*
Cooper's hawk	*Accipiter cooperii*
Red-shouldered hawk	*Buteo lineatus*
Red-tailed hawk	*Buteo jamaicensis*
Golden eagle	*Aquila chrysaetos*
American kestrel	*Falco sparverius*
Merlin	*Falco columbarius*
Peregrine falcon	*Falco peregrinus*
Prairie falcon	*Falco mexicanus*
Wild turkey	*Meleagris gallopavo*
California quail	*Callipepla california*
American coot	*Fulica americana*
Killdeer	*Charadrius vociferus*
Band-tailed pigeon	*Columba fasciata*
Mourning dove	*Zenaida macroura*
Yellow-billed cuckoo	*Coccyzus americanus*
Western screech-owl	*Otus kennicottii*
Great horned owl	*Bubo virginianus*
Burrowing owl	*Athene cunicularia*
California spotted owl	*Strix occidentalis occidentalis*
Anna's hummingbird	*Calypte anna*
Belted kingfisher	*Ceryle alcyon*
Lewis' woodpecker	*Melanerpes lewis*
Acorn woodpecker	*Melanerpes formicivorus*
Nuttall's woodpecker	*Picoides nuttallii*
Downy woodpecker	*Picoides pubescens*
Hairy woodpecker	*Picoides villosus*
Northern flicker	*Colaptes auratus*
Western wood-pewee	*Contopus sordidulus*

WILDLIFE SPECIES

Common Name	Scientific Name
Willow flycatcher	*Empidonax traillii*
Pacific-slope flycatcher	*Empidonax difficilis*
Black phoebe	*Sayornis nigricans*
Ash-throated flycatcher	*Myiarchus cinerascens*
California horned lark	*Eremophila alpestris actia*
Tree swallow	*Tachycineta bicolor*
Violet-green swallow	*Tachycineta thalassina*
Bank swallow	*Riparia riparia*
Barn swallow	*Hirundo rustica*
Steller's jay	*Cyanocitta stelleri*
Scrub jay	*Aphelocoma coerulescens*
Yellow-billed magpie	*Pica nuttalli*
American crow	*Corvus brachyrhynchos*
Chestnut-backed chickadee	*Parus rufescens*
Plain titmouse	*Parus inornatus*
Bushtit	*Psaltriparus minimus*
White-breasted nuthatch	*Sitta carolinensis*
Brown creeper	*Certhia americana*
Bewick's wren	*Thryomanes bewickii*
House wren	*Troglodytes aedon*
Marsh wren	*Cistothorus palustris*
Golden-crowned kinglet	*Regulus satrapa*
Ruby-crowned kinglet	*Regulus calendula*
Blue-gray gnatcatcher	*Polioptila caerulea*
Swainson's thrush	*Catharus ustulatus*
Hermit thrush	*Catharus guttatus*
American robin	*Turdus migratorius*
Northern mockingbird	*Mimus polyglottos*
California thrasher	*Toxostoma redivivum*
American pipit	*Anthus rubescens*
Cedar waxwing	*Bombycilla cedrorum*
Loggerhead shrike	*Lanius ludovicianus*
European starling	*Sturnus vulgaris*
Bell's vireo	*Vireo bellii*
Solitary vireo	*Vireo solitarius*
Hutton's vireo	*Vireo huttoni*

WILDLIFE SPECIES

Common Name	Scientific Name
Warbling vireo	*Vireo gilvus*
Orange-crowned warbler	*Vermivora celata*
Nashville warbler	*Vermivora ruficapilla*
Yellow-rumped warbler	*Dendroica coronata*
Black-throated gray warbler	*Dendroica nigrescens*
Townsend's warbler	*Dendroica townsendi*
MacGillivray's warbler	*Oporornis tolmiei*
Wilson's warbler	*Wilsonia pusilla*
Yellow-breasted chat	*Icteria virens*
Western tanager	*Piranga ludoviciana*
Black-headed grosbeak	*Pheucticus melanocephalus*
Blue grosbeak	*Guiraca caerulea*
Rufous-sided towhee	*Pipilo erythrophthalmus*
California towhee	*Pipilo crissalis*
Savannah sparrow	*Passerculus sandwichensis*
Fox sparrow	*Passerella iliaca*
Song sparrow	*Melospiza melodia*
Lincoln's sparrow	*Melospiza lincolnii*
Golden-crowned sparrow	*Zonotrichia atricapilla*
White-crowned sparrow	*Zonotrichia leucophrys*
Dark-eyed junco	*Junco hyemalis*
Red-winged blackbird	*Agelaius phoeniceus*
Tricolored blackbird	*Agelaius tricolor*
Western meadowlark	*Sturnella neglecta*
Brown-headed cowbird	*Molothrus ater*
Northern oriole	*Icterus galbula*
Purple finch	*Carpodacus purpureus*
House finch	*Carpodacus mexicanus*
Lesser goldfinch	*Carduelis psaltria*
Lawrence's goldfinch	*Carduelis lawrencei*
American goldfinch	*Carduelis tristis*

WILDLIFE SPECIES

Common Name	Scientific Name
Mammals	
Pallid bat	*Antrozous pallidus*
Townsend's western big-eared bat	*Plecotus townsendii townsendii*
California mastiff bat	*Eumops perotis californicus*
Black-tailed hare	*Lepus californicus*
Western gray squirrel	*Sciurus griseus*
Western harvest mouse	*Reithrodontomys megalotis*
Deer mouse	*Peromyscus maniculatus*
Monterey dusky-footed woodrat	*Neotoma fuscipes*
California vole	*Microtus californicus*
Coyote	*Canis latrans*
Gray fox	*Urocyon cinereoargenteus*
Black bear	*Ursus americanus*
Ringtail	*Bassariscus astutus*
Raccoon	*Procyon lotor*
American badger	*Taxidea taxus*
Striped skunk	*Mephitis mephitis*
Mountain lion	*Felis concolor*
Bobcat	*Lynx rufus*
Wild pig	*Sus scrofa*
Black-tailed deer	*Odocoileus hemionus*

Appendix E. Background Information for Air Quality Analysis

Appendix E. Background Information forAir Quality Analysis

Estimates of carbon monoxide (CO) concentrations were made using the California Department of Transportation's microscale air quality model: CALINE4 (M. Hatano, P. Benson, and K. Pinkerman. 1989. CALINE4 - a dispersion model for predicting air pollution concentrations near roadways. Sacramento, CA). CALINE4 is a Gaussian dispersion model designed to evaluate potential air quality impacts of vehicle traffic.

CO modeling was performed for one intersection, Carmel Valley Road/Rancho San Carlos Road. This intersection was chosen based on results from the traffic analysis prepared for this report. This intersection is expected to operate at level of service (LOS) F with a reserve capacity of -81 on its northbound left-turn movement under future with-GMPAP conditions, as opposed to LOS F with a reserve capacity of -18 under future no-project conditions. This means that reserve capacity would be decreased by more than 50 vehicles at an intersection that would already have an unacceptable LOS under future no-project conditions. No other intersection analyzed in the traffic analysis met this criterion.

CALINE4 was used to predict CO concentrations at locations (receptors) where people could be exposed to pollutants near this intersection. Receptors were chosen based on observations of the land uses surrounding the intersection. Receptor locations were taken from a land use map for the project area. Modeling results for each receptor represent total CO contributions from all modeled roadway segments.

Afternoon peak-hour traffic volumes and speeds used in the modeling were obtained from the traffic analysis prepared for this report. Traffic speeds were adjusted to reflect congested speeds and reduced speeds and idling at intersections.

Emission rates were determined using EMFAC7F. The vehicle fleet mixture and operating mode percentages were obtained from a letter dated December 22, 1994, and sent by Don Ballanti, who prepared the air quality technical report for the proposed project. These values were used in the CO modeling performed for that report. The vehicle mixture included 72.8% light-duty automobiles, 12.7% light-duty trucks, 4.6% medium-duty trucks, 9.0% heavy-duty trucks, and 0.9% motorcycles. Vehicle operating-mode percentages were assumed to be 21% in cold-start mode, 27% in hot-start mode, and 52% in hot-stabilized mode. Air temperature was assumed to be 40 degrees Fahrenheit.

The meteorological conditions used in the modeling include a wind speed of 0.5 mile per hour, stability class G, and a mixing height of 1,000 feet. Thirty-six wind angles were modeled

(10-360 degrees by 10-degree increments) to determine a worst-case concentration for each receptor. Meteorological conditions were determined using methodology recommended in Air Quality Technical Analysis Notes (California Department of Transportation. 1988. Air quality technical analysis notes. Sacramento, CA.).

A background concentration of 4 parts per million was added to the 1-hour values to account for other sources of CO, such as nearby parking lots, roadways not included in the model, and wood-burning stove emissions. Eight-hour values were calculated from the 1-hour values using a persistence factor of 0.7.

CALCULATION OF CONSTRUCTION-RELATED EMISSIONS

Construction-related emissions are shown in Tables 14-3 and 14-4 of the text. As explained in the text, Table 14-3 is based on the assumption that asphalt would be produced onsite and Table 14-4 is based on the assumption that it would be produced offsite. Emission categories included in Table 14-3 are construction worker traffic, construction equipment operation, rock crusher operation, and asphalt production. Table 14-4 includes all these categories plus a category for asphalt trucking traffic. Assumptions used in calculating emissions for each of these categories are described below.

Construction Worker Traffic

Emissions generated by construction worker traffic were calculated by multiplying together the maximum daily number of construction workers expected to work at the project site, the number of trips made per worker per day, the average distance of each trip, and a per trip emission rate for each pollutant. It was assumed that 180 workers per day would be the maximum daily number of construction workers expected to work at the project site (Duffy pers. comm.), two trips would be made per worker per day, and the average trip distance would be 20 miles. Emission rates were calculated using EMFAC7F, version 1.1.

Construction Equipment Operation

Emissions generated by construction equipment operation were calculated by multiplying together daily hours of operation and emission rates for each piece of equipment expected to be used at the project site during the most intensive period of construction. It was assumed that during the most intensive period of construction, the following pieces of equipment would be used 8 hours per day at the project site: two D8 Caterpillar tractors, one D6 Caterpillar tractor, two rubber-tired scrapers, two motor graders, one water truck, one sheepsfoot compactor, one wheeled loader, two rubber-tired backhoes, one asphalt paving machine, one steel-wheeled roller,

one 10-wheeled truck, one stake-side truck, one mechanics truck, and one transfer truck and trailer (Duffy pers. comm.). Emission rates were taken from AP-42 (U.S. Environmental Protection Agency 1985).

Additionally, fugitive dust emissions associated with construction activities were estimated by multiplying the maximum number of acres of land expected to be disturbed in a single day during the construction period by a fugitive dust emission rate taken from AP-42 (U.S. Environmental Protection Agency 1985). It was assumed that 10 acres was the maximum acreage expected to be disturbed in a single day during the construction period (Duffy pers. comm.).

Asphalt Production

Emissions generated by asphalt production were calculated by multiplying together the maximum amount of asphalt expected to be produced per day and an emission rate for each pollutant. It was assumed that 1,100 tons of asphalt would be the maximum amount produced per day (Duffy pers. comm.). Emission rates were taken from AP-42 (U.S. Environmental Protection Agency 1985).

Rock Crusher Operation

Emissions generated by rock crushing were calculated by multiplying together the maximum amount of rock expected to be crushed per day and an emission rate for each pollutant. It was assumed that 1000 cubic yards of rock would be the maximum amount crushed per day if the onsite asphalt plant were not used and that 1,500 cubic yards of rock would be the maximum amount crushed per day if the onsite asphalt plant were used (Duffy pers. comm.). Emission rates were taken from AP-42 (U.S. Environmental Protection Agency 1985).

Asphalt Trucking

Emissions generated by asphalt trucking were calculated by multiplying together the maximum amount of asphalt expected to be produced per day, the average truck capacity, the average trip distance, and an emission rate for each pollutant. It was assumed that 1,100 tons of asphalt would be the maximum amount produced per day, average truck capacity would be 20 cubic yards, and average trucking distance would be 25 miles one way (Duffy pers. comm., Ballanti 1994). Emission rates were calculated using EMFAC7F, version 1.1.

CITATIONS

Printed References

Ballanti, Donald. 1994. Air quality impact analysis of Rancho San Carlos, Monterey County. El Cerrito, CA.

California. Department of Transportation. 1988. Air quality technical analysis notes. Sacramento, CA.

U.S. Environmental Protection Agency. 1985. Compilation of air pollutant emission factors. Volume I: Stationary point and area sources. Fourth edition. Research Triangle Park, NC.

Personal Communication

Duffy, Denise. Owner. Denise Duffy & Associates, Monterey, CA. December 22, 1994 - memorandum concerning economic data on the Santa Lucia Preserve project; January 4, 1995 - telephone conversation.

Appendix F. Background Information for Noise Analysis

BACKGROUND INFORMATION FOR NOISE ANALYSIS

Sound Terminology

Sound travels through the air as waves of minute air pressure fluctuations caused by some type of vibration. In general, sound waves travel away from the sound source as an expanding spherical surface. The energy contained in a sound wave is consequently spread over an increasing area as it travels away from the source. This results in a decrease in loudness at greater distances from the sound source. The following terms are commonly used in acoustics.

Decibel

Sound-level meters measure the pressure fluctuations caused by sound waves. Because of the ability of the human ear to respond to a wide dynamic range of sound pressure fluctuations, loudness is measured in terms of decibels (dB) on a logarithmic scale. This results in a scale that measures pressure fluctuations in a convenient notation and corresponds to our auditory perception of increasing loudness.

A-Weighted Decibels

Most sounds consist of a broad range of sound frequencies. Because the human ear is not equally sensitive to all frequencies, several frequency-weighting schemes have been used to develop composite decibel scales that approximate the way the human ear responds to sound levels. The "A-weighted" decibel scale is the most widely used for this purpose. Typical A-weighted sound levels for various types of sound sources are summarized in Figure F-1.

Equivalent Sound Level

Time-varying sound levels are often described in terms of an equivalent constant decibel level. Equivalent sound levels (L_{eq}) are used to develop single-value descriptions of average sound exposure over various periods of time. Such average sound exposure values often include additional weighting factors for annoyance potential attributable to time of day or other considerations. The L_{eq} data used for these average sound exposure descriptors are generally based on A-weighted sound-level measurements.

Sound Source	A-Weighted Sound Level (dB)	Response
Carrier deck jet operation >	140	
Civil defense siren (at 100 feet) >	130	Painfully loud
Jet takeoff (at 200 feet) >	120	Threshold of feeling and pain
Riveting machine (at 1 foot) > Rock music concert >	110	
Pile driver (at 50 feet) > Ambulance siren (at 100 feet) >	100	Very loud
Heavy truck (at 50 feet) >	90	
Pneumatic drill (at 50 feet) > Freight cars (at 50 feet) > Garbage disposal in home >	80	
Freight cars (at 100 feet) > Freeway traffic (at 50 feet) > Vacuum cleaner (at 10 feet) >	70	Moderately loud
Air conditioning unit (at 20 feet) >	60	
Speech in normal voice (at 15 feet) >	50	
Residence–typical movement of people, no TV or radio >	40	Quiet
Soft whisper (at 5 feet) >	30	
Recording studio >	20	
	10	
	0	Threshold of hearing

Jones & Stokes Associates, Inc.

Figure F-1
Weighted Sound Levels and Human Response

Day-Night Average Sound Level

Average sound exposure over a 24-hour period is often presented as a day-night average sound level (DNL or L_{dn}). L_{dn} values are calculated from hourly L_{eq} values, with the L_{eq} values for the nighttime period (10:00 p.m.-7:00 a.m.) increased by 10 dB to reflect the greater disturbance potential from nighttime noises.

Community Noise Equivalent Level

The community noise equivalent level (CNEL) is also used to characterize average sound levels over a 24-hour period, with weighting factors included for evening and nighttime sound levels. L_{eq} values for the evening period (7:00 p.m.-10:00 p.m.) are increased by 5 dB, while L_{eq} values for the nighttime period (10:00 p.m.-7:00 a.m.) are increased by 10 dB. For given set of sound measurements, the CNEL value will usually be about 1 dB higher than the L_{dn} value. In practice, CNEL and DNL are often used interchangeably.

Percentile-Exceeded Sound Level

The sound level exceeded during a given percentage of a measurement period is the percentile-exceeded sound level (L_x). Examples include L_{10}, L_{50}, and L_{90}. L_{10} is the A-weighted sound level that is exceeded 10% of the measurement period, L_{50} is the level exceeded 50% of the period, and so on. L_{90} is often considered to represent the ambient sound level.

Ambient Sound

Ambient sound is the all-encompassing sound associated with a given community site, usually being a composite of sounds from many sources, near and far, with no particular sound being dominant.

Equivalencies between Various Sound Descriptors

The L_{dn} value at a site calculated from a set of measurements taken over a given 24-hour period will be slightly lower than the CNEL value calculated over the same period. Except in situations where unusually high evening sound levels occur, the CNEL value will be within 1.5 dB of the L_{dn} value for the same set of sound measurements.

The relationship between peak hourly L_{eq} values and associated L_{dn} values depends on the distribution of traffic over the entire day. There is no precise way to convert a peak hourly L_{eq} value to an L_{dn} value. However, in urban areas near heavy traffic, the peak hourly L_{eq} value is typically 2-4 dB lower than the daily L_{dn} value. In less heavily developed areas, the peak hourly L_{eq} is often equal to the daily L_{dn} value. For rural areas with little nighttime traffic, the peak hourly L_{eq} value will often be 3-4 dB greater than the daily L_{dn} value.

Working with Decibel Values

The nature of the decibel scale is such that the individual sound levels for different sound sources cannot be added directly to give the combined sound level of these sources. Two sound sources producing equal sound levels at a given location will produce a composite sound level that is 3 dB greater than either sound alone. When two sound sources differ by 10 dB, the composite sound level will be only 0.4 dB greater than the louder source alone.

Most people have difficulty distinguishing the louder of two sound sources if they differ by less than 1.5-2.0 dB. Research into the human perception of changes in sound level indicates the following:

- a 3-dB change is just perceptible,
- a 5-dB change is clearly perceptible, and
- a 10-dB change is perceived as being twice or half as loud.

A doubling or halving of acoustic energy will change the resulting sound level by 3 dB, which corresponds to a change that is just perceptible. In practice, this means that a doubling of traffic volume on a roadway, doubling the number of people in a stadium, or doubling the number of wind turbines in a wind farm will, as a general rule, only result in a 3-dB, or just perceptible, increase in noise.

Outdoor Sound Propagation

There are a number of factors that affect how sound propagates outdoors. These factors, described by Miller (1982), are summarized below.

Distance Attenuation

As a general rule, sound from localized or point sound sources spreads out as it travels away from the source and the sound level drops at a rate of 6 dB per doubling of distance. If the sound source is long in one dimension, such as traffic on a highway or a long train, the sound source is considered to be a line source. As a general rule, the sound level from a line source will drop off at a rate of 3 dB per doubling of distance. If the intervening ground between the line source and the receptor is acoustically "soft" (e.g., ground vegetation, scattered trees, clumps of bushes), an attenuation rate of 4.5 dB per doubling of distance is generally used.

Attenuation from Barriers

Any solid structure such as a berm, wall, or building that blocks the line of sight between a source and receiver serves as a sound barrier and will result in additional sound attenuation. The amount of additional attenuation is a function of the difference between the length of the sound path over the barrier and the length of the direct line of sight path. Thus, the sound attenuation of a barrier between a source and a receiver that are very far apart will be much less than the attenuation that would result if either the source or the receiver is very close to the barrier.

Molecular Absorption

Air absorbs sound energy as a function of the temperature, humidity of the air, and frequency of the sound. Additional sound attenuation on the order of 1 to 2 dB per 1,000 feet can occur.

Anomalous Excess Attenuation

Large-scale effects of wind speed, wind direction, and thermal gradients in the air can cause large differences in sound transmission over large distances. These effects when combined result in anomalous excess attenuation, which can be applied to long-term sound-level estimates. Additional sound attenuation on the order of about 1 dB per 1,000 feet can occur.

Other Atmospheric Effects

Short-term atmospheric effects relating to wind and temperature gradients can cause bending of sound waves and can influence changes in sound levels at large distances. These effects can either increase or decrease sound levels depending on the orientation of the source and receptor and the nature of the wind and temperature gradient. Because these effects are normally short-term, it is generally not practical to include them in sound propagation calculations. Understanding these effects, however, can help explain variations that occur between calculated and measured sound levels.

Guidelines for Interpreting Sound Levels

Various federal, state, and local agencies have developed guidelines for evaluating land use compatibility under different sound-level ranges. The following is a summary of federal and state guidelines.

Federal Agency Guidelines

The federal Noise Control Act of 1972 (Public Law 92-574) established a requirement that all federal agencies administer their programs to promote an environment free of noise that jeopardizes public health or welfare. EPA was given the responsibility for:

- providing information to the public regarding identifiable effects of noise on public health or welfare,
- publishing information on the levels of environmental noise that will protect the public health and welfare with an adequate margin of safety,
- coordinating federal research and activities related to noise control, and
- establishing federal noise emission standards for selected products distributed in interstate commerce.

The federal Noise Control Act also directed that all federal agencies comply with applicable federal, state, interstate, and local noise control regulations.

Although EPA was given major public information and federal agency coordination roles, each federal agency retains authority to adopt noise regulations pertaining to agency programs. EPA can require other federal agencies to justify their noise regulations in terms of the federal Noise Control Act policy requirements. The Occupational Safety and Health Administration retains primary authority for setting workplace noise exposure standards. The Federal Aviation Administration retains primary jurisdiction over aircraft noise standards, and the Federal Highway Administration (FHWA) retains primary jurisdiction over highway noise standards.

In 1974, in response to the requirements of the federal Noise Control Act, EPA identified indoor and outdoor noise limits to protect public health and welfare (communication disruption, sleep disturbance, and hearing damage). Outdoor L_{dn} limits of 55 dB and indoor L_{dn} limits of 45 dB are identified as desirable to protect against speech interference and sleep disturbance for residential, educational, and healthcare areas. Sound-level criteria to protect against hearing damage in commercial and industrial areas are identified as 24-hour L_{eq} values of 70 dB (both outdoors and indoors).

The FHWA has adopted criteria for evaluating noise impacts associated with federally funded highway projects and for determining whether these impacts are sufficient to justify funding noise mitigation actions (47 FR 131:29653-29656, July 8, 1982). The FHWA noise abatement criteria are based on peak hourly L_{eq} sound levels, not L_{dn} or 24-hour L_{eq} values. The peak 1-hour L_{eq} criteria for residential, educational, and healthcare facilities are 67 dB outdoors and 52 dB indoors. The peak 1-hour L_{eq} criterion for commercial and industrial areas is 72 dB (outdoors).

The U.S. Department of Housing and Urban Development has established guidelines for evaluating noise impacts on residential projects seeking financial support under various grant programs (44 FR 135:40860-40866, January 23, 1979). Sites are generally considered

Appendix G. Site Plans for General Development Plans and Use Permit for the Wastewater Treatment Plant

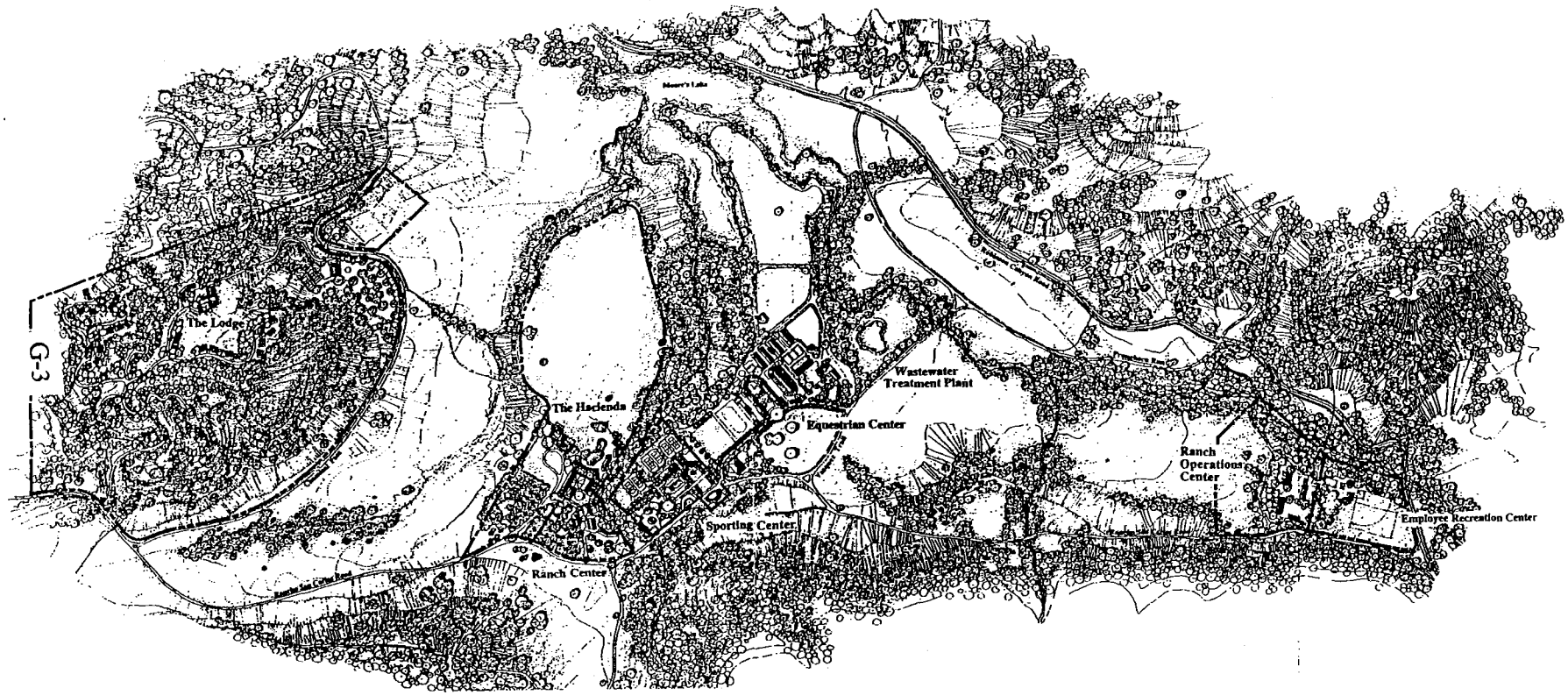


FIGURE 2-16
Location of General Development Plan Lots in San Francisquito Flat

G-3

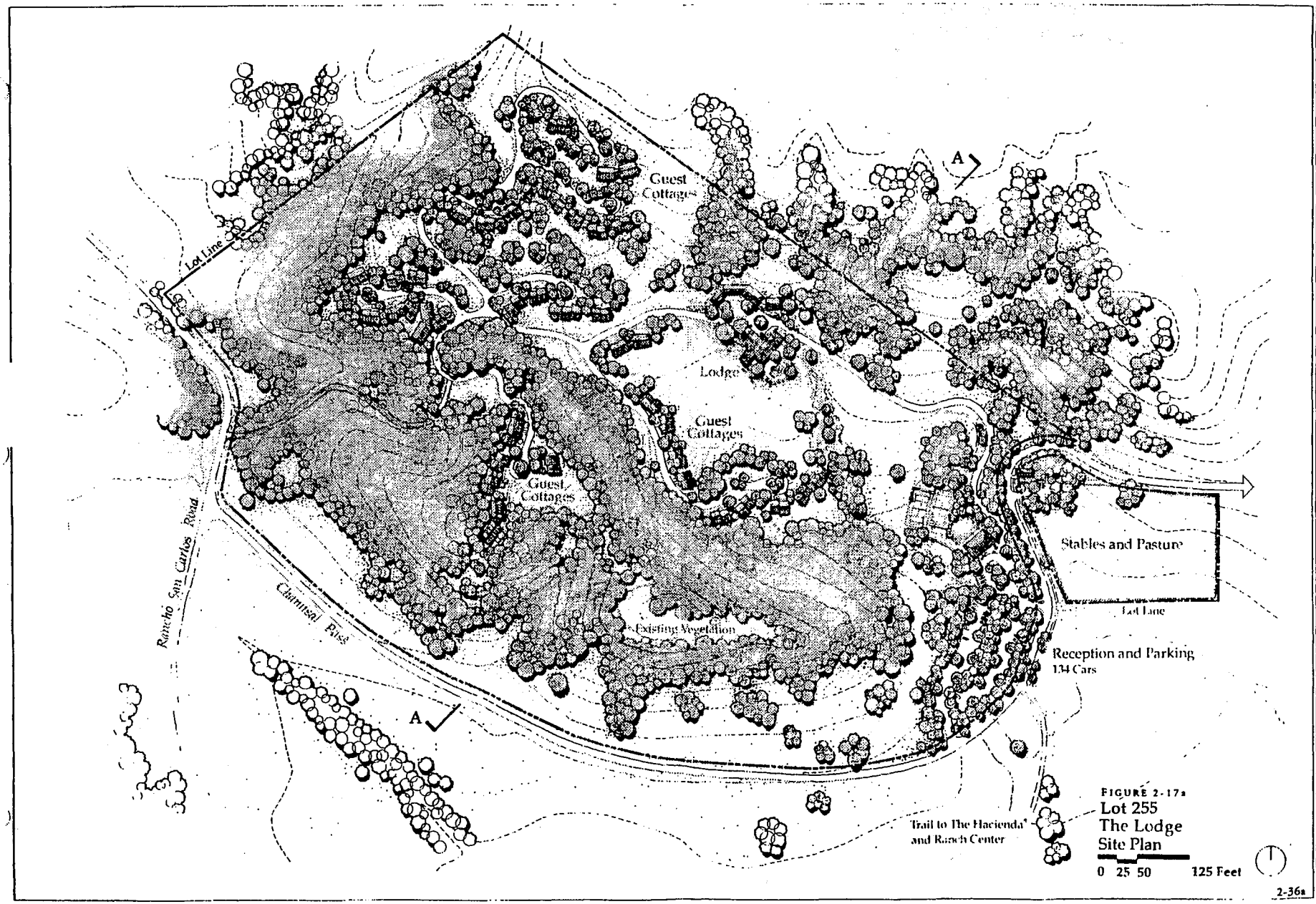
ROBERT LAMB HART
Planners, Architects, and Landscape Architects
142 California Street, San Francisco, CA 94111
BESTOR ENGINEERS, INC.
Civil Engineers
1991 New Lockport Lane, Monterey, CA 93940

THE SANTA LUCIA PRESERVE
Monterey County, California

DATE: January 11, 1994
REVISIONS: August 14, 1995

DRAWING TITLE: Location of General Development Plan Lots in San Francisco Flat
General Development Plan

DRAWING NO:
SHEET OF



THE SANTA LUCIA PRESERVE
Monterey County, California

ROBERT LAMB HART
Planners, Architects, and Landscape Architects
212 California Street, San Francisco, CA 94111

BESTOR ENGINEERS, INC.
Civil Engineers
9701 Blue Larkspur Lane, Monterey, CA 93940

Site Plan
The Lodge
General Development Plan

1
1 of 3

2.4.1 The Lodge (Lots 255 and 256)

The Lodge will be a 110 room facility located in Chamisal Bowl, an 84± acre site north of *The Hacienda* overlooking San Francisquito Flat. *The Lodge* consists of a central facility with 24 guest rooms together with an additional 86 guest rooms provided in cottages clustered within the surrounding landscape. Additional facilities include a lounge, dining facilities, meeting rooms, and outdoor facilities for swimming, tennis and horseback riding. (See Figure 2-17a through 2-17c).

Facility Program:

1. *Main Building*	
• Guest Rooms (24 rooms @ 700 s.f.)	16,800 s.f.
• Support Facilities	16,800 s.f.
• Lounge/Lobby/Gift	2,500 s.f.
• Dining (55 seats)	2,750 s.f.
• Meeting Rooms	7,500 s.f.
• Service	12,600 s.f.
• Employee Housing (2)	2,000 s.f.
Total Lodge	**60,950 s.f.**
2. *Arrival/Reservations Building*	2,000 s.f.
3. *Cottages* (86 rooms)	
• 2 suite bldg. 31 - 1,600 s.f. (800 s.f./room)	49,600 s.f.
• 4 suite bldg, 6 - 3,500 s.f	21,000 s.f.
Total Cottages	**70,600 s.f.**
4. *Site Improvements*	
• (2) Tennis Courts	
• Horse Stable (six stalls)	
• Paddocks with fencing, 4 acres	
5. *Parking*	134 spaces
• Guests	110
• Employees	24

The Lodge requires a Use Permit which will be part of a separate additional entitlement application.

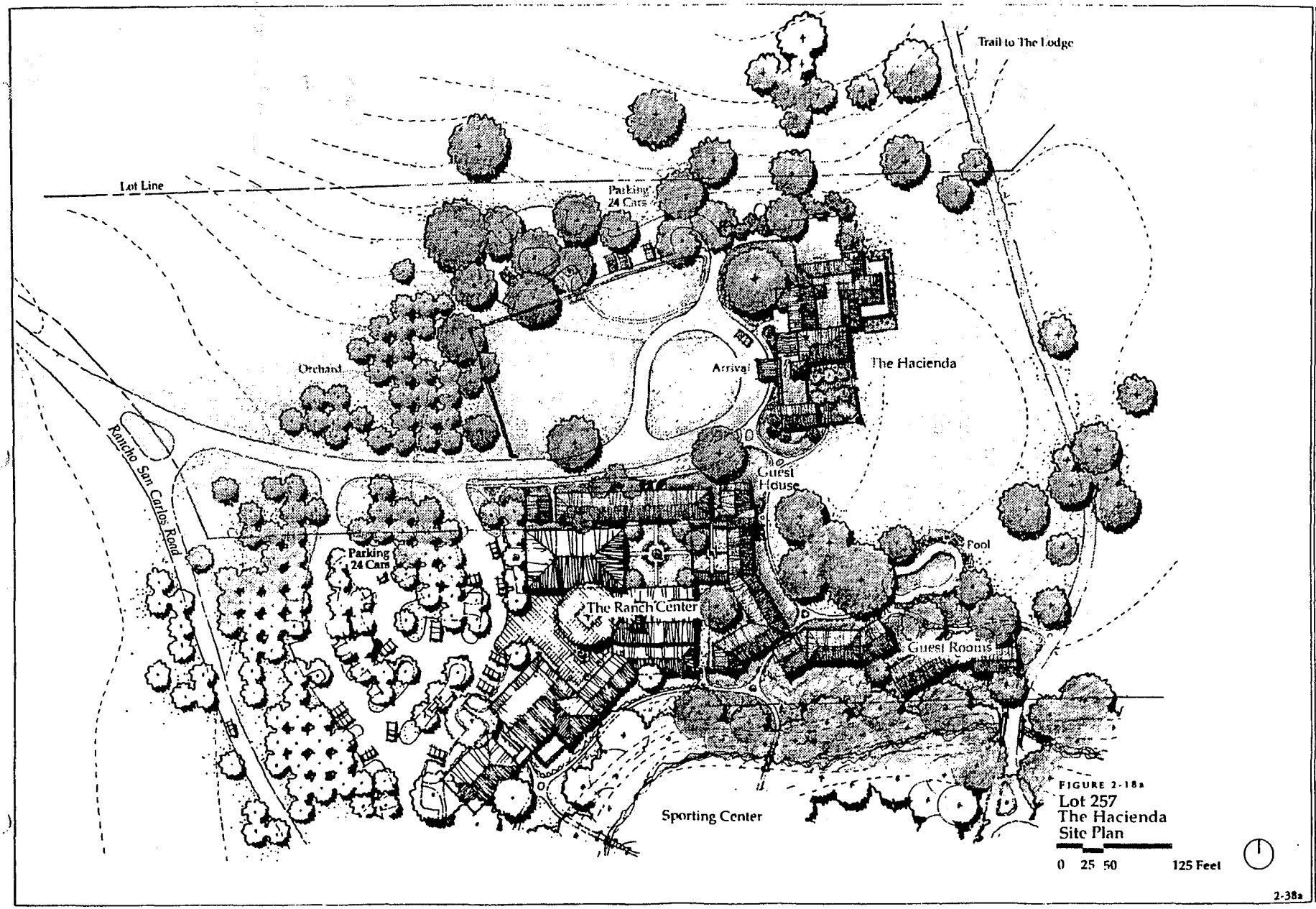


FIGURE 2-18a
Lot 257
The Hacienda
Site Plan

THE SANTA LUCIA PRESERVE
Monterey County, California

ROBERT LAMB HART
Planners, Architects, and Landscape Architects
312 California Street, San Francisco, CA 94111
BESTOR ENGINEERS, INC.
Civil Engineers
1771 Nisa Lockwood Lane, Monterey, CA 93940

DATE:
REVISIONS:

DRAWING TITLE:
Site Plan
The Hacienda
(General Development Plan)

DRAWING NO.
1
1 of 3

2.4.2 The Hacienda (Lot 257)

The Hacienda, consisting of the existing ranch house and its guest house, is to be remodeled and expanded to provide a total of 40 visitor accommodation rooms. Existing rooms in the ranch house and the guest house will be remodeled to create 14 visitor accommodation rooms. 26 new guest rooms will be added in buildings designed to extend the traditional character of *The Hacienda* and its grounds (See Figure 2-18a through 2-18c). The existing kitchen and dining room will also be expanded and improved. Two existing bedrooms in the ranch house are to be remodeled for the boarding of Conservancy interns and are not included in the Visitor Accommodation calculations.

Facility Program:

1.	*Renovation* - 14 guest rooms	
2.	*New Rooms*	
	• 26 @ 650 s.f. each	16,900± s.f.
	• Circulation @ 15%	2,500± s.f.
		19,400± s.f.
3.	*Dining Room Expansion*	1,880 s.f.
4.	*Kitchen Expansion*	1,200 s.f.
5.	*Parking*	48 spaces
	• 24 spaces at *The Hacienda*	
	• 24 spaces located at the adjacent *Ranch Center*	

The Hacienda will require a Use Permit which will be part of a separate additional entitlement application.

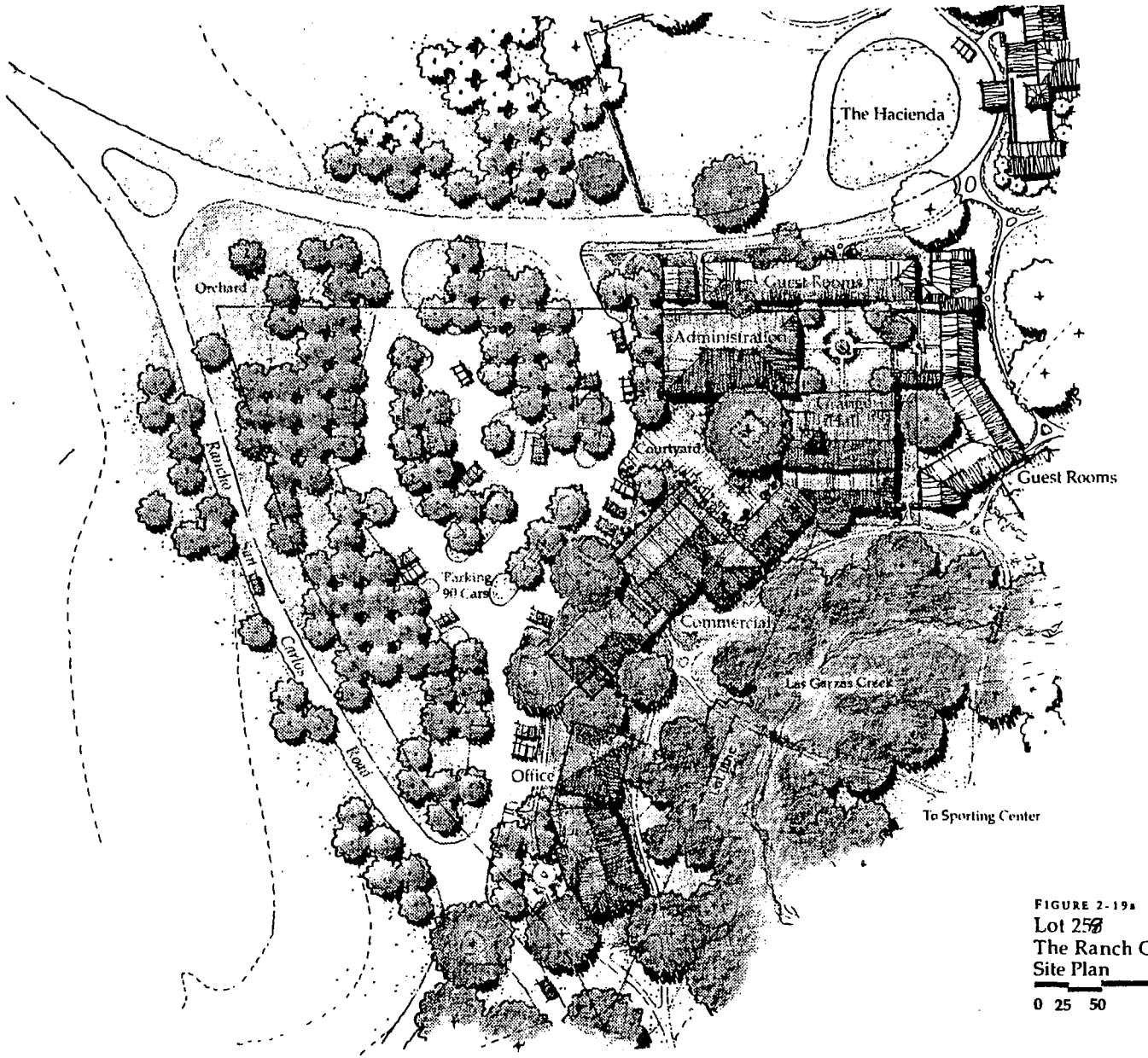


FIGURE 2-19a
Lot 25
The Ranch Center
Site Plan

0 25 50 125 Feet

2-40a

ROBERT LAMB HART
Planners, Architects, and Landscape Architects
215 Calle Principal, Monterey, California 93940
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Civil Engineers
1775 Blue Larkspur Lane, Monterey, CA 93940

THE SANTA LUCIA PRESERVE
Monterey County, California

Site Plan
The Ranch Center
General Development Plan

1
SHEET 1 of 4

2.4.3 The Ranch Center (Lot 258)

Adjacent to the existing ranch house at the crossroads of the Las Garzas Valley and Rancho San Carlos Road is a 3± acre site for *The Ranch Center*. *The Ranch Center* is intended to be the community gathering place. It will include a general store, post office, gas station and other neighborhood serving commercial and office uses for the everyday convenience of residents and guests. (See Figure 2-19a through 2-19d).

The Ranch Center will also house project administrative and sales offices, and the offices and facilities of the Conservancy including a library/museum, an interpretive exhibit space and gallery, and a multi-purpose community space (grange hall). In addition, a portion of the inclusionary rental housing for employees will be accommodated within *The Ranch Center.*

Facility Program:

1. *Commercial – 15,000 s.f.*	
1. Post Office	500 s.f.
2. Specialty Retail	2,000 s.f.
3. General Store	3,000 s.f.
4. Offices	3,000 s.f.
5. Real Estate Office	2,500 s.f.
6. Cafe	1,000 s.f.
7. ATM, etc.	500 s.f.
8. Storage	2,500 s.f.
2. *Conservancy – 12,000 s.f.*	
1. Library	1,000 s.f.
2. Gallery	1,000 s.f.
3. Meeting Rooms	1,000 s.f.
4. Multi-Purpose Room	4,000 s.f.
5. Administration	5,000 s.f.
3. *Employee Housing* – 8 Units, 4,800 s.f. (on second floors)	
1. Studio	
• (4) @ 500 s.f. each	2,000 s.f.
2. One bedroom/one bath	
• (4) @ 600 s.f. each	2,400 s.f.
3. Community Family Room	400 s.f.
4. *Parking*	
1. Employee Housing	10
2. Commercial/Conservancy	56
3. Hacienda	24
	90 spaces

Portions of *The Ranch Center* will require Administrative Permits and/or Use Permits which will be part of a separate additional entitlement application.

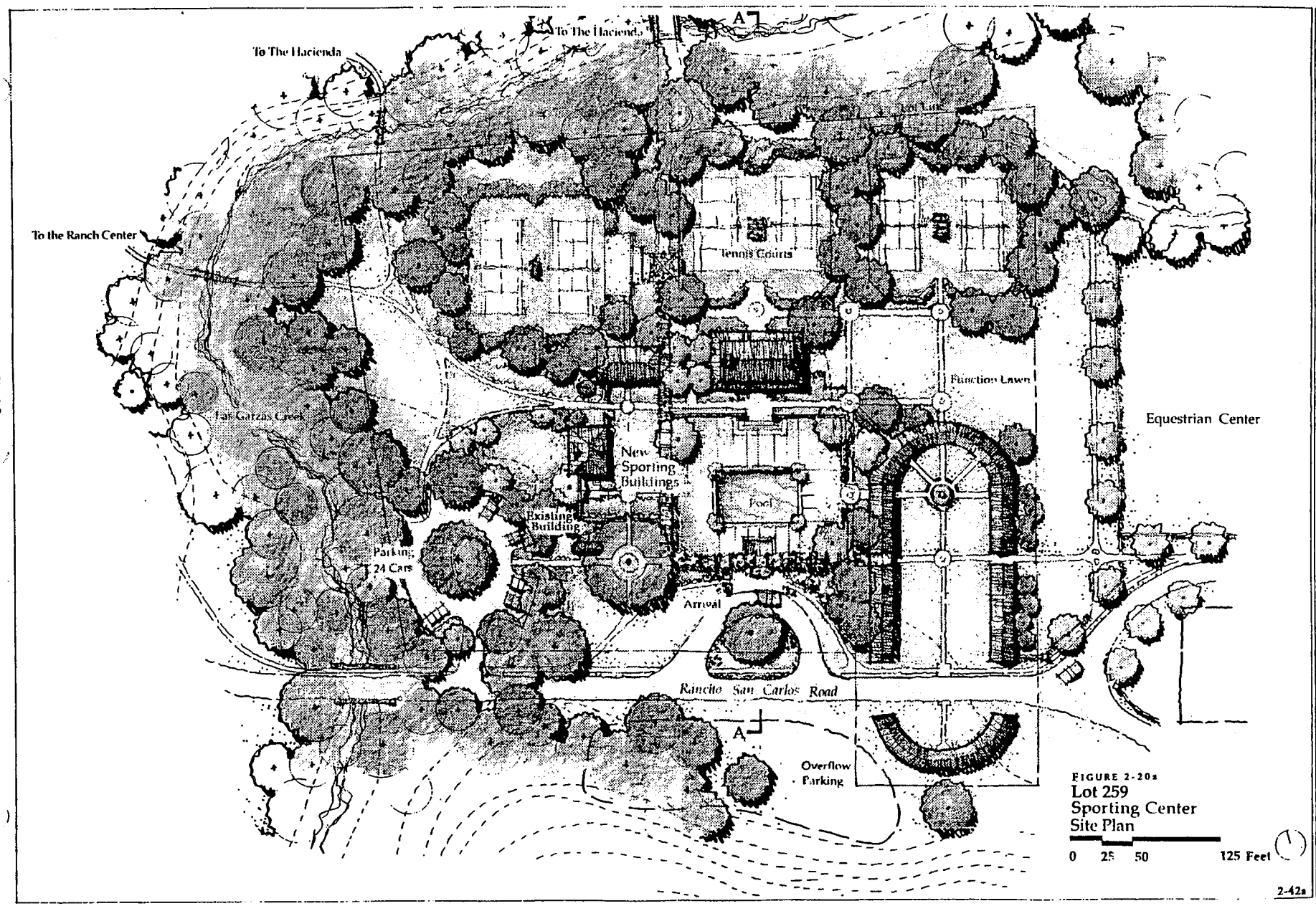

FIGURE 2-20a
Lot 259
Sporting Center
Site Plan

2-42a

ROBERT LAMB HART
Professional Land Surveyor
242 California Street, San Francisco, CA 94111
BESTOR ENGINEERS, INC.
Civil Engineers
1998 Blue Larkspur Lane, Monterey, CA 93940

THE SANTA LUCIA PRESERVE
Monterey County, California

DATE
REVISIONS

DRAWING TITLE
Site Plan
Sporting Center

DRAWING NO.
1
SHEET 1 of 3

2.4.4 The Sporting Center (Lot 259)

The Sporting Center fronts Las Garzas Creek opposite *The Hacienda.* This 6± acre facility will provide six tennis courts, a swimming pool and terrace, and 6,000 square feet of buildings for a pro shop, lockers, exercise and fitness rooms, massage and spa therapy facilities, and a snack bar. (See Figure 2-20a through 2-20c).

Facility Program:

1. *Buildings (3)* — 6,000 s.f.
   - Pro Shop/Snack Bar
   - Cardiovascular/weight facilities
   - Aerobics/multipurpose room
   - Approx. 40 storage lockers plus toilets showers and changing areas
2. *Tennis courts*
   - 6 courts
3. *Outdoor pool*
   - Lap Pool: 42'x75' (6 lanes)
   - Kid's pool
4. *Site Improvements*
   - Patios, Terraces
   - Landscaping
5. *Parking* — 24 spaces

The required Use Permit will be part of a separate additional entitlement application.

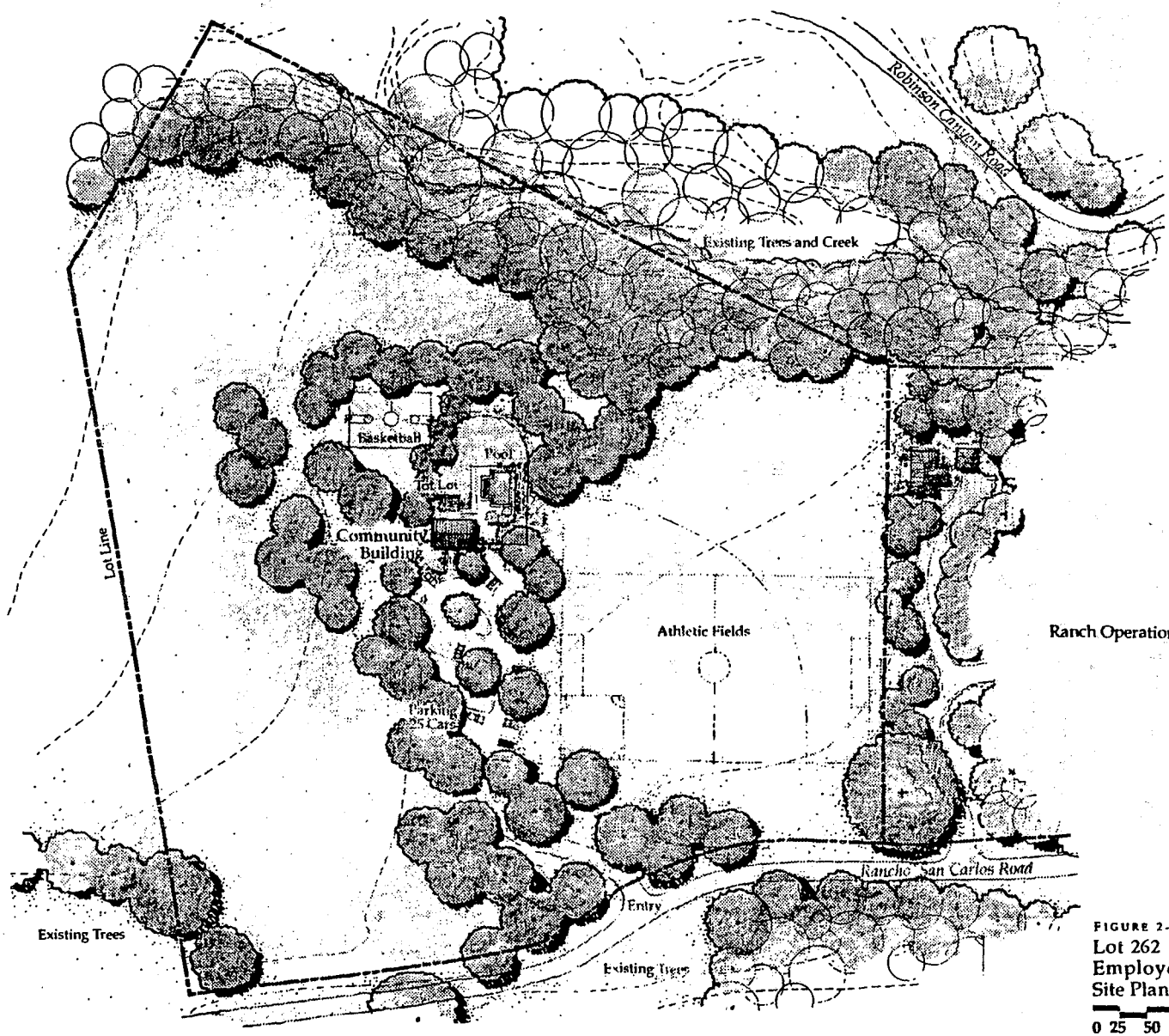

FIGURE 2-22a
Lot 262
Employee Recreation Center
Site Plan

0 25 50 125 Feet

2-46a

ROBERT LAMB HART
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BESTOR ENGINEERS, INC.
Civil Engineers
1775 Bon Air Center, Greenbrae, Ca. 94904

THE SANTA LUCIA PRESERVE
Monterey County, California

DATE: January 21 1992
REVISIONS:

DRAWING TITLE
Site Plan
Employee Recreation Center
General Development Plan

DRAWING NO.
1
SHEET 1 of 2

2.4.6 The Employee Recreation Center (Lot 263)

An *Employee Recreation Center* will be built at the intersection of Rancho San Carlos Road and Robinson Canyon Road on a 6± acre site. The facilities to be provided include a multi-purpose community building, a basketball court, a dual function softball/soccer field, outdoor picnic facilities, a tot lot, swimming pool and parking for 25 cars. (See Figure 2-22a through 2-22b).

Facility Program

1. *Building* — 2,000 s.f.
   - multi-purpose community building including function rooms, a kitchen and restrooms.
2. *Basketball court*
3. *Dual-purpose softball/soccer field (approx. 80'x300')*
4. *Tot lot*
5. *Outdoor picnic facilities*
6. *Swimming pool (20'x40')*
7. *Parking* — 25 cars

The required Use Permit will be part of a separate additional entitlement application.

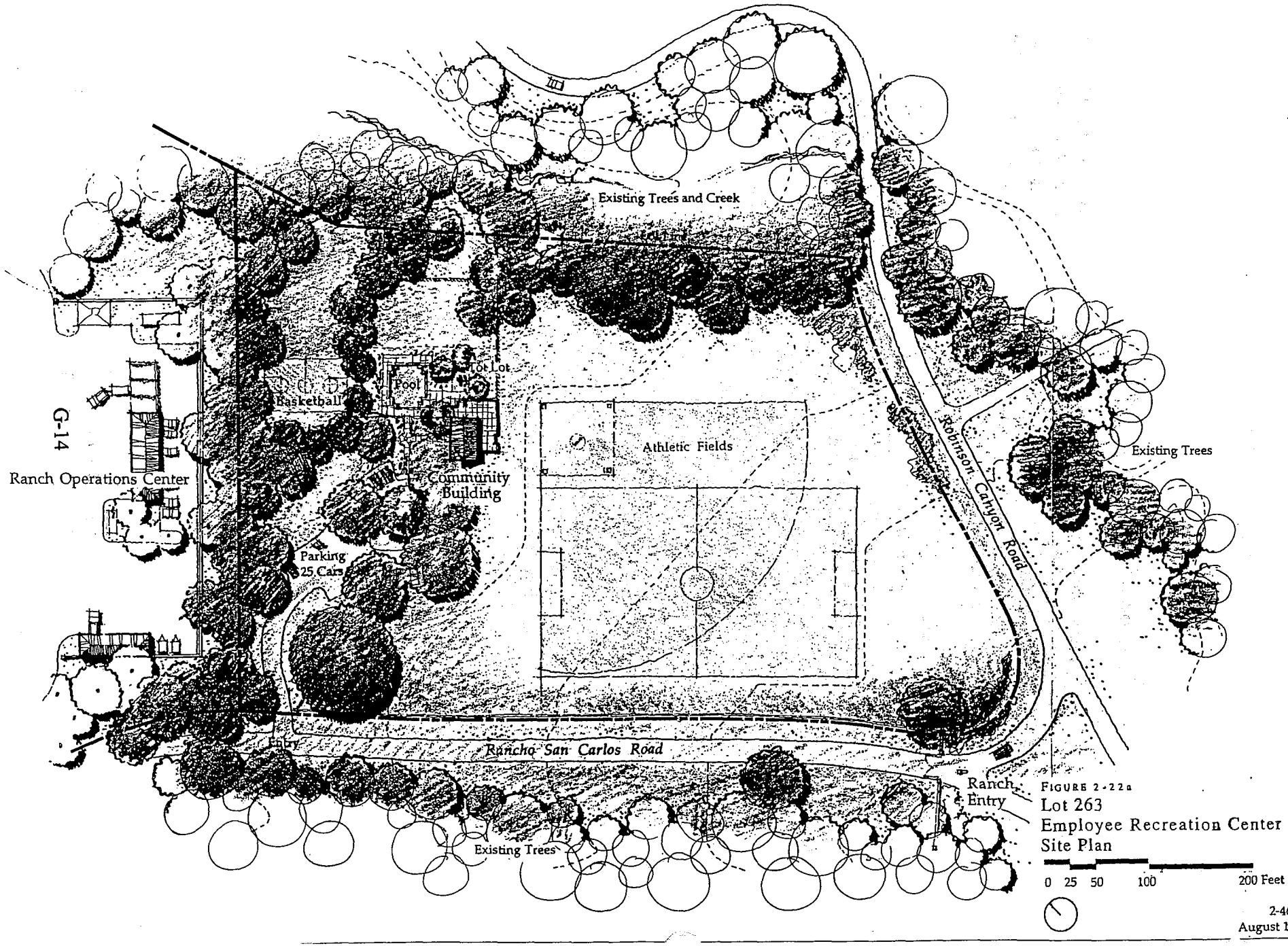

FIGURE 2-22a
Lot 263
Employee Recreation Center
Site Plan

2-46aA
August 1995

G-14

ROBERT LAMB HART
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Civil Engineers
9701 Blue Larkspur Lane, Monterey, CA 93940

THE SANTA LUCIA PRESERVE
Monterey County, California

DATE:
REVISIONS:
DRAWING TITLE: Site Plan
Employee Recreation Center
General Development Plan
DRAWING NO. 1
SHEET 1 of 2

2.4.5 The Ranch Operations Center (Lot 262)

A new facility will be built to the west of the *Employee Recreation Center* to provide a new centralized location for *Santa Lucia Preserve* operations. Many of the operations to be located here already occur at other locations on the ranch as a part of existing resource management activities.

The 12± acre *Ranch Operations Center* will serve as the center for operations personnel, and include agricultural vehicle and equipment storage, maintenance and repair facilities, landscaping and maintenance operations, materials storage and warehousing (enclosed and open), refuse collection and recycling, and fuel storage. It will also include a non-inclusionary employee housing unit. (See Figure 2-21a through 2-21b.)

Facility Program

1. *Buildings*	
• General storage/maintenance	10,000 s.f.
• Equipment maintenance	5,000 s.f.
• Employee housing	1,500 s.f.
2. *Open storage*	
3. *Recycling facility*	
4. *Vehicle washing*	
5. *Gas/diesel refueling*	
6. *Propane storage*	
7. *Employee parking*	33 spaces

The required Use Permit will be part of a separate additional entitlement application.

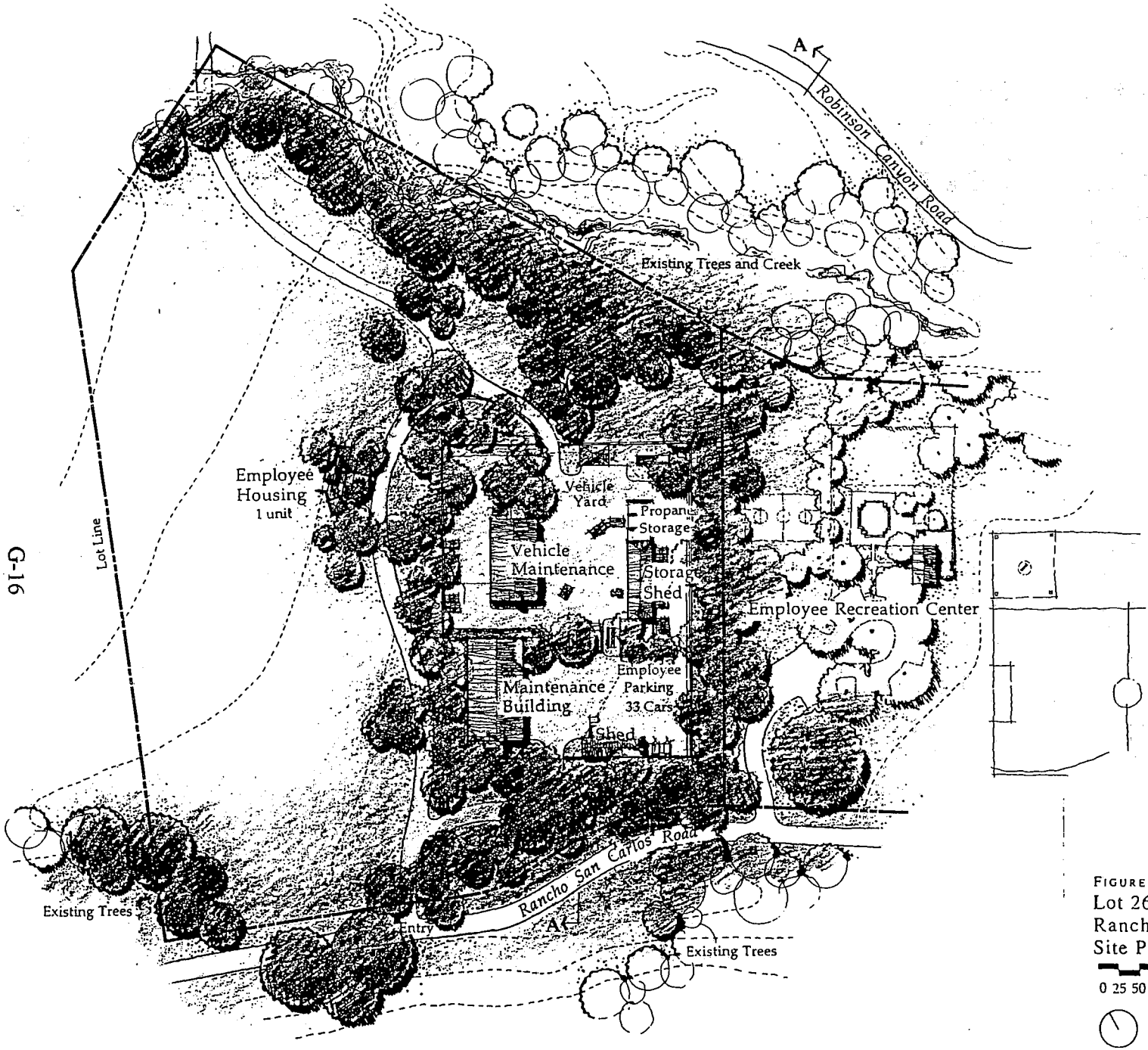

FIGURE 2-21a
Lot 262
Ranch Operations Center
Site Plan

0 25 50 100 200 Feet

2-44aA
August 1995

ROBERT LAMB HART
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Civil Engineers
2991 Blue Larkspur Lane, Monterey, CA 93940

THE SANTA LUCIA PRESERVE
Monterey County, California

DATE:
REVISIONS:

DRAWING TITLE:
Site Plan
Ranch Operations Center
General Development Plan

DRAWING NO:
1
SHEET 1 of 2

Wasterwater Treatment Plant

Use Permit

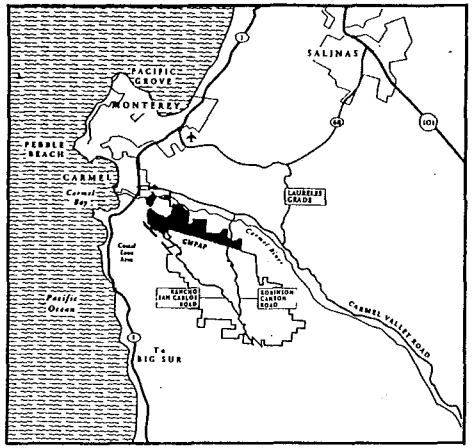
THE SANTA LUCIA PRESERVE

Monterey County, California

ROBERT LAMB HART • Planners and Architects
242 California Street, San Francisco, CA 94111
BESTOR ENGINEERS, INC. • Civil Engineers
9781 Larkspur Lane, Monterey, CA 93940

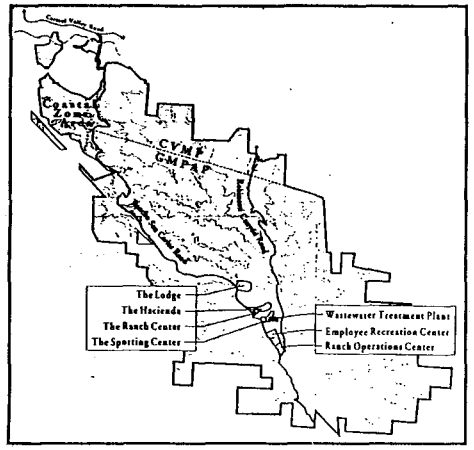
SHEET INDEX

A-1 Title Sheet
A-2 Wastewater Treatment Plant – Site Plan
A-3 Wastewater Treatment Plant – Floor Plan/Elevations
A-4 Horse Trailer Sheds – Floor Plan/Elevations



VICINITY MAP

No Scale NORTH



PRESERVE LOCATION MAP

No Scale NORTH

Wastewater Treatment Plant — Lot 261 Development Program

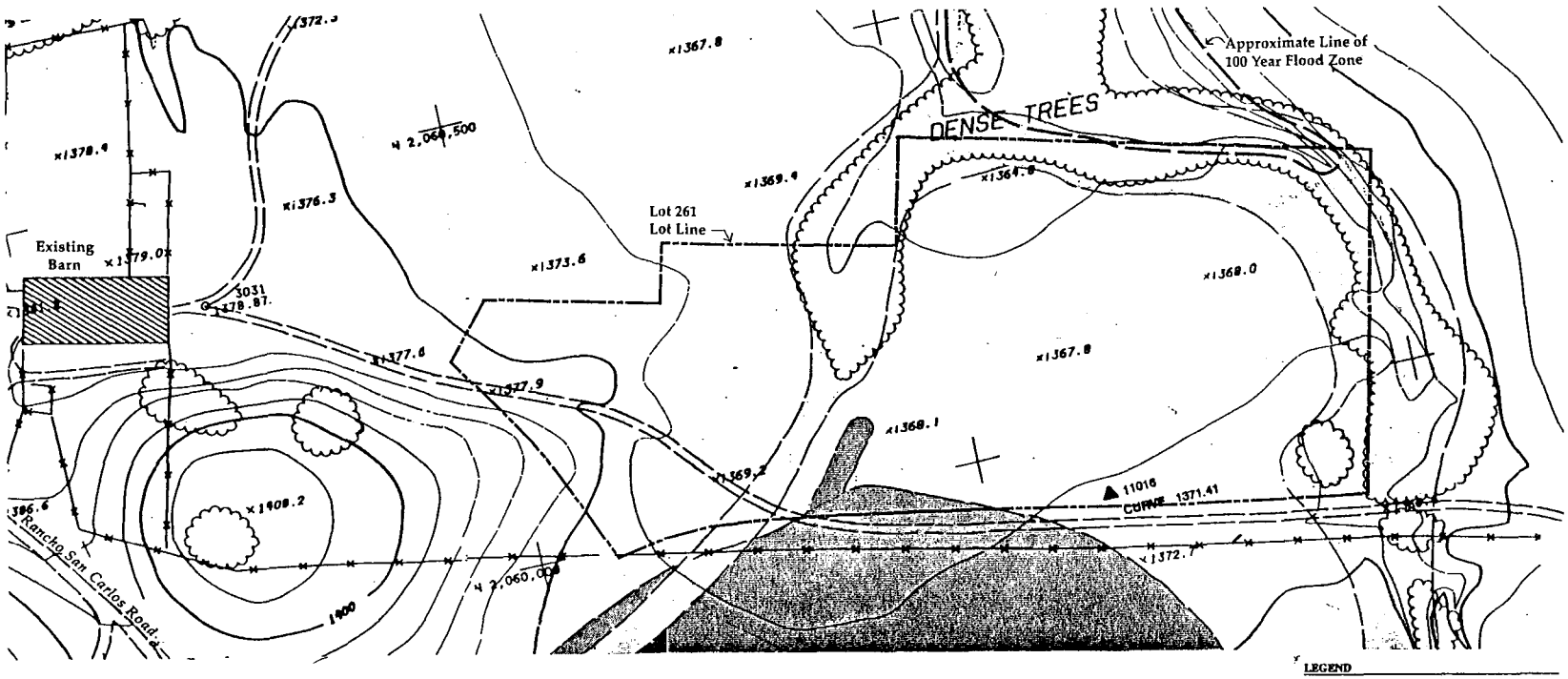
A 6± acre site to the east of *The Equestrian Center* will be used for a tertiary wastewater treatment plant. The proposed treatment system contains a fully automated 3-pass trickling filter system with rapid sand filters, chlorination, full redundancy, odor control, and standby power all contained in a 3,000± square foot building.

Peripheral facilities include a 3-day emergency raw sewage storage tank, and a 120-day treated water storage facility. The treated effluent will be used initially for wetland and riparian rehabilitation programs, and ultimately for landscape and golf course irrigation.

Facility Program

1. *Treatment Plant* — 3,000± s.f.
   - 42' x 72' building to process
   - ±70,000 gal./day
   - ±210,000 gal. overflow tank
2. *Emergency Generator (Diesel)*
3. *Treated Water Storage Pond*
   - ±120 day minimum storage
   - ± 2.5 acre surface area, ±10' average depth
4. *Diesel Fuel Storage*
   - ±5,000 gal. tank.
5. *Parking* - shared with *The Equestrian Center*

The treatment plant will serve *The Ranch Center, The Hacienda, The Lodge, The Sporting Center, The Equestrian Center, The Employee Recreation Center, The Ranch Operations Center* and approximately 93 residential lots in and around these core facilities. The County Service Area established for *The Santa Lucia Preserve* will assume responsibility for the operation and maintenance of the treatment plant.



EXISTING CONDITIONS

Lot 261
Use Permit
Wastewater Treatment Plant
Title Sheet

LEGEND
- Approximate Edge of Wetland
- Approximate Edge of Riparian Vegetation

0 25 50 125 Feet NORTH

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242 California Street, San Francisco, CA 94111
BESTOR ENGINEERS, INC.
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9781 Blue Larkspur Lane, Monterey, CA 93940

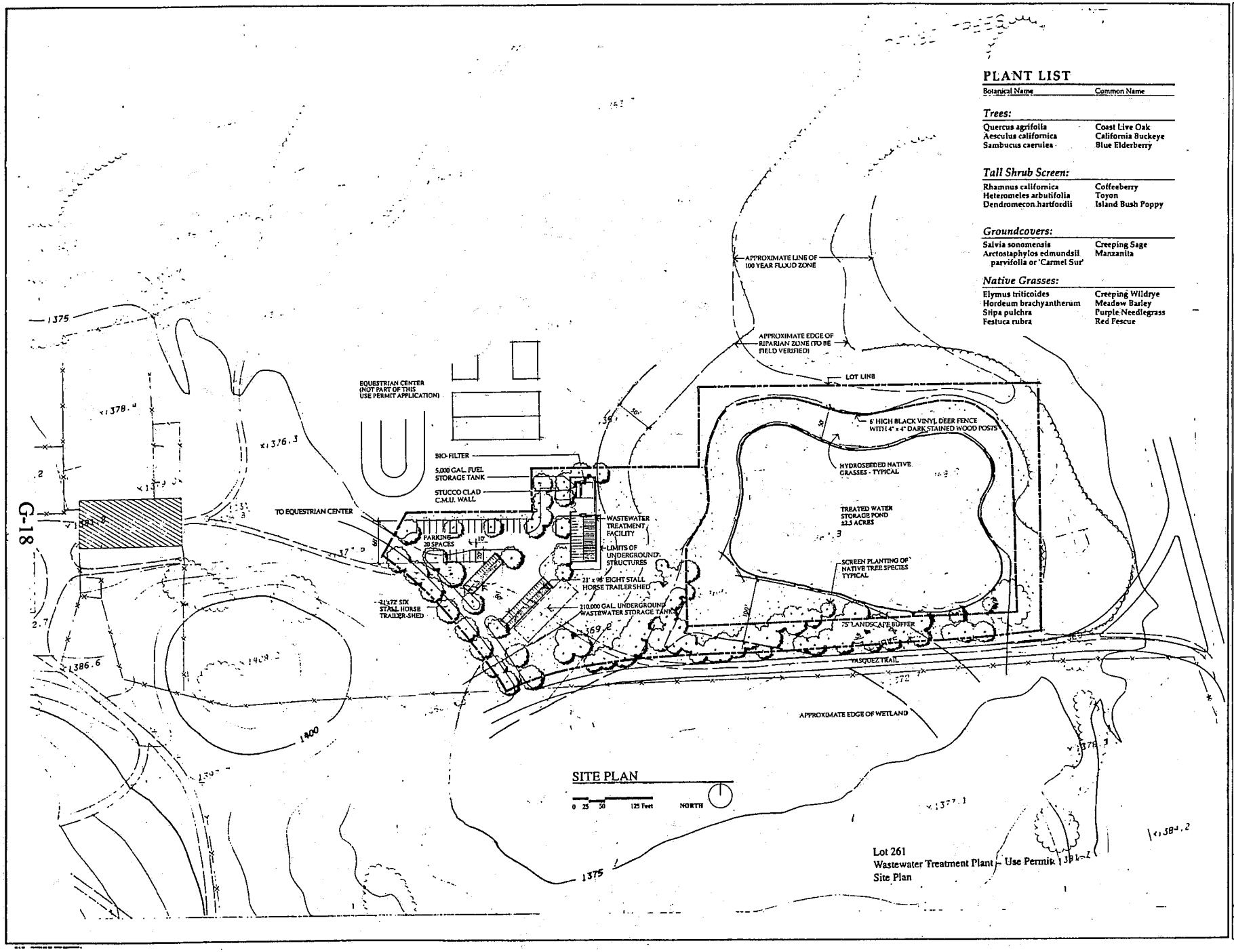
THE SANTA LUCIA PRESERVE
Monterey County, California

DATE: January 11, 1994
REVISIONS: 1-7-1994

DRAWING TITLE: Lot 261 Use Permit Wastewater Treatment Plant Title Sheet

DRAWING NO: A-1
SHEET 1 OF 4

FIGURE 2-23b



2-48bA
November 1994

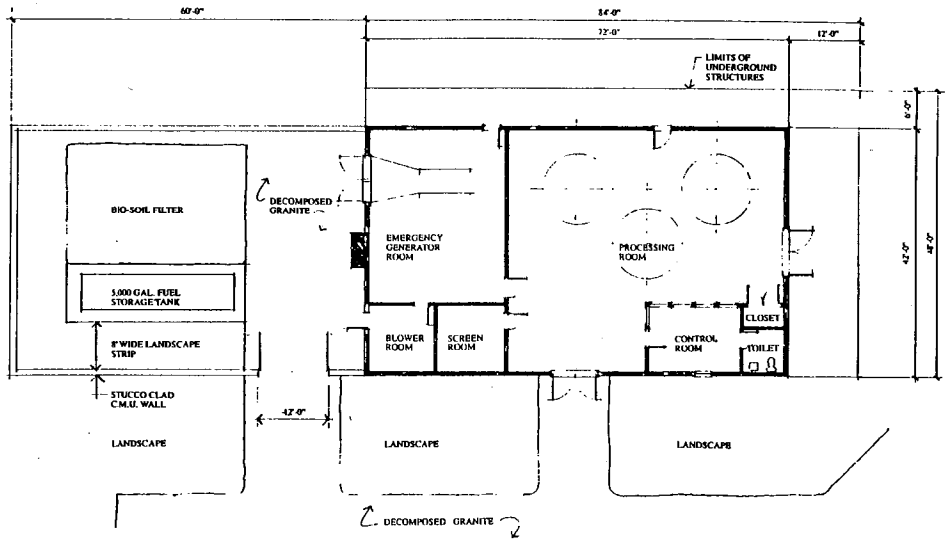
MATERIALS AND COLOR RANGE

WALLS:
STUCCO, SOFT MODELED TEXTURE, PAINTED
PRIME COLOR: DUNN EDWARDS #70 "PEARL WHITE" OR EQUAL
COLOR BAND: DUNN EDWARDS #98 "LILY" OR EQUAL

WINDOWS, DOORS & TRIM, EAVES AND RAFTERS:
CABOT SEMI-TRANSPARENT STAIN #0334 "MISSION BROWN" OR EQUAL

ROOF:
1-PIECE, "S" SHAPED CLAY TILE, DELEO OR EQUAL
COLOR BLEND: 10% AVANTE BLUEGREEN, MEDIUM
40% ANTIQUE FLASH
40% BURGUNDY
10% SPANISH RED

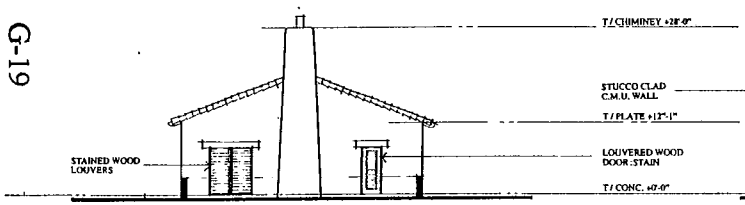
NOTE:
- ALL MATERIAL COLORS TO BE FIELD VERIFIED PRIOR TO INSTALLATION.



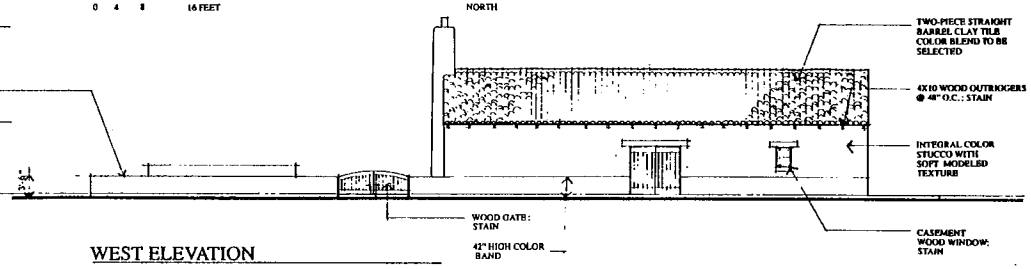
FLOOR PLAN

0 4 8 16 FEET

NORTH

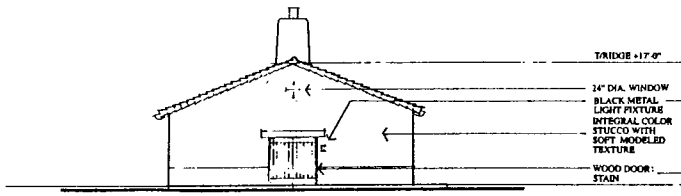


NORTH ELEVATION

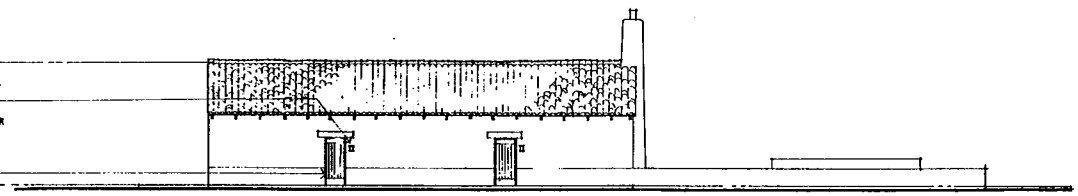


WEST ELEVATION

0 4 8 16 FEET



SOUTH ELEVATION



EAST ELEVATION

0 4 8 16 FEET

Lot 261
Use Permit
Wastewater Treatment Plant
Floor Plan/Elevations

ROBERT LAMB HART
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5781 Blue Lagoon Drive, Monterey, CA 93940

THE SANTA LUCIA PRESERVE
Monterey County, California

DATE: January 31, 1994
REVISIONS: 1-1-1994

DRAWING TITLE: Use Permit
Wastewater Treatment Plant
Floor Plan/Elevations

DRAWING NO: A-3
SHEET 3 of 4

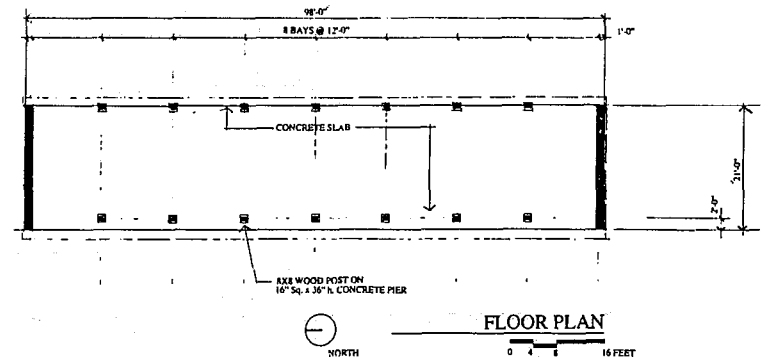
MATERIALS AND COLOR RANGE

WALLS:
STUCCO, SOFT MODELED TEXTURE, PAINTED
PRIME COLOR: DUNN EDWARDS #70 "PEARL WHITE" OR EQUAL
COLOR BAND: DUNN EDWARDS #98 "LILY" OR EQUAL

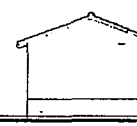
WINDOWS, DOORS & TRIM, EAVES AND RAFTERS:
CABOT SEMI-TRANSPARENT STAIN #0334 "MISSION BROWN" OR EQUAL

ROOF:
1-PIECE, "S" SHAPED CLAY TILE, DELEO OR EQUAL
COLOR BLEND: 10% AVANTE BLUEGREEN, MEDIUM
40% ANTIQUE FLASH
40% BURGUNDY
10% SPANISH RED

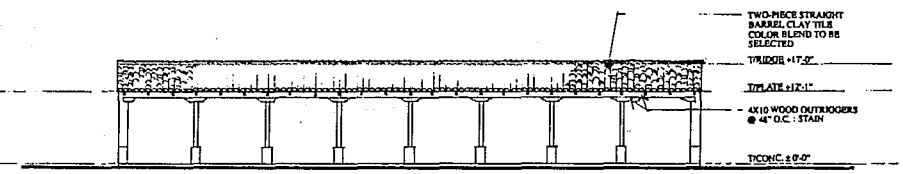
NOTE:
- ALL MATERIAL COLORS TO BE FIELD VERIFIED PRIOR TO INSTALLATION.



FLOOR PLAN

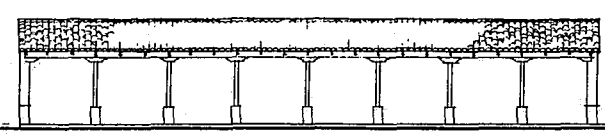


NORTH ELEVATION

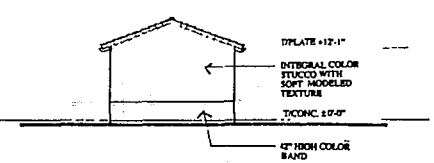


WEST ELEVATION

0 4 8 16 FEET



EAST ELEVATION



SOUTH ELEVATION

0 4 8 16 FEET

Use Permit – Lot 261
Wastewater Treatment Plant
Horse Trailer Sheds
Floor Plan/Elevations

ROBERT LAMB HART
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7981 Blue Larkspur Lane, Monterey, CA 93940

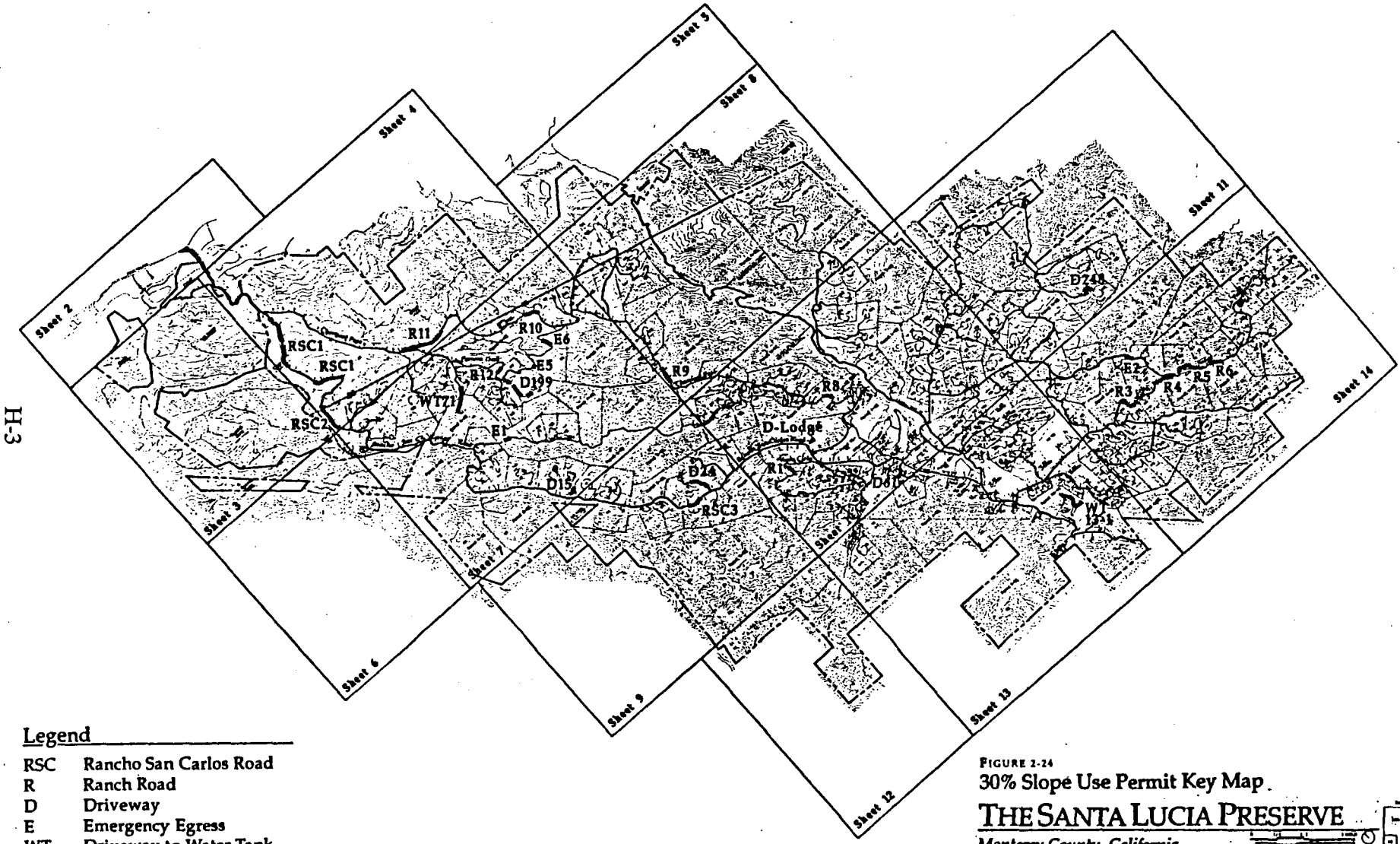
THE SANTA LUCIA PRESERVE
Monterey County, California

DATE: January 21, 1994
REVISIONS: 11-7-1994

DRAWING TITLE: Use Permit
Wastewater Treatment Plant
Horse Trailer Sheds
Floor Plan/Elevations

DRAWING NO: A-4
SHEET OF

Appendix H. Locations and Figures of Road Improvements on Slopes in Excess of 30%



Legend

RSC	Rancho San Carlos Road
R	Ranch Road
D	Driveway
E	Emergency Egress
WT	Driveway to Water Tank

FIGURE 2-24

30% Slope Use Permit Key Map

THE SANTA LUCIA PRESERVE

Monterey County, California

Table 2-5A *30% Slope Use Permit Request*

VTM Sheet	*Key Reference*	*Estimated Road Length*	*Road Construction Section Type*
14	U14-4	100 L.F.	- -
10	D-Lodge	150 L.F.	Type E
7	E5	150 L.F.	Type A
10	D42	200 L.F.	Type C
7	D14	200 L.F.	Type E
10	U133	200 L.F.	- -
4	R12	200 L.F.	Type E
10	D60	300 L.F.	Type E
7	E1	300 L.F.	Type A
9	D2	300 L.F.	Type C
14	R6	400 L.F.	Type A, B
10	R8	400 L.F.	Type F
10	R1	400 L.F.	Type A
9	D16/17	400 L.F.	Type C
7	E6	490 L.F.	Type A
13	U13-1	500 L.F.	- -
14	E2	500 L.F.	Type A
8	U9-3	500 L.F.	- -
7	R10	575 L.F.	Type B, C
9	R5	650 L.F.	Type A, E
10	U10-2	650 L.F.	- -
9	D248	700 L.F.	Type E
14	U115	700 L.F.	- -
14	R3	800 L.F.	Type B, D
14	R4	850 L.F.	Type E
8	R9	850 L.F.	Type A, B
7	D199	1050 L.F.	Type C
7	RSC3	1150 L.F.	Type C
13	WT13-1	1300 L.F.	Type E
9	D23	1350 L.F.	Type E
4	RSC2	1500 L.F.	Type A
7	WT7-2	1800 L.F.	Type A
4	R11	2200 L.F.	Type A
4	RSC1	3800 L.F.	Type A
Total		**25,525 L.F.**	

Table 2-5B

Road: Driveway to Lodge **Key Map Ref:** D-Lodge **Station:** Rancho San Carlos Road, Intersect 391+00

VTM Sheet Number: 10 **Existing Cross Slope:** 40%

Road Type: Driveway, new road **Zoning Ordinance Finding:** a. [X] b. [ ]
(Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.06 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	300 CY
• *Road Length*	*No Policy*	150 LF
• *Road Section Type*	*No Policy*	Type E
• *Proposed Road Gradient*	*15% Max.*	17%

Road Design Alternative: Alternate alignment to driveway would not avoid a 30% slope crossing and would require greater lengths of road construction and larger quantity of tree removal.

Table 2-5C

Road: Emergency egress at end of Potrero Trail Key Map Ref: E5 Station: Approx. 1,000' from driveway

VTM Sheet Number: 7 Existing Cross Slope: 33%

Road Type: Emergency egress on existing ranch road Zoning Ordinance Finding: a.[X] b.[X] (Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.01 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	75 CY
• *Road Length*	*No Policy*	150 LF
• *Road Section Type*	*No Policy*	Type A
• *Proposed Road Gradient*	*15% Max.*	15%

Road Design Alternative: Road follows existing alignment. Alternative alignment impacts a greater area of 30% slope, requiring extensive grading and tree removal.

Table 2-6D

Road: Driveway to Lot 14 Key Map Ref: D14 Station: Intersect RSC Road 255+00/5+00–7+00

VTM Sheet Number: 7
Road Type: Driveway

Existing Cross Slope: 40%
Zoning Ordinance Finding: a. [X] b. [ ]
(Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.08 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	400 CY
• *Road Length*	*No Policy*	200 LF
• *Road Section Type*	*No Policy*	Type E
• *Proposed Road Gradient*	*15% Max.*	17%

Road Design Alternative: Alternate re-alignment of drive following drainage way would impact 800 L.F. of riparian corridor, require significant tree removal and impact a greater area of 30% slope.

Table 2-5E

Road: Potrero Trail Key Map Ref: R12 Station: 122+00–124+00

VTM Sheet Number: 4 Existing Cross Slope: 35%

Road Type: Ranch Road, new alignment Zoning Ordinance Finding: a.[X] b.[X]
(Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.08 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	400 CY
• *Road Length*	*No Policy*	200 LF
• *Road Section Type*	*No Policy*	Type E
• *Proposed Road Gradient*	*15% Max.*	16%

Road Design Alternative: Re-alignment of proposed road places it on steeper grades than its current location and will require greater lengths of road construction. Use of existing road alignment would require grades greater than 17%.

Table 2-6F

Road: Driveway, Lot 60 **Key Map Ref:** D60 **Station:** End of Via Vaquero

VTM Sheet Number: 10 **Existing Cross Slope:** 50%

Road Type: Driveway partially on existing road **Zoning Ordinance Finding:** a. [X] b. [X]
(Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.14 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	Yes
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	1

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	575 CY
• *Road Length*	*No Policy*	300 LF
• *Road Section Type*	*No Policy*	Type E
• *Proposed Road Gradient*	*15% Max.*	17%

Road Design Alternative: Re-alignment of proposed road following adjacent steep ravine impacts a greater are of 30% slope, creating a greater environmental impact due to extensive filling of drainage way and cutting of switchbacks.

Table 2-5G

Road: Emergency egress from RSC Key Map Ref: E1 Station: Intersect RSC Road at 175+00 (approx. 16+00–19+50)

VTM Sheet Number: 7 Existing Cross Slope: 50%

Road Type: Emergency egress on existing ranch road Zoning Ordinance Finding: a. [X] b. [X] (Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.02 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	900 CY
• *Road Length*	*No Policy*	300 LF
• *Road Section Type*	*No Policy*	Type A
• *Proposed Road Gradient*	*15% Max.*	17%

Road Design Alternative: Road to follow existing alignment. The alternative would create a greater environmental impact by crossing a larger area of 30% slope, requiring extensive grading and tree removal.

Table 2-5H

Road: Long Ridge Trail **Key Map Ref:** R6 **Station:** 64+00–68+00

VTM Sheet Number: 14 **Existing Cross Slope:** 40%

Road Type: Ranch Road on existing alignment **Zoning Ordinance Finding:** a.[X] b.[X]
(Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.03 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	600 CY
• *Road Length*	*No Policy*	400 LF
• *Road Section Type*	*No Policy*	Type A 64+00–65+00 Type B 65+00–66+00 Type A 66+00–68+00
• *Proposed Road Gradient*	*15% Max.*	15%

Road Design Alternative: Road to follow existing alignment. Alternative alignments would require new road construction on 30% slopes with extensive grading and tree removal.

Table 2-5I

Road: Chamisal Pass **Key Map Ref:** R8 **Station:** 238+00–242+00

VTM Sheet Number: 10 **Existing Cross Slope:** 40%

Road Type: Ranch road, new alignment **Zoning Ordinance Finding:** a. [X] b. [X]
(Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.14 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	Yes
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	1600 CY
• *Road Length*	*No Policy*	400 LF
• *Road Section Type*	*No Policy*	Type F
• *Proposed Road Gradient*	*15% Max.*	15%

Road Design Alternative: Proposed alignment is a fill situation against a 40% slope. Alternative alignment would require construction of a new road across ±40-50% slopes and would create a significant visual impact from Robinson Canyon Road.

Table 2-5J

Road: Vista Cielo **Key Map Ref:** R1 **Station:** 17+50–21+50

VTM Sheet Number: 10 **Existing Cross Slope:** 33%

Road Type: Ranch road on existing road **Zoning Ordinance Finding:** a. [X] b. [X]
(Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.02 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	Yes
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	400 CY
• *Road Length*	*No Policy*	400 LF
• *Road Section Type*	*No Policy*	Type A
• *Proposed Road Gradient*	*15% Max.*	15%

Road Design Alternative: Road to follow existing alignment. Alternative alignment would impact a greater area of 30% slope, requiring new road grading and tree removal.

Table 2-5K

Road: Emergency egress from Potrero Trail to Chamisal Pass **Key Map Ref:** E6 **Station:** Intersect Chamisal Pass 70+00 approx. 2,000' from road

VTM Sheet Number: 7 **Existing Cross Slope:** 33%

Road Type: Driveway egress on existing ranch road **Zoning Ordinance Finding:** a.[X] b.[X] (Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.03 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	200 CY
• *Road Length*	*No Policy*	400 LF
• *Road Section Type*	*No Policy*	Type A
• *Proposed Road Gradient*	*15% Max.*	17%

Road Design Alternative: Road to follow existing alignment. Re-alignment of existing road does not avoid a 30% slope crossing and would impact landslide areas and/or riparian corridor, requiring new road grading, slide repair and tree removal.

Table 2-5L

Road: Emergency egress **Key Map Ref:** E2 **Station:** Approx. 21+00–27+00 SE of Touche Pass Intersection

VTM Sheet Number: 14 **Existing Cross Slope:** 40%

Road Type: Emergency egress on existing road **Zoning Ordinance Finding:** a.[X] b.[X] (Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.03 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	Yes
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	250 CY
• *Road Length*	*No Policy*	500 LF
• *Road Section Type*	*No Policy*	Type A
• *Proposed Road Gradient*	*15% Max.*	17%

Road Design Alternative: Re-alignment of existing road would not avoid 30% slope crossing. Alternate alignments of new roads would require extensive grading and result in a greater visual impact from Robinson Canyon Road.

Table 2-5M

Road: Chamisal Pass **Key Map Ref:** R10 **Station:** 40+00–45+75

VTM Sheet Number: 7 **Existing Cross Slope:** 50%

Road Type: Ranch Road on existing alignments **Zoning Ordinance Finding:** a.[X] b.[X]
(Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.04 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	1150 CY
• *Road Length*	*No Policy*	575 LF
• *Road Section Type*	*No Policy*	Type B or C
• *Proposed Road Gradient*	*15% Max.*	13%

Road Design Alternative: Proposed alignment, following existing road, would require the construction of retaining walls on cut slopes to widen road and minimize cut slope area. Re-alignment of existing road does not avoid a 30% slope crossing and would require new road grading, wall construction and significant tree removal.

Table 2-5N

Road: Long Ridge Trail **Key Map Ref:** R5 **Station:** 48+00–51+00/ 53+5–57+00

VTM Sheet Number: 9 **Existing Cross Slope:** 50%

Road Type: Ranch road, on existing road and some new alignment **Zoning Ordinance Finding:** a.[X] b.[ ] (Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.04 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	Yes
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	1

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	1300 CY
• *Road Length*	*No Policy*	650 LF
• *Road Section Type*	*No Policy*	Type E 48+00–51+00 Type A 53+50–57+00
• *Proposed Road Gradient*	*15% Max.*	15%

Road Design Alternative: Road to follow existing alignment from station point 53+5–57+00. Alternative alignments in both station point areas do not avoid a 30% slope crossing, placing them on steeper grades, requiring longer road lengths and grading of switchbacks.

Table 2-50

Road: Driveway to Lot 248 **Key Map Ref:** D248 **Station:** Intersect Black Mountain Trail 67+00, approx. 9+00–14+00

VTM Sheet Number: 9 **Existing Cross Slope:** 45%

Road Type: Driveway partially on existing ranch road **Zoning Ordinance Finding:** a.☒ b.☐ (Section 21:64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.28 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	1650 CY
• *Road Length*	*No Policy*	700 LF
• *Road Section Type*	*No Policy*	Type E
• *Proposed Road Gradient*	*15% Max.*	17%

Road Design Alternative: Re-alignment of proposed driveway would impact a greater area of 30% slope and landslide zones, requiring extensive grading and wall construction.

Table 2-5P

Road: Long Ridge Trail **Key Map Ref:** R3 **Station:** 12+00–20+00

VTM Sheet Number: 14 **Existing Cross Slope:** 50%

Road Type: Ranch road on existing road and portions of new road through 30% slopes **Zoning Ordinance Finding:** a.[X] b.[X] (Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.08 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	.14 Ac.
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	1000 CY
• *Road Length*	*No Policy*	800 LF
• *Road Section Type*	*No Policy*	Type B 12+50–17+50 Type D 18+00–19+00
• *Proposed Road Gradient*	*15% Max.*	15%

Road Design Alternative: Road to follow existing alignment. Re-alignment of a new road does not avoid a 30% slope crossing and would require extensive grading and tree removal.

Table 2-5Q

Road: Longe Ridge Trail **Key Map Ref:** R4 **Station:** 33+50–42+00

VTM Sheet Number: 14 **Existing Cross Slope:** 50%

Road Type: New ranch road **Zoning Ordinance Finding:** a.[X] b.[ ]
(Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.02 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	11

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	850 CY
• *Road Length*	*No Policy*	850 LF
• *Road Section Type*	*No Policy*	Type E
• *Proposed Road Gradient*	*15% Max.*	13%

Road Design Alternative: Alternative road alignments do not avoid a 30% slope crossing and would require a greater cutting of switchbacks.

Table 2-5R

Road: Chamisal Pass **Key Map Ref:** R9 **Station:** 144+00–152+50

VTM Sheet Number: 8 **Existing Cross Slope:** 50%

Road Type: Ranch road, partially on existing ranch road **Zoning Ordinance Finding:** a. [X] b. [X] (Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.06 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	Yes
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	2550 CY
• *Road Length*	*No Policy*	850 LF
• *Road Section Type*	*No Policy*	Type A 144+00–150+00 Type B 150+00–152+50
• *Proposed Road Gradient*	*15% Max.*	16%

Road Design Alternative: Re-alignment of existing road below 30% slopes would require a new road located along a ridgeline having a greater visual and grading impact than upgrading existing alignment.

Table 2-5S

Road: Driveway to Lot 199 **Key Map Ref:** D199 **Station:** End of Potrero Trail Rd. 6+50–9+00/ 10+50–16+00/17+50–20+00

VTM Sheet Number: 7 **Existing Cross Slope:** 40%

Road Type: Driveway on existing ranch road **Zoning Ordinance Finding:** a.[X] b.[X] (Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.07 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	.02 Ac.
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	2100 CY
• *Road Length*	*No Policy*	1050 LF
• *Road Section Type*	*No Policy*	Type C
• *Proposed Road Gradient*	*15% Max.*	5%

Road Design Alternative: Re-alignment of existing road would not avoid a 30% slope crossing and would require new road grading and wall construction, impact a greater area of riparian corridor and require significant tree removal.

Table 2-5T

Road: Rancho San Carlos Road **Key Map Ref:** RSC 3 **Station:** 322+00–333+50

VTM Sheet Number: 7 **Existing Cross Slope** 35%

Road Type: Ranch Road on existing alignment **Zoning Ordinance Finding:** a. [X] b. [X]
(Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.04 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	.44 Ac.
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	860 CY
• *Road Length*	*No Policy*	1150 LF
• *Road Section Type*	*No Policy*	Type C
• *Proposed Road Gradient*	*15% Max.*	8%

Road Design Alternative: Re-alignment of existing road below 30% slopes would impact riparian corridor and require new road grading and significant tree removal.

Table 2-5U

Road: Driveway, Water Tank 13-1 Key Map Ref: WT13-1 Station: Intersect Arroyo Sequoia Road at 22+00

VTM Sheet Number: 13 Existing Cross Slope: 50%

Road Type: New driveway Zoning Ordinance Finding: a.[X] b.[ ] (Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.44 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	3900 CY
• *Road Length*	*No Policy*	1300 LF
• *Road Section Type*	*No Policy*	Type E
• *Proposed Road Gradient*	*15% Max.*	17%

Road Design Alternative: Alternative road alignment does not avoid a 30% slope crossing and would require a greater quantity of grading and wall construction.

Table 2-6V

Road: Driveway to Lot 23 Key Map Ref: D23 Station: Intersect RSC Road 333+50 approx. 0+00–13+15

VTM Sheet Number: 9 Existing Cross Slope: 40%

Road Type: Driveway partially on existing ranch road Zoning Ordinance Finding: a.[X] b.[X] (Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.55
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	.17 Ac.
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	1

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	1690 CY
• *Road Length*	*No Policy*	1350 LF
• *Road Section Type*	*No Policy*	Type E
• *Proposed Road Gradient*	*15% Max.*	17%

Road Design Alternative: Re-alignment of proposed road places it on steeper grades than its current location and would have a similar impact on tree removal.

Table 2-6W

Road: Rancho San Carlos Road Key Map Ref: RSC-2 Station: 80+00–95+00

VTM Sheet Number: 4 Existing Cross Slope: 65%

Road Type: Rancho San Carlos (existing) Zoning Ordinance Finding: a.[X] b.[ ]
(Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.02 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	1125 CY
• *Road Length*	*No Policy*	1500 LF
• *Road Section Type*	*No Policy*	Type A
• *Proposed Road Gradient*	*15% Max.*	10%

Road Design Alternative: Road to follow existing alignment. The alternative would create a greater environmental impact by constructing a new road in a visually sensitive area.

Table 2-5X

Road: Driveway to water tank 7-1 Key Map Ref: WT7-1 Station: Intersect Potrero Trail Road at approx. 100+00, approx. 11+00–26+00, 29+00–32+00

VTM Sheet Number: 7 Existing Cross Slope: 62%

Road Type: Driveway on existing ranch road Zoning Ordinance Finding: a. [X] b. [ ] (Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.12 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	900 CY
• *Road Length*	*No Policy*	1800 LF
• *Road Section Type*	*No Policy*	Type A
• *Proposed Road Gradient*	*15% Max.*	13%

Road Design Alternative: Re-alignment of existing road below 30% slopes into riparian corridor would necessitate removal of trees and require extensive grading.

Table 2-5Y

Road: Chamisal Ridge **Key Map Ref:** R11 **Station:** 00+50–22+50

VTM Sheet Number: 4 **Existing Cross Slope:** 50%

Road Type: Rancho Road (existing) **Zoning Ordinance Finding:** a.[X] b.[X]
(Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.15 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	6600 CY
• *Road Length*	*No Policy*	2200 LF
• *Road Section Type*	*No Policy*	Type A
• *Proposed Road Gradient*	*15% Max.*	

Road Design Alternative: Alternative road alignment would not avoid 30% slope crossing and would require a greater quantity of grading and wall construction.

Table 2-5Z

Road: Rancho San Carlos Road **Key Map Ref:** RSC-1 **Station:** 5+00–17+00/20+00–31+00/45+00–60+00

VTM Sheet Number: 4 **Existing Cross Slope:** 50%

Road Type: Rancho San Carlos Road (existing) **Zoning Ordinance Finding:** a.[X] b.[X] (Section 21.64.230E1)

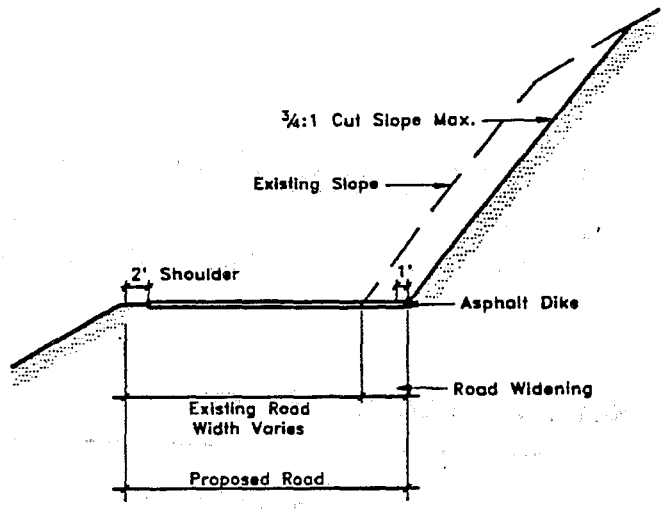
COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.10 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	Yes
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	4500 CY
• *Road Length*	*No Policy*	3800 LF
• *Road Section Type*	*No Policy*	Type A
• *Proposed Road Gradient*	*15% Max.*	5+00–17+00 10% 28+00–31+00 9% 45+00–60+00 10%

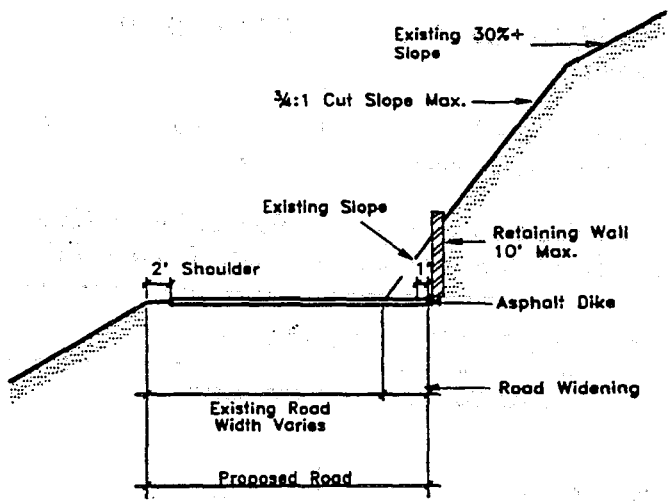
Road Design Alternative: Road to follow existing alignment. The alternative would create a greater environmental impact by aligning a new road on steeper slopes, requiring extensive tree removal, grading and wall construction or aligning a new road in a visually sensitive area. At station point 53+00 on the existing road, the width will remain at its current dimension to allow for preservation of existing redwood trees.



ROAD TYPE	PAVEMENT WIDTH W/1' ASPHALT DIKE	TOTAL WIDTH W/ 2' SHOULDER
Rancho San Carlos	21'	23'
Ranch Roads	19'	21'
Driveways	13'	15'

Figure 2-24a - Road Type A

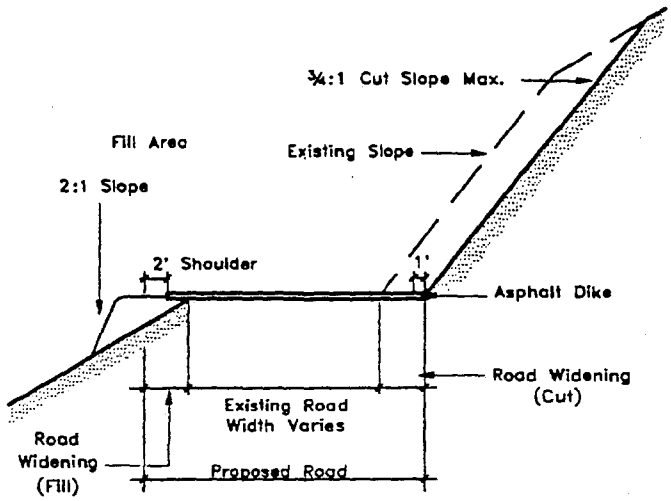
1/16" = 1'-0"



ROAD TYPE	PAVEMENT WIDTH W/1' ASPHALT DIKE	TOTAL WIDTH W/ 2' SHOULDER
Rancho San Carlos	21'	23'
Ranch Roads	19'	21'
Driveways	13'	15'

Figure 2-24b - Road Type B

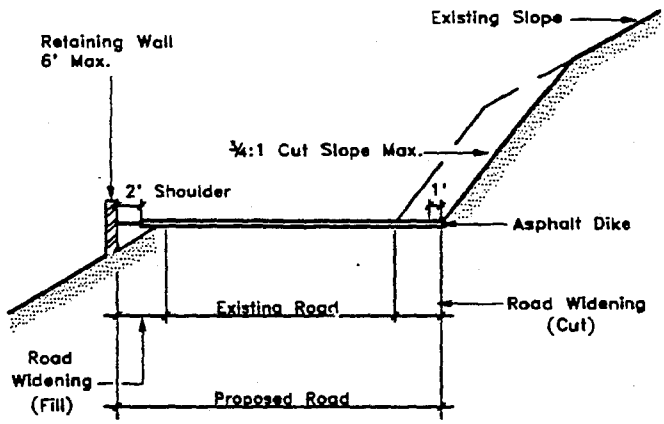
1/16" = 1'-0"



ROAD TYPE	PAVEMENT WIDTH W/1' ASPHALT DIKE	TOTAL WIDTH W/ 2' SHOULDER
Rancho San Carlos	21'	23'
Ranch Roads	19'	21'
Driveways	13'	15'

Figure 2-24c - Road Type C

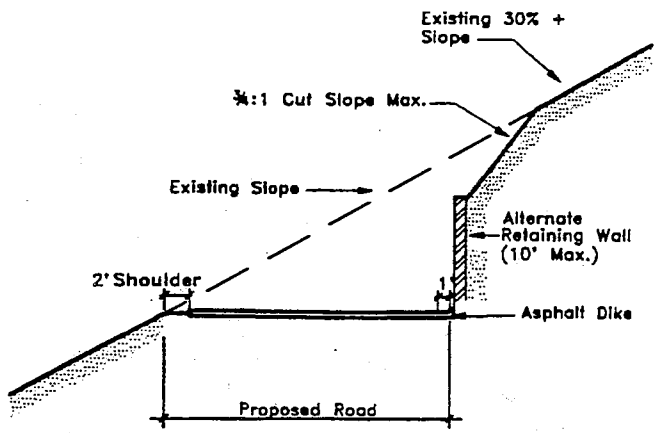
1/16" = 1'-0"



ROAD TYPE	PAVEMENT WIDTH W/1' ASPHALT DIKE	TOTAL WIDTH W/ 2' SHOULDER
Ranch Roads	19'	21'
Driveways	13'	15'

Figure 2-24d - Road Type D

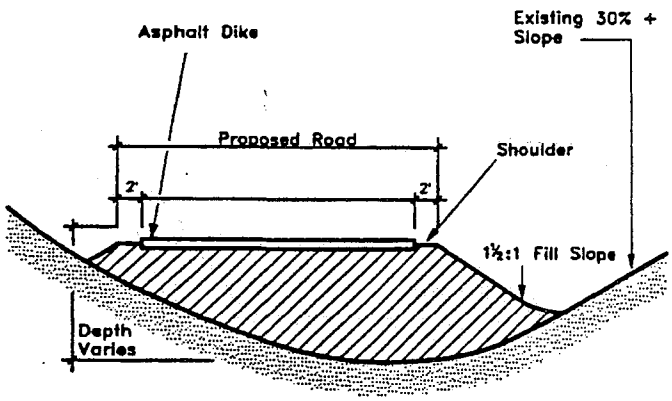
1/16" = 1'-0"



ROAD TYPE	PAVEMENT WIDTH W/ASPHALT DIKE	TOTAL WIDTH W/ 2' SHOULDER
Ranch Roads	19'	21'
Driveways	13'	15'

Figure 2-24e - New Road Type E

1/16" = 1'-0"



ROAD TYPE	PAVEMENT WIDTH W/ASPHALT DIKE	TOTAL WIDTH W/ 2' SHOULDERS
Ranch Roads	18'	22'

Figure 2-24f - Fill Section Road Type F

1/16" = 1'-0"

Table 2-5AA

Utility Trench Key Map Ref: U13-1 Station: Approx. 800' East of Arroyo Sequoia

VTM Sheet Number: 13 Existing Cross Slope: ±50%

Road Type: Utility Trench to Tank 13-1 Zoning Ordinance Finding: a.[X] b.[ ]
(Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.11 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

UTILITY LINE DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	83 CY
• *Water Line Length*	*No Policy*	*500 LF*

Utility Line Design Alternative: Alternative water line locations would more than double the length of water main and would not avoid crossing a 30% slope. Proposed alignment is the most direct route that causes the minimum amount of impact.

Table 2-5BB

Utility Trench Key Map Ref: U115 Station: Intersect Steelhead Run @ 3+00 to Driveway of Lot 115

VTM Sheet Number: 14 Existing Cross Slope: ±40%

Road Type: Utility Trench Zoning Ordinance Finding: a. [X] b. [ ]
(Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.16 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

UTILITY LINE DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	116 CY
• *Water Line Length*	*No Policy*	*700 LF*

Utility Line Design Alternative: Alternate utility trench alignments would result in an increase of line length to ±2,800 feet from 700' and would have riparian and/or 30% slope impacts.

Table 2-5CC

Utility Trench Key Map Ref: U14-4 Station: Approx. 1,600' East of Lot 228 off the Emergency Egress

VTM Sheet Number: 14 Existing Cross Slope: ±50%

Road Type: Utility Trench to Tank 14-4 Zoning Ordinance Finding: a. [X] b. [ ]
(Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.02 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	.05
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

UTILITY LINE DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	16 CY
• *Water Line Length*	*No Policy*	*100 LF*

Utility Line Design Alternative: Alternate water line locations would triple overall line length and would not avoid crossing a 30% slope.

Table 2-5DD

Utility Trench Key Map Ref: U9-3 Location: SW of Peñon Peak

VTM Sheet Number: 8 Existing Slope: ±50%

Description: Utility Trench to Tank 9-3 Zoning Ordinance Finding: a.[X] b.[ ]
(Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.18 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

UTILITY LINE DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	97
• *Water Line Length*	*No Policy*	500 LF

Utility Line Design Alternative: Alternative locations would result in an increase in trench length from 500 feet to 2,300 feet.

Table 2-5EE

Road: Driveway to Lot #2 **Key Map Ref:** D2 **Station:** Intersect RSC Road 295+

VTM Sheet Number: 9 **Existing Cross Slope:** ±30%

Road Type: Driveway **Zoning Ordinance Finding:** a. [X] b. [X]
(Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.12 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	.06 Ac.
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	350 CY
• *Road Length*	*No Policy*	350 LF
• *Road Section Type*	*No Policy*	C
• *Road Length*	*No Policy*	15% max.

Road Design Alternative: Driveway follows existing ranch road. Alternative alignment would impact greater area of 30% slope, and require extensive grading and tree removal.

Table 2-5FF

Note: Because this portion of the lot is close to 30%, the Applicant has included this permit application at the request of County staff.

Road: Driveway Lots 16/17 Key Map Ref: D 16/17 Station: Intersect RSC Road 275+

VTM Sheet Number: 9 Existing Cross Slope: ±30%

Road Type: Driveway Zoning Ordinance Finding: a.[X] b.[ ]
(Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.22 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	460 CY
• *Road Length*	*No Policy*	370 LF
• *Road Section Type*	*No Policy*	C
• *Proposed Road Gradient*	*15% Max.*	17% max.

Road Design Alternative: Alternative drive alignments would impact the riparian corridor.

Table 2-5GG

Note: Because this portion of the lot is close to 30%, the Applicant has included this permit application at the request of County staff.

Road: Driveway to Lot 42 **Key Map Ref:** D42 **Station:** N. of Garzas Trail at

VTM Sheet Number: 10 **Existing Cross Slope:** ±30%

Road Type: Driveway **Zoning Ordinance Finding:** a. [X] b. [ ]
(Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.17 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

ROAD DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	312 CY
• *Road Length*	*No Policy*	250 LF
• *Road Section Type*	*No Policy*	C
• *Proposed Road Gradient*	*15% Max.*	17% max.

Road Design Alternative: Re-alignment of driveway would result in greater impact to 30% slope areas.

Table 2-5HH

Utility Trench Key Map Ref: U10-2 Station: NE of Lot 255

VTM Sheet Number: 10 Existing Slope: ±50%

Description: Utility Trench to tank 10-2 Zoning Ordinance Finding: a.[X] b.[ ]
(Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.22 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

UTILITY LINE DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	130 CY
• *Water Line Length*	*No Policy*	650 LF

Utility Line Design Alternative: Alternate trench locations would result in an increased length from 650 feet to 2,700 feet.

Table 2-5II

Utility Trench Key Map Ref: U133 Station: Lot 133

VTM Sheet Number: 10 Existing Slope: ±40%
Description: Utility Trench Zoning Ordinance Finding: a.[X] b.[ ]
(Section 21.64.230E1)

COUNTY ENVIRONMENTAL POLICY

Policy	Policy Reference	Quantity of Potential Impact
• *Steep Slopes Acres of Disturbance*	*GMPAP 7.1.4*	.07 Ac.
• *Approximate Number of Redwoods Removed*	*GMPAP 7.1.3*	0
• *Riparian Corridors (Acres of Disturbance)*	*MCGP 16.23*	0
• *Visually Sensitive Area Impact*	*GMPAP 40.2.9*	0
• *Critical Watershed (Acres of Disturbance)*	*MCGP 3.5, 5.1, 5.1.1 & 5.1.2*	0
• *Approximate Number of Landmark Trees Removed*	*Monterey County Code Chapter 16.60,030 E*	0

UTILITY LINE DESIGN CONSIDERATIONS

• *Estimated Earthwork Quantity*	*No Policy*	97 CY
• *Water Line Length*	*No Policy*	500 LF

Utility Line Design Alternative: Alternate trench locations would impact a riparian corridor or result in tree loss. Proposed alignment is the most direct route that causes the minimum amount of impact.

Appendix I. Golf Trail Site Plan and Statistical Summary

HOLE	PAR	BLUE	WHITE	RED
1	4	415	396	325
2	3	174	150	119
3	4	388	355	280
4	5	514	473	428
5	4	379	348	273
6	3	212	192	142
7	4	420	388	327
8	5	530	500	420
9	4	390	362	298
	36	3401	3166	2640

HOLE	PAR	BLUE	WHITE	RED
10	4	397	367	300
11	4	422	405	318
12	4	400	420	355
13	5	542	520	428
14	3	195	165	139
15	4	391	367	302
16	3	168	148	114
17	5	582	528	450
18	4	444	424	368
	36	3620	3541	2777
	36	3401	3166	2640
TOTAL	72	7020	6495	5420

DISTANCE MEASURED BY YARDS

The Golf Trail

OCTOBER 1994 NORTH

THE SANTA LUCIA PRESER I-3
Monterey County, California

JMP
GOLF DESIGN COLLABORATIVE
ROBERT LAMB HART

STATISTICAL SUMMARY

Parcel acreage:
- Parcel 264: 317.0± acres for the 18 golf holes
- Parcel 265: 6.38± acres for the Clubhouse
- Parcel 266: 13.50± acres for the Practice Range

Improvement acreage: 336.88± acres

Golf Trail distance: 5.5± miles

Mown grass acreage: 125.0± acres

Tees: 3.50± acres
Greens 2.50± acres
Fairways: 35.00± acres
Aprons: 8.50± acres
Close Rough: 21.50± acres
Irrigated turf acreage: 71.00± acres

Earth moving: 292,000± cu. yds.

Clubhouse square footage: 15,000± sq.ft.

Visitor Parking: 40± spaces

SCORECARD

HOLE	PAR	BLUE	WHITE	RED
1	4	415	395	328
2	3	174	150	119
3	4	368	335	280
4	5	514	472	406
5	4	378	348	275
6	3	212	192	142
7	4	420	398	321
8	5	530	503	433
9	4	390	362	288
	36	3401	3155	2592

HOLE	PAR	BLUE	WHITE	RED
10	4	397	367	300
11	4	422	406	315
12	4	450	430	353
13	5	542	506	428
14	3	195	168	139
15	4	361	357	262
16	3	158	145	118
17	5	552	538	453
18	4	445	424	369
	36	3522	3341	2737
	36	3401	3155	2592
TOTAL	72	6923	6496	5329

• DISTANCE MEASURED IN YARDS

Golf Trail Clubhouse

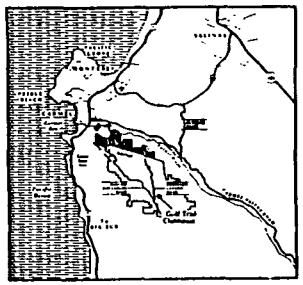
Use Permit

THE SANTA LUCIA PRESERVE

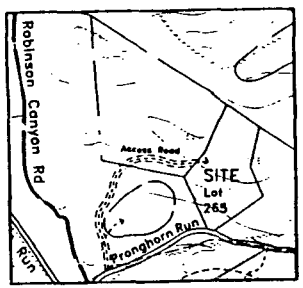
Monterey County, California

ROBERT LAMB HART • Planners and Architects
242 California Street, San Francisco, CA 94111

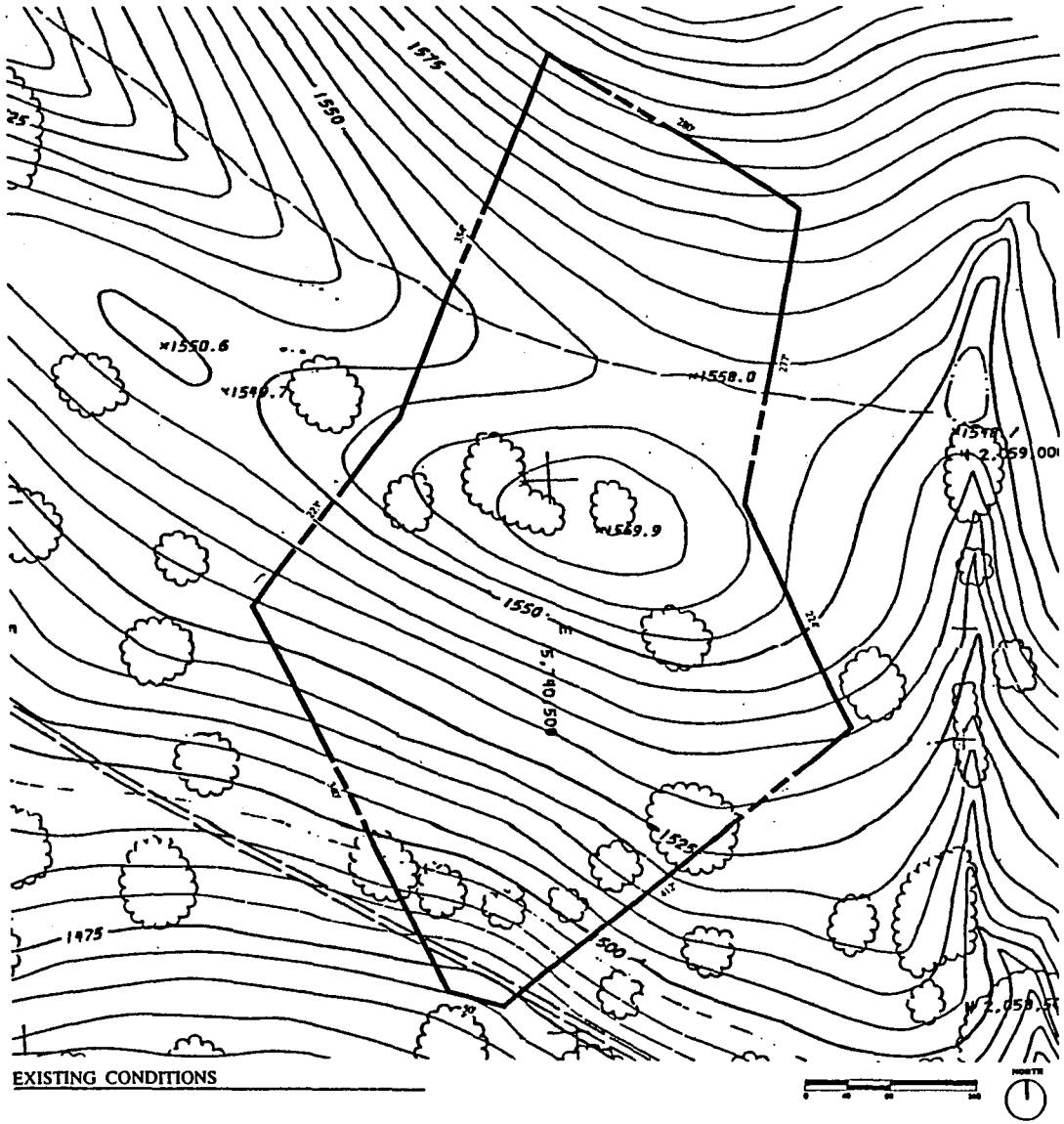
SHEET INDEX



VICINITY MAP



PARCEL MAP



EXISTING CONDITIONS

ROBERT LAMB HART
Planners, Architects, and Landscape Architects
242 California St. San Francisco, Ca. 94111

THE SANTA LUCIA PRESERVE
Monterey County, California

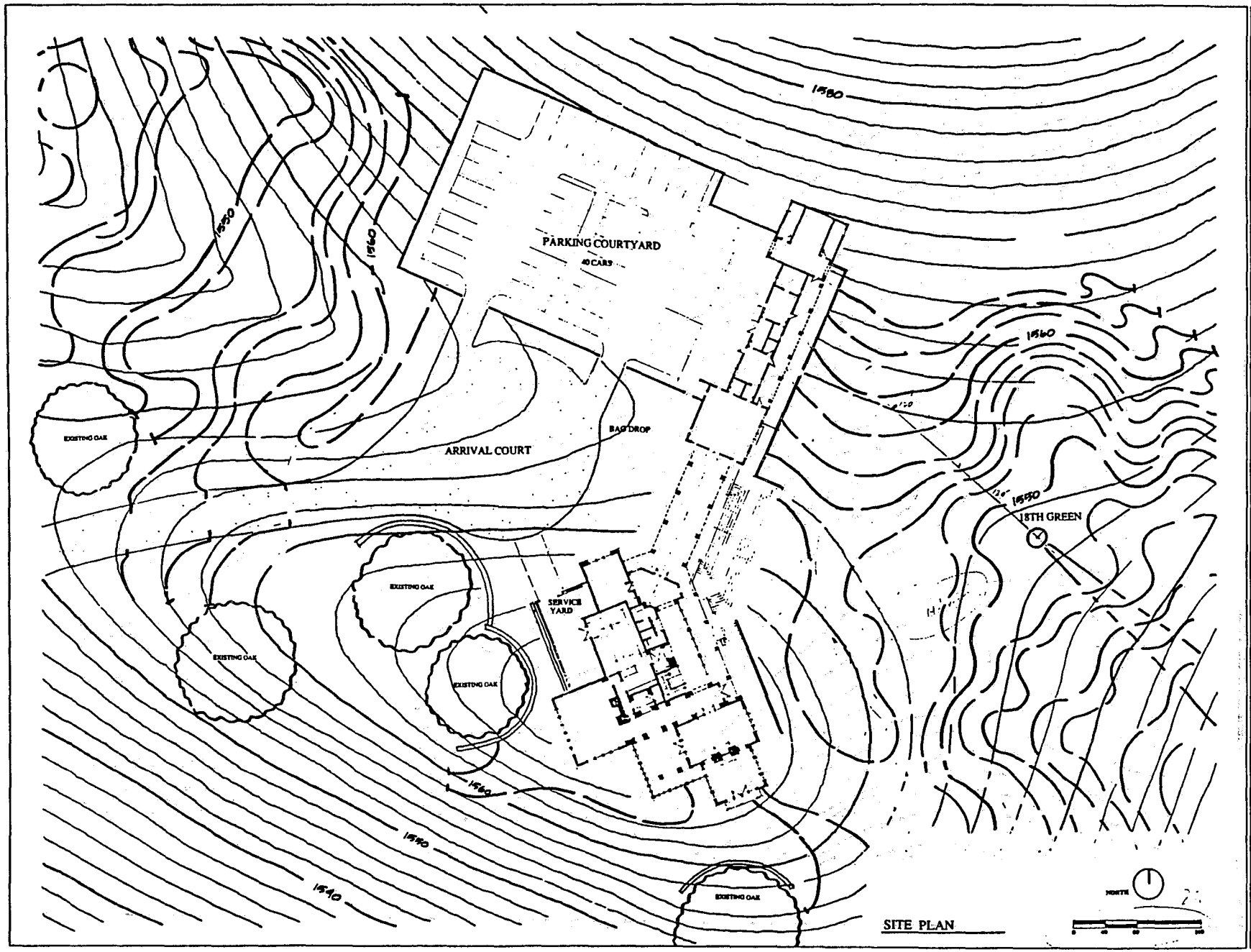
DATE:
October 15, 1988

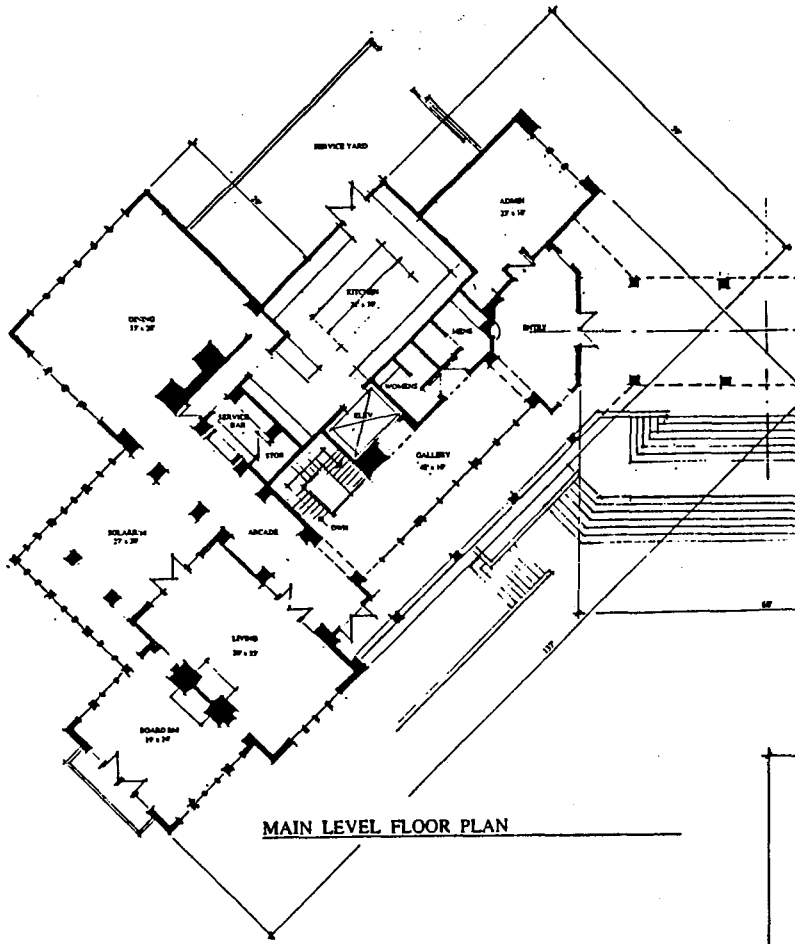
REVISIONS:

DRAWING TITLE:
Lot 265
Use Permit
Golf Clubhouse
Title Sheet

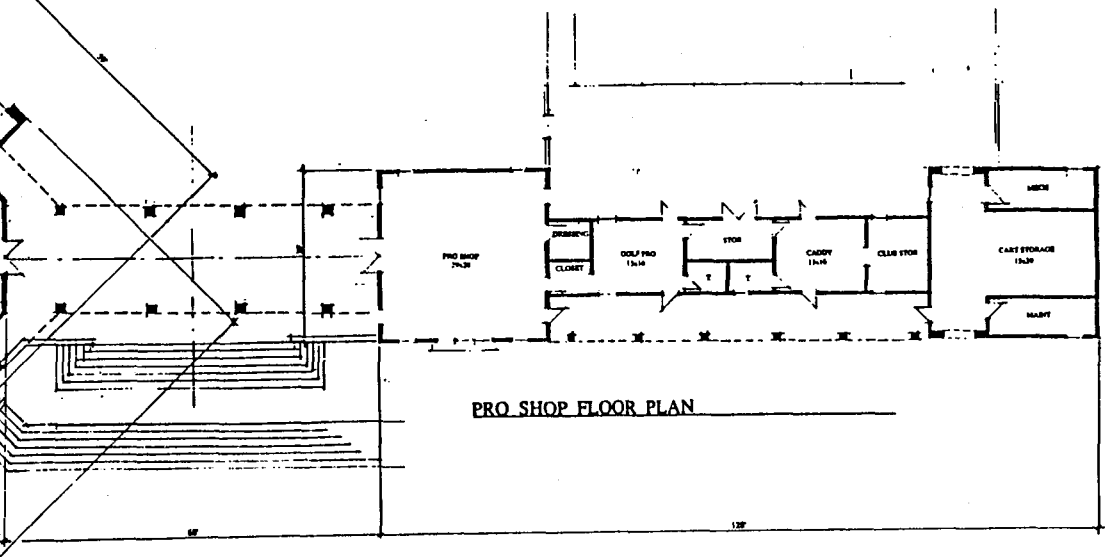
DRAWING NO:
A-1

SHEET 1 OF 4

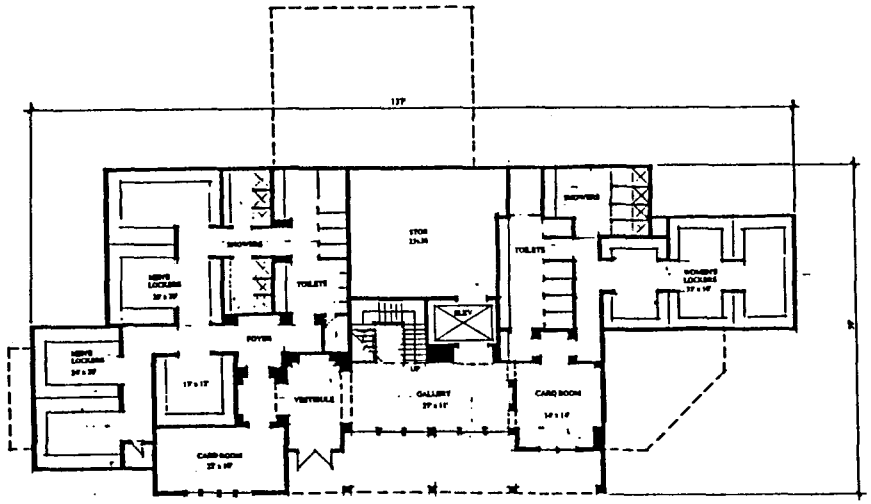

PARKING COURTYARD
40 CARS
ARRIVAL COURT
BAG DROP
SERVICE YARD
EXISTING OAK
EXISTING OAK
EXISTING OAK
EXISTING OAK
EXISTING OAK
18TH GREEN
1580
1570
1560
1550
1540
SITE PLAN
NORTH
ROBERT LAMB HART
THE SANTA LUCIA PRESERVE
Monterey County, California
Use Permit
Golf Clubhouse
Site Plan
A-2



MAIN LEVEL FLOOR PLAN



PRO SHOP FLOOR PLAN



LOWER LEVEL FLOOR PLAN

AREA:

MAIN LEVEL: 9,634
LOWER LEVEL: 5,609
TOTAL: 15,243 S.F.

ROBERT LAMB HART
Planners, Architects, and Landscape Architects
Del Monte Ave. San Francisco, Ca. 1000

THE SANTA LUCIA PRESERVE
Monterey County, California

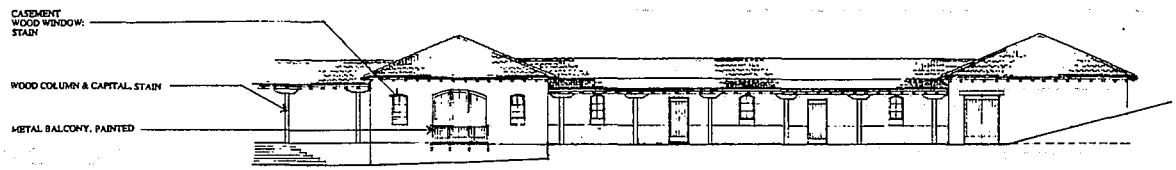
DATE:
December 12, 1990

REVISIONS:

DRAWING TITLE:
Use Permit
Golf Clubhouse
Floor Plans

DRAWING NO:
A-3

SHEET 1 OF 4



PRO SHOP EAST ELEVATION

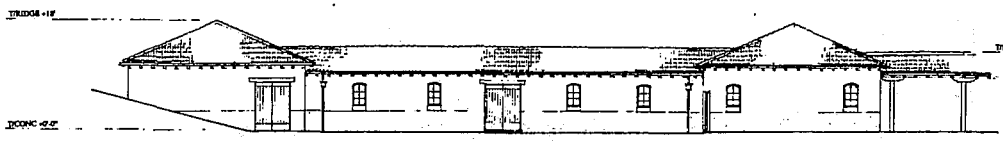
MATERIALS AND COLOR RANGE

WALLS:
STUCCO, SOFT MODELED TEXTURE, PAINTED
PRIME COLOR: AMERITONE #2H12P "IRONSTONE"
COLOR BAND: AMERITONE #2H28P "SNOW GLOW"

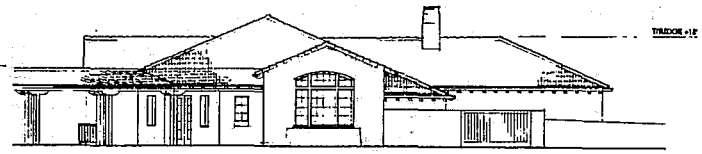
WINDOWS, DOORS & TRIM, EAVES AND RAFTERS:
CABOT SEMI-TRANSPARENT STAIN #0334 "MISSION BROWN" OR EQUAL

ROOF:
1-PIECE, "S" SHAPED CLAY TILE, DELEO OR EQUAL
COLOR BLEND:
10% AVANTE BLUEGREEN, MEDIUM
40% ANTIQUE FLASH
40% BURGUNDY
10% SPANISH RED

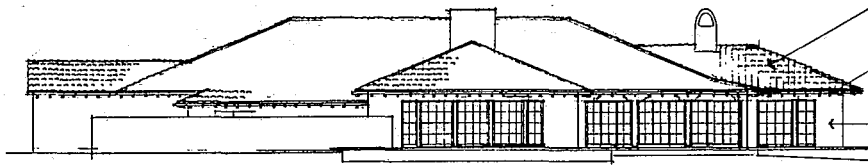
NOTE:
- ALL MATERIAL COLORS TO BE FIELD VERIFIED PRIOR TO INSTALLATION.



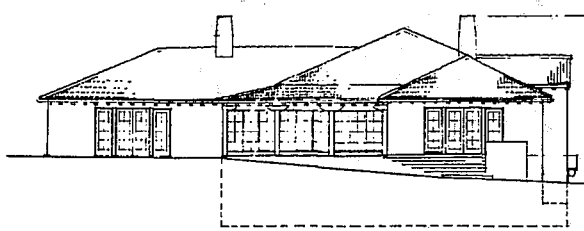
PRO SHOP WEST ELEVATION



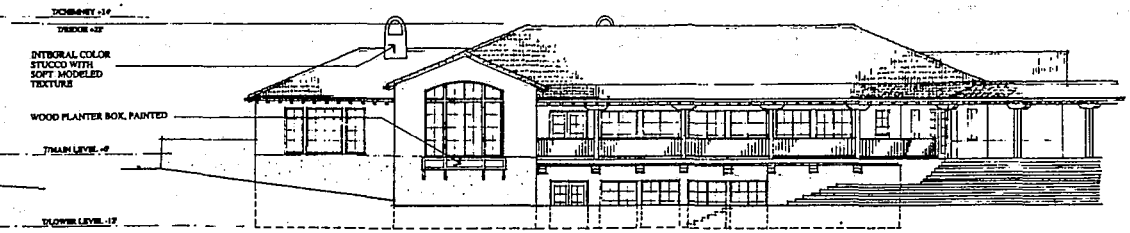
CLUBHOUSE NORTH ELEVATION



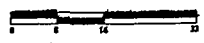
CLUBHOUSE WEST ELEVATION



CLUBHOUSE SOUTH ELEVATION



CLUBHOUSE EAST ELEVATION



ROBERT LAMB HART
Planners, Architects, and Landscape Architects
143 Calderon St. San Francisco, CA 94127 415-956-5300

THE SANTA LUCIA PRESERVE
Monterey County, California

DATE: December 12, 1994

REVISIONS:

DRAWING TITLE: Use Permit Golf Clubhouse Elevations

DRAWING NO: A-4

SHEET OF

Appendix J. Updated Vesting Tentative Map

DESCRIPTION OF REVISIONS

A second package of minor changes to this set of application documents was submitted to the County in early September 1995. All revised pages are identified by the addition of a letter "A" suffix to the page number, and an August, 1995 date. The revised pages are as follows:

Page		Nature of Change
Section 1.0 Comprehensive Development Plan		
i-aA:	Figure i	Revision to public trail
xxiA:	This page	
1-68A:	Figure 1-20	Revision to public trail; and minor acreage changes to table for GMPAP
1-83A:	Figure 1-27	Revision to public trail
Section 2.0 Combined Development Permit		
2-2A:	Figure 2-1	Revision to public trail
2-3A:	Text changes	Minor acreage changes
2-4A:	Figure 2-2	Minor acreage changes
2-18A:	Table 2-2	Minor acreage changes
2-21A	Figure 2-11	Revision to public trail
2-26A:	Table 2-3	Minor acreage changes
2-30A:	Text changes	Typographic errors
2-32A:	Figure 2-15	Proposed land uses swapped on Lots 262 and 263
2-33A:	Figure 2-16	ERC/ROC land uses swapped lots
2-43A	Text changes	ROC use moved to Lot 262
2-44aA	Figure 2-21a	Site Plan revised
2-44bA	Figure 2-21b	Section(s) revised
2-45A	Text changes	ERC use moved to Lot 263
2-46A	Figure 2-22a	Site Plan revised
2-52A	Table 2-5A	Additional locations/typographic errors
2-53A	Figure 2-24	Additional locations
2-57A	Table 2-5D	Lot # amended
2-59A	Table 2-5F	Lot # amended
2-75A	Table 2-5V	Lot # amended
2-82aA	Table 2-5AA	Nomenclature amended
2-82bA	Table 2-5BB	Nomenclature amended
2-82cA	Table 2-5CC	Nomenclature amended
2-82dA through 2-82iA	Table 2-5DD through Table 2-5II	Additional data sheets.

A new set of revised VTM sheets was also submitted as a part of the revision package. These new VTM sheets are identified by an August 14, 1995 date in the Revisions box on each drawing. An index to the revisions can be found on pages xxiii A through xxviiiA.

Index to VTM Changes

Roads:

Robinson Canyon Rd./Peñon Peak intersection relocated. (Sheet 10)

Easement up Las Garzas Valley changed from unrecorded to R3170/P453 (Sheet 10)

Trails:

Peñon Peak Trail adjusted (Sheet 8, 10, &11)

Lot #	Sheet #	Acreage Change to Lot	Acreage Change to Homeland	Nature of Change
1				
2	9	- 0.3	- 2.23	Septic refinement/Lot #2 relocated to S. portion of Lot #20
3	4	+ 19.5		Septic refinement/Lot combined with former Lot #2
4	4	- 0.1		Septic refinement/Driveway consolidation
5	7	- 22.19	-3.26	Driveway adjustment (visual/length)/ Math. error on 11.8.94 VTM
6	7	+ 0.9	- 0.81	Septic refinement/Visual /Water tank & its easement removed
7				
8	7		-1.23	Septic refinement/Potential visual impact/Driveway adjustment
9				
10				
11	7		- 0.34	Visual adjustment
12	7			Driveway adjustment to reduce length and grading
13				
14				
15	7			Driveway adjustment to reduce grading and tree loss
16				
17	9		- .75	Septic refinement/Visual
18	9			Driveway adjustment to avoid redwoods
19	9			Geotech - slope setback
20	9	- 19.8		Septic refinement/ Relocation of Lot #2
21	9	+ 1.0	+ 0.85	Septic refinement/Geotech - slope setback
22	9	- 1.0	+ 0.54	Septic refinement/Geotech - slope setback
23	9	+ 5.2		Water tank & its easement removed / Driveway length reduced
24	9	- 4.1		Water tank & its easement removed / Driveway length reduced
25				
26				
27				
28				
29				
30				
31				

Lot #	Sheet #	Acreage Change to Lot	Acreage Change to Homeland	Nature of Change
32				
33				
34				
35				
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				
46				
47				
48				
49				
50				
51				
52				
53				
54				
55				
56				
57				
58	10		-0.14	Minimize potential visual impact on Rob. Cyn. Rd.
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				
71				
72				
73				
74				
75				
76	13	-1.21	-0.22	Bobcat Run realigned to reduce grading and minimize visual impact

Lot #	Sheet #	Acreage Change to Lot	Acreage Change to Homeland	Nature of Change
77	13	-0.33		Conformance with Golf Use Permit
78	13	+0.79	+0.29	Conformance with Golf Use Permit/Math. error on 11.8.94 VTM
79	13	-0.21		Conformance with Golf Use Permit
80	13	-2.47	-0.31	Bobcat Run realigned to reduce grading and minimize visual impact
81	13	-0.32		Bobcat Run realigned to reduce grading and minimize visual impact
82				
83				
84				
85				
86				
87				
88				
89				
90				
91				
92				
93				
94				
95				
96				
97				
98				
99	13			Geotech - Fault setback
100	13			Geotech - Fault setback
101	13			Geotech - Slope setback
102				
103				
104				
105				
106				
107				
108				
109				
110				
111				
112				
113				
114				
115				
116				
117				
118	14	+6.3		Septic refinement
119				
120	13	-2.34	-0.68	Conformance with Golf Use Permit
121				

Lot #	Sheet #	Acreage Change to Lot	Acreage Change to Homeland	Nature of Change
122				
123				
124	13	+0.22	+0.19	Conformance with Golf Use Permit
125	13	+0.39	+0.44	Conformance with Golf Use Permit
126	13	+0.13		Conformance with Golf Use Permit
127				
128				
129	13	+2.12		Bobcat Run realigned to reduce grading and minimize visual impact
130				
131				
132	13	-0.21		Bobcat Run realigned to reduce grading and minimize visual impact
133				
134				
135				
136				
137				
138				
139				
140				
141				
142				
143				
144				
145				
146				
147				
148				
149	10	- 0.32		Septic refinement
150	10	+ 0.32		Septic refinement
151				
152				
153				
154				
155				
156				
157	10	-1.43		Conformance with Golf Use Permit
158				
159				
160				
161				
162	10	-0.32		Conformance with Golf Use Permit
163				
164				
165				
166				

Lot #	Sheet #	Acreage Change Lot Size	Acreage Change to Homeland	Comments
167				
168				
169				
170				
171				
172				
173				
174				
175				
176				
177				
178				
179				
180				
181				
182				
183				
184				
185				
186				
187				
188				
189	7			Geotech - Slope setback
190				
191				
192				
193				
194	7	+ 1.0		Septic refinement
195	7	- 1.0		Septic refinement
196	7			Geotech - Fault setback
197				
198	7			Geotech - Fault location revised
199				
200				
201				
202				
203				
204				
205				
206	14			Geotech - Fault setback/Water tank removed
207				
208				
209				
210				
211	10	- 1.1	- 0.26	Septic refinement /Peñon Peak Trail alignment adjusted

Lot #	Sheet #	Acreage Change Lot Size	Acreage Change to Homeland	Comments
212	10	+ 1.1		Septic refinement
213				
214				
215				
216				
217				
218				
219	8	+ 5.0		Septic refinement
220				
221				
222				
223				
224				
225				
226				
227				
228				
229				
230				
231				
232				
233				
234				
235	14	+ 2.6		Septic refinement
236	14	- 2.6		Septic refinement
237				
238				
239	14	+ 0.33		Septic refinement
240	14	- 0.33		Septic refinement
241				
242				
243				
244				
245	11	- 0.5		Septic refinement
246	11	+ 0.5		Septic refinement
247				
248				
249				
250				
251				
252				
253				
254				
255				

Lot #	Sheet #	Acreage Change Lot Size	Acreage Change to Homeland	Comments
256				
257				
258				
259				
260				
261				
262	13	-0.6		Use transfered to Lot #263/Access revised
263	13	+0.6		Use transfered to Lot #262
264	10	+4.81		Conformance with Golf Use Permit/Access revised
265	10	+0.22		Conformance with Golf Use Permit
266				
Parcel				
AA	9			Public trail added
E	11	+22.19		Math. error on 11.8.94 VTM
G	9	- 1.1		Net result of adjustment to Lot#'s 23 & 24
M	8	- 5.0		Added to Lot #219 for septic refinement
N	14	- 6.3		Added to Lot #118 for septic refinement
W	10			Public trail added
X	8			Water tank and easement added/Public trail adjusted

Vesting Tentative Map
GMPAP ONLY

THE SANTA LUCIA PRESERVE

Monterey County, California

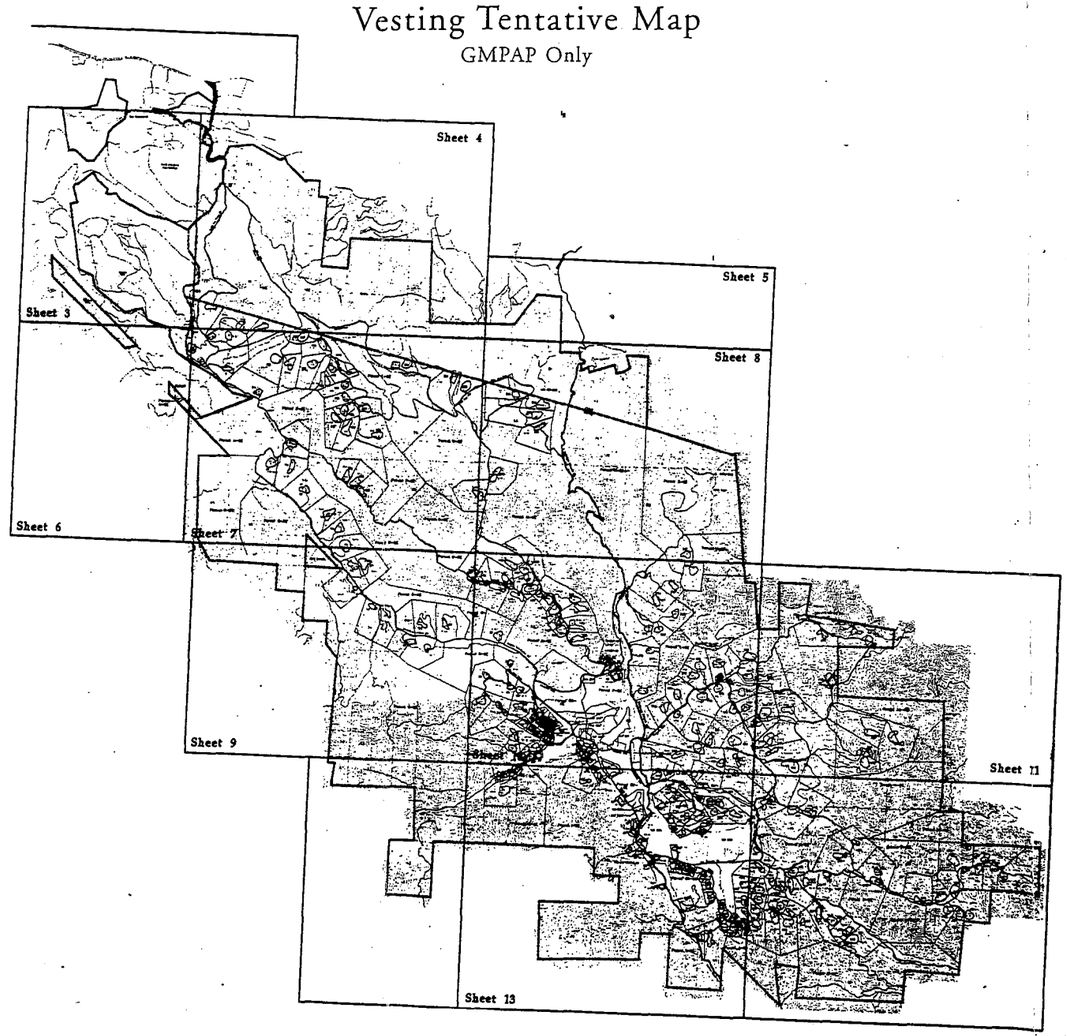
ROBERT LAMB HART • Planners and Architects
242 California Street, San Francisco, CA 94111
BESTOR ENGINEERS, INC. • Civil Engineers
9701 Larkspur Lane, Monterey, CA 93940

THE SANTA LUCIA PRESERVE

Monterey County, California

Vesting Tentative Map

GMPAP Only



SUBDIVIDER'S STATEMENT

A. Existing Zoning and Proposed Uses of the Land
Existing zoning is RC40-S. Existing zoning and proposed land uses are described in detail in the accompanying Combined Development Permit application.

B. Measures Proposed Regarding Erosion Control
Erosion control to be in accordance with requirements of Monterey County Erosion Control Ordinance No. 2806. See the Drainage/Erosion Control Report, the Resource Management Plan and the Mitigation Monitoring Plan submitted as part of this application.

C. Proposed Source of Water Supply and Name of Water System, Method of Sewage Disposal and the Name of Sewage Utility System, if sewered

Water
Domestic and fire flow water shall be supplied by the Santa Lucia Preserve County Service Area (to be formed).

Sewer
The majority of residential lots shall be sewered by individual septic tanks and leach field systems. The Lodge, Hacienda, Ranch Center, Sporting Center, Equestrian Center, Ranch Operations Center, Employee Recreation Center, and Golf Club shall be sewered to a treatment plant operated by the Santa Lucia Preserve County Service Area. Approximately 78 single family house sites, 44 inclusionary dwellings and 12 non-inclusionary homes will also be sewered to the treatment plant. Treated effluent will be used for irrigating the Golf Trail, landscape, and pasture. For additional information refer to the Wastewater Disposal Plan submitted as part of this application.

D. Indicate type of Tree Planting or Removal Proposed
Refer to the Forest Management Plan submitted as part of this application for details of proposed tree removal and planting areas.

E. Proposed Public Areas to be Dedicated and Common Area or Scenic Easements Proposed. If Common Areas are Proposed Method of Maintenance shall be stated
There are no common areas. Open space parcels shall be owned in fee by the Conservancy. There are no public areas proposed for dedication except for one public trail. Conservation easements on private parcels shall be held and maintained by The Conservancy. Refer to the Comprehensive Development Plan submitted as part of this application.

F. Proposed Height of Structures
The maximum height of any proposed structures shall not exceed that allowed by applicable Monterey County zoning. Special zoning height limits are proposed for certain residential lots (see combined development permit application).

G. Proposed type of Development of Lots or Unit and Whether they are for sale as Lots or fully developed units
All non-employee single family lots shall be sold as lots. The Employee Housing Units (39 units on 15 lots) shall be sold or rented as fully developed units. This is a phased subdivision as shown on the Vesting Tentative Map. Multiple final maps are intended. Phases may be constructed out of order, however, all infrastructure facilities will be constructed as required.

SHEET INDEX

SHEET LOCATION INDEX

0 1/4 1/2 1 MILE
0 1250 2500 6250 FEET
NORTH

ASSESOR'S PARCEL NUMBERS

157-121-005
157-121-014
157-121-015
157-131-001
157-131-003
157-131-005
157-131-006
239-011-031
239-011-002
239-011-003
239-011-004
239-011-005
239-011-006
239-011-007
239-011-008
239-011-009
239-011-010
239-011-011
239-011-012
239-011-013
239-011-014
239-011-015
239-011-016
239-011-017
417-011-006
417-011-010
417-011-011
417-011-012
417-021-008
417-021-014
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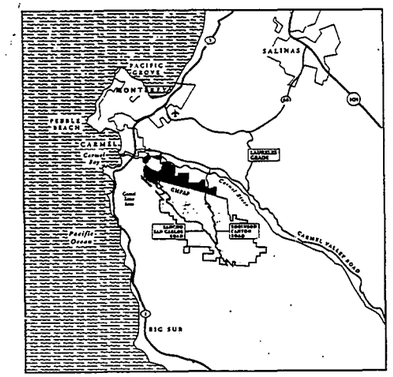
417-041-002
417-041-003
417-041-018
417-051-001



VICINITY MAP

NOT TO SCALE NORTH

OWNER and SUBDIVIDER
Rancho San Carlos Partnership
P.O. Box 222707
Carmel, CA 93922

MAP PREPARED BY

PLANNERS
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Monterey, CA 93940
(408) 373-2941

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546-A Hartnell
Monterey, CA 93940

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Santa Cruz, CA 95060

LEGAL
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60 West Alisal Street, Suite 1
P.O. Box 2058
Salinas, CA 93902

WETLANDS
Wetlands Research Associates
2169 East Francisco, Suite G
San Rafael, CA 94903

AGRICULTURE
Sage Associates
1283 Coast Village Circle, Suite 5
Montecito, CA 93108

GEOTECHNICAL
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900 North San Antonio Road
Los Altos, CA 94022

ARCHAEOLOGICAL
Archaeological Consulting, Inc.
160 South Davis Road
Salinas, CA 93908

WATER RESOURCES
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500 First Street
Woodland, CA 95695

Camp, Dresser & McKee
100 Pringle Avenue, Suite 300
Walnut Creek, CA 94596

Todd Engineers
2914 Domingo Avenue
Berkeley, CA 94705

Geoconsultants, Inc.
1450 Koll Circle, Suite 114
San Jose, CA 95112

Balance Hydrologics
1760 Solano Ave., Suite 209
Berkeley, CA 94707

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Oakland, CA 95612

FIRE PROTECTION
Roy Perkins
P.O. Box 4536
Carmel, CA 93921

FORESTRY
Ralph Osterling Consultants
1650 Borel Place, #204
San Mateo, CA 94402

NOTES

1. **Proposed Easements Widths**
Driveways, emergency egress, water tank access roads and utility easements will vary in width depending upon type of use.

2. **Solar Access**
The development proposed has no building lots that will have their solar access affected by existing structures or require tree removal to gain acceptable solar access.

3. **Fastline Setbacks**
Within building envelopes a 50 foot setback is shown on either side of a fastline, where its precise location is known. Within some building envelopes where the precise location of the fault is uncertain, an additional 50 foot setback is shown. This additional 50 foot zone may be found suitable for the construction of habitable structures based upon a recommendation contained in a report prepared by a California Certified Engineering Geologist due it based upon subsequent geological investigation which adequately demonstrates the precise location of the fault.

50' Setback on either side of fastline
Additional 50' setback

4. **Slope Setback**
Within some building envelopes a 50 foot setback is shown extending from the toe of an adjacent steep slope. Habitable structures should not be built within this setback unless a protective slough wall is constructed to minimize any potential damage from debris flow in the event of an earthquake.

5. **Accuracy of Drawings**
Lot lines, building envelope boundaries and physical features shown on the VTM are approximate and may be subject to revisions in connection with more detailed resource studies and precise engineering for final subdivision mapping.

ROBERT LAMB HART
Planners, Architects, and Landscape Architects
BESTOR ENGINEERS, INC.
Civil Engineers

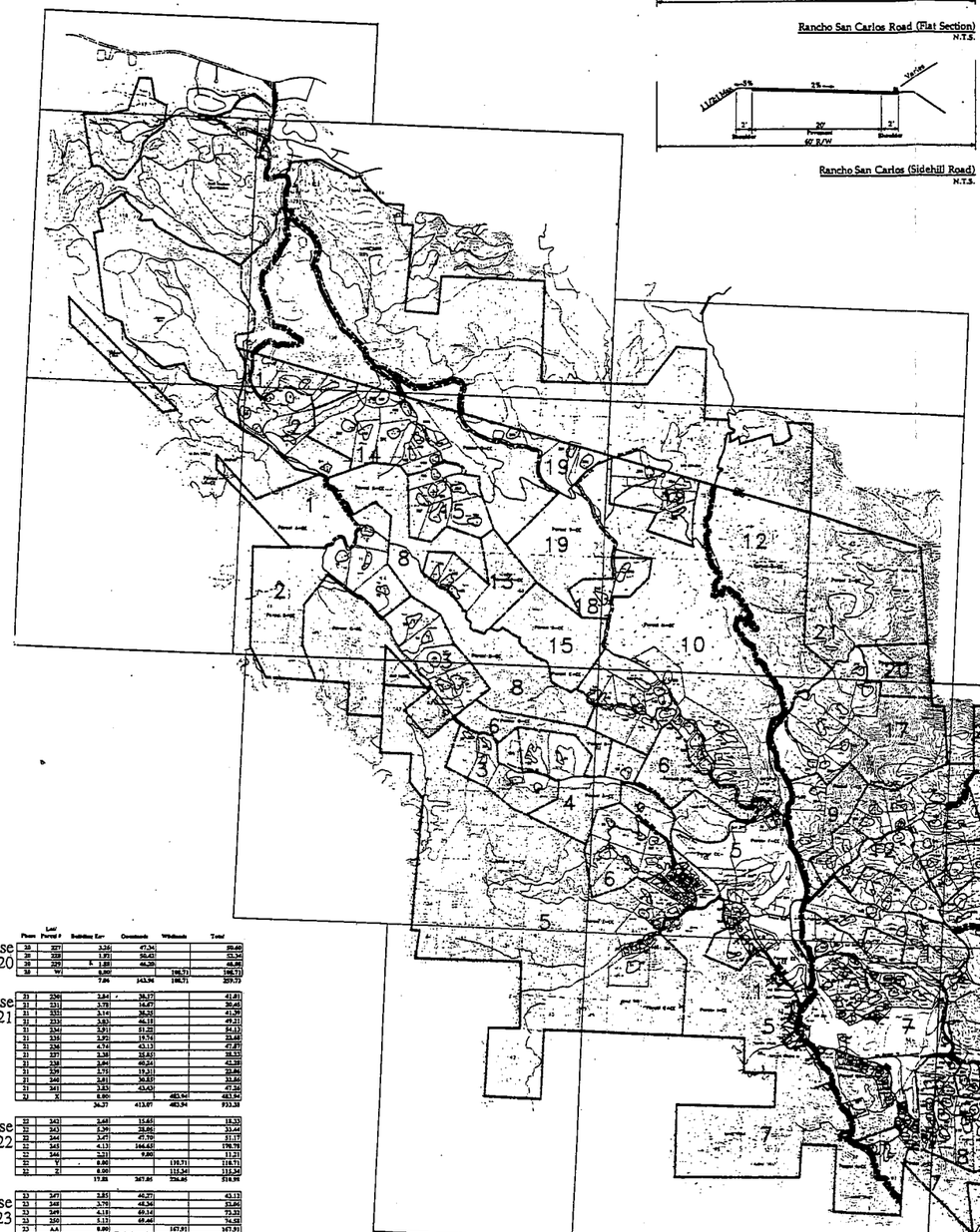
THE SANTA LUCIA PRESERVE
Monterey County, California

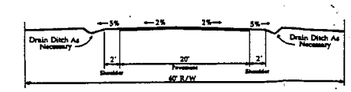
DATE:
January 21, 1994

REVISIONS:
November 8, 1994
August 14, 1998

DRAWING TITLE:
Cover Sheet
Vesting Tentative Map

DRAWING NO:
X
SHEET X OF 14





Lot Phasing

Phase 1

Phase	Lot/ Parcel #	Building Env	Openlands	Wildlands	Total
1	1	2.40	24.19	0.00	26.59
1	2	1.47	18.60	0.00	20.07
1	3	2.38	34.77	0.00	37.15
1	4	3.52	26.07	0.00	29.59
1	62	1.24	2.72	0.00	3.96
1	A	0.00	0.00	202.57	202.57
		11.01	106.35	202.57	319.93

Phase 2

Phase	Lot/ Parcel #	Building Env	Openlands	Wildlands	Total
2	5	3.40	47.39		50.79
2	6	2.36	33.66		36.02
2	7	2.73	45.32		48.05
2	8	1.90	46.42		48.32
2	9	3.52	42.92		46.44
2	10	3.77	34.04		37.81
2	11	2.90	38.09		40.99
2	12	2.65	49.28		51.93
2	B	0.00	0.00	267.49	267.49
		23.23	327.12	267.49	617.84

Phase 3

Phase	Lot/ Parcel #	Building Env	Openlands	Wildlands	Total
3	13	4.46	45.25		49.71
3	14	2.91	34.60		37.51
3	15	5.15	36.97		42.12
3	16	2.79	30.27		33.06
3	17	4.37	32.33		36.70
3	18	0.79	46.44		47.23
3	19	1.66	36.23		37.89
3	20	1.94	14.03		15.97
3	21	2.20	45.29		47.49
3	22	1.38	49.10		50.48
3	C	0.00		318.76	318.76
		27.65	358.71	318.76	705.12

Phase 4

Phase	Lot/ Parcel #	Building Env	Openlands	Wildlands	Total
4	23	2.59	38.83		41.42
4	24	2.25	54.08		56.33
4	25	3.20	36.40		39.60
4	D	0.00		114.98	114.98
		8.04	129.31	114.98	252.33

Phase 5

Phase	Lot/ Parcel #	Building Env	Openlands	Wildlands	Total
5	26	1.78	55.81		57.59
5	27	0.76	1.13		1.89
5	28	0.87	2.59		3.46
5	29	1.53	3.11		4.64
5	30	1.26	2.86		4.12
5	31	2.17	2.00		4.17
5	32	0.86	3.11		3.97
5	33	0.64	2.80		3.44
5	34	0.75	2.46		3.21
5	35	1.23	1.98		3.21
5	36	1.30	2.06		3.36
5	37	1.07	2.02		3.09
5	38	1.50	2.38		3.88
5	39	1.21	2.43		3.64
5	40	1.24	2.49		3.73
5	41	2.72	4.55		7.27
5	42	2.35	26.74		29.09
5	43	1.49	4.27		5.76
5	44	1.42	1.76		3.18
5	45	1.30	1.98		3.28
5	46	1.05	4.14		5.19
5	47	2.23	33.95		36.18
5	48	1.29	2.50		3.79
5	49	0.77	1.81		2.58
5	50	0.71	2.69		3.40
5	51	0.90	2.34		3.24
5	52	4.36	36.72		41.08
5	53	0.55	2.96		3.51
5	54	0.95	5.36		6.31
5	55	1.50	2.26		3.76
5	56	0.69	1.66		2.35
5	57	0.72	5.14		5.86
5	58	1.23	3.03		4.26
5	59	1.54	4.37		5.91
5	60	2.05	38.38		40.43
5	61	7.50	4.89		12.39
5	63	1.43	2.78		4.21
5	64	0.67	2.22		2.89
5	65	0.88	4.60		5.48
5	66	0.82	3.56		4.38
5	67	1.25	2.93		4.18
5	255	78.07	0.00		78.07
5	256	5.78	0.00		5.78
5	257	37.43	0.00		37.43
5	258	2.88	0.00		2.88
5	259	6.46	0.00		6.46
5	260	28.15	0.00		28.15
5	261	5.67	0.00		5.67
5	262	5.35	6.59		11.94
5	263	3.50	2.33		5.83
5	CC	0.00		23.61	23.61
5	DD	0.00		18.96	18.96
5	E	0.00		1664.91	1664.91
5	EE	0.00		106.82	106.82
5	F	0.00		35.57	35.57
		233.85	305.77	1849.87	2389.49

Phase 6

Phase	Lot/ Parcel #	Building Env	Openlands	Wildlands	Total
6	68	2.75	14.18		16.93
6	69	1.90	23.84		25.74
6	70	1.64	34.56		36.20
6	71	3.00	31.11		34.11
6	72	3.11	44.08		47.19
6	73	2.41	21.83		24.24
6	74	1.46	2.71		4.17
6	75	0.97	3.30		4.27
6	G	0.00		105.10	105.10
6	H	0.00		152.35	152.35
		17.24	175.60	257.45	450.29

Phase 7

Phase	Lot/ Parcel #	Building Env	Openlands	Wildlands	Total
7	76	0.80	3.85		4.65
7	77	2.16	12.36		14.52
7	78	1.26	5.96		7.22
7	79	0.91	2.65		3.56
7	80	1.28	7.70		8.98
7	81	0.84	1.21		2.05
7	82	1.15	1.51		2.66
7	83	0.41	1.47		1.88
7	84	0.59	0.76		1.35
7	85	2.34	3.51		5.85
7	86	1.67	2.76		4.43
7	87	1.25	2.47		3.72
7	88	1.07	1.84		2.91
7	89	1.76	3.02		4.78
7	90	1.99	4.00		5.99
7	91	2.67	4.12		6.79
7	92	0.86	1.21		2.07
7	93	3.03	9.08		12.11
7	94	0.85	3.58		4.43
7	119	1.82	12.01		13.83
7	120	1.60	21.28		22.88
7	121	1.37	7.43		8.80
7	122	0.86	6.25		7.11
7	123	0.85	2.95		3.80
7	124	1.10	1.80		2.90
7	125	1.35	3.12		4.47
7	126	2.45	6.83		9.28
7	127	2.56	16.20		18.76
7	128	1.99	12.36		14.35
7	129	2.73	13.05		15.78
7	130	1.31	10.73		12.04
7	131	2.68	22.31		24.99
7	132	1.20	8.77		9.97
7	264	321.81	0.00		321.81
7	265	6.60	0.00		6.60
7	266	13.50	0.00		13.50
7	I	0.00	0.00	973.92	973.92
7	J	0.00	0.00	107.18	107.18
7	GG	0.00	0.00	97.51	97.51
		392.67	218.17	1178.61	1789.45

Phase 8

Phase	Lot/ Parcel #	Building Env	Openlands	Wildlands	Total
8	95	1.14	1.93		3.07
8	96	1.14	2.10		3.24
8	97	1.42	3.01		4.43
8	98	1.88	3.92		5.80
8	99	2.33	46.78		49.11
8	100	1.29	13.61		14.90
8	101	1.20	4.61		5.81
8	102	1.31	3.40		4.71
8	103	1.65	2.72		4.37
8	104	1.54	6.36		7.90
8	105	2.94	16.40		19.34
8	106	2.36	7.17		9.53
8	107	3.21	8.32		11.53
8	108	2.21	8.49		10.70
8	109	2.45	12.06		14.51
8	110	1.66	5.01		6.67
8	111	2.89	5.75		8.64
8	112	2.35	5.76		8.11
8	113	2.36	12.82		15.18
8	114	2.07	10.34		12.41
8	115	1.39	34.14		35.53
8	116	3.55	30.66		34.21
8	117	3.85	29.34		33.19
8	118	2.58	26.96		29.54
8	K	0.00		523.73	523.73
		50.77	301.67	523.73	876.17

Phase 9

Phase	Lot/ Parcel #	Building Env	Openlands	Wildlands	Total
9	133	2.37	42.51		44.88
9	134	3.28	36.08		39.36
9	L	0.00		96.48	96.48
		5.65	78.59	96.48	180.72

Phase 10

Phase	Lot/ Parcel #	Building Env	Openlands	Wildlands	Total
10	135	3.13	29.29		32.42
10	136	4.12	20.62		24.74
10	137	3.20	17.63		20.83
10	138	2.91	32.65		35.56
10	139	2.94	37.79		40.73
10	140	2.99	38.12		41.11
10	141	2.35	6.42		8.77
10	142	1.46	9.09		10.55
10	143	1.97	1.66		3.63
10	144	1.97	18.76		20.73
10	145	1.88	11.35		13.23
10	146	2.70	22.90		25.60
10	147	4.65	41.95		46.60
10	148	3.21	27.13		30.34
10	149	4.16	6.30		10.46
10	150	1.82	3.93		5.75
10	151	2.75	6.15		8.90
10	152	3.72	6.01		9.73
10	153	1.83	4.93		6.76
10	154	3.12	4.52		7.64
10	M	0.00		800.63	800.63
		56.88	347.23	800.63	1204.74

Phase 11

Phase	Lot/ Parcel #	Building Env	Openlands	Wildlands	Total
11	155	3.22	29.37		32.59
11	156	3.15	39.04		42.19
11	157	3.16	35.06		38.22
11	158	2.34	21.92		24.26
11	159	3.03	22.75		25.78
11	160	5.06	29.31		34.37
11	161	2.17	51.96		54.13
11	162	2.70	43.76		46.46
11	163	4.59	34.37		38.96
11	164	2.52	40.93		43.45
11	165	5.24	52.34		57.58
11	166	4.29	19.62		23.91
11	167	3.64	49.46		53.10
11	168	2.70	41.97		44.67
11	169	0.98	9.10		10.08
11	N	0.00		577.76	577.76
		48.79	520.98	577.76	1147.53

Phase 12

Phase	Lot/ Parcel #	Building Env	Openlands	Wildlands	Total
12	170	3.39	19.43		22.82
12	171	1.87	17.75		19.62
12	172	2.72	27.97		30.69
12	173	3.23	31.81		35.04
12	174	3.21	18.59		21.80
12	175	3.63	25.94		29.57
12	176	2.79	17.96		20.75
12	177	2.52	24.60		27.12
12	178	2.39	17.86		20.25
12	179	2.31	32.23		34.54
12	180	3.19	42.48		45.67
12	181	2.23	16.06		18.29
12	182	3.83	38.70		42.53
12	183	3.66	59.27		62.93
12	O	0.00		522.01	522.01
		40.97	390.63	522.01	953.61

Phase 13

Phase	Lot/ Parcel #	Building Env	Openlands	Wildlands	Total
13	184	3.00	17.19		20.19
13	185	3.42	15.73		19.15
13	186	2.35	30.33		32.68
13	P	0.00		115.21	115.21
		8.77	63.25	115.21	187.23

Phase 14

Phase	Lot/ Parcel #	Building Env	Openlands	Wildlands	Total
14	187	4.35	37.06		41.41
14	188	4.25	82.29		86.54
14	189	4.15	30.80		34.95
14	190	3.04	24.27		27.31
14	191	3.34	30.05		33.39
14	192	2.33	20.95		23.28
14	193	2.48	14.47		16.95
14	194	2.37	19.04		21.41
14	Q	0.00		246.95	246.95
		26.31	258.93	246.95	532.19

Phase 15

Phase	Lot/ Parcel #	Building Env	Openlands	Wildlands	Total
15	195	2.78	23.01		25.79
15	196	3.09	13.90		16.99
15	197	3.06	23.92		26.98
15	198	4.85	24.95		29.80
15	199	3.01	44.51		47.52
15	200	3.52	20.93		24.45
15	R	0.00		212.99	212.99
		20.31	151.22	212.99	384.52

Phase 16

Phase	Lot/ Parcel #	Building Env	Openlands	Wildlands	Total
16	201	1.96	8.98		10.94
16	202	2.04	12.81		14.85
16	203	3.30	23.20		26.50
16	204	3.32	8.48		11.80
16	205	2.32	16.87		19.19
16	206	1.72	42.31		44.03
16	207	3.54	23.18		26.72
16	208	3.23	20.06		23.29
16	209	3.21	18.23		21.44
16	210	5.46	32.97		38.43
16	S	0.00		369.49	369.49
		30.10	207.09	369.49	606.68

Phase 17

Phase	Lot/ Parcel #	Building Env	Openlands	Wildlands	Total
17	211	2.28	48.77		51.05
17	212	1.94	14.71		16.65
17	213	2.30	59.56		61.86
17	214	2.80	39.11		41.91
17	215	2.35	43.21		45.56
17	216	3.02	26.90		29.92
17	217	2.59	32.24		34.83
17	T	0.00		236.83	236.83
		17.28	264.50	236.83	518.61

Phase 18

Phase	Lot/ Parcel #	Building Env	Openlands	Wildlands	Total
18	218	3.78	42.59		46.37
18	219	4.02	40.72		44.74
18	U	0.00		84.28	84.28
		7.80	83.31	84.28	175.38

Phase 19

Phase	Lot/ Parcel #	Building Env	Openlands	Wildlands	Total
19	220	3.32	40.87		44.19
19	221	2.17	44.88		47.05
19	222	4.23	17.76		21.99
19	223	2.42	20.90		23.32
19	224	4.51	24.61		29.12
19	225	3.44	58.71		62.15
19	226	2.28	42.01		44.29
19	V	0.00		252.47	252.47
		22.37	249.74	252.47	524.57

Phase 20

Phase	Lot/ Parcel #	Building Env	Openlands	Wildlands	Total
20	227	3.26	47.34		50.60
20	228	1.92	50.42		52.34
20	229	1.88	46.20		48.08
20	W	0.00		108.71	108.71
		7.06	143.96	108.71	259.73

Phase 21

Phase	Lot/ Parcel #	Building Env	Openlands	Wildlands	Total
21	230	2.84	38.17		41.01
21	231	3.78	16.67		20.45
21	232	3.14	38.25		41.39
21	233	3.03	46.18		49.21
21	234	2.91	51.22		54.13
21	235	2.92	19.76		22.68
21	236	4.74	43.13		47.87
21	237	2.38	25.85		28.23
21	238	2.04	40.24		42.28
21	239	2.75	19.31		22.06
21	240	2.01	30.85		32.86
21	241	3.83	43.43		47.26
21	X	0.00		483.94	483.94
		36.37	413.07	483.94	933.38

Phase 22

Phase	Lot/ Parcel #	Building Env	Openlands	Wildlands	Total
22	242	2.68	15.65		18.33
22	243	5.39	28.05		33.44
22	244	3.47	47.70		51.17
22	245	4.13	166.65		170.78
22	246	2.21	9.00		11.21
22	Y	0.00		110.71	110.71
22	Z	0.00		115.34	115.34
		17.88	267.05	226.05	510.98

Phase 23

Phase	Lot/ Parcel #	Building Env	Openlands	Wildlands	Total
23	247	2.85	40.27		43.12
23	248	3.70	48.36		52.06
23	249	4.18	69.14		73.32
23	250	5.12	69.46		74.58
23	AA	0.00		167.91	167.91
		15.85	227.23	167.91	410.99

Phase 24

Phase	Lot/ Parcel #	Building Env	Openlands	Wildlands	Total
24	251	1.97	66.25		68.22
24	252	2.53	38.60		41.13
24	253	2.39	40.02		42.41
24	254	3.00	35.82		38.82
24	BB	0.00		95.66	95.66
		9.89	180.69	95.66	286.24

Rancho San Carlos Road (Flat Section)
N.T.S.

Ranch Road (Flat Section)
N.T.S.

Rancho San Carlos (Sidehill Road)
N.T.S.

Ranch Sidehill Road
N.T.S.

Private Driveway (Flat Section)
N.T.S.

Private Driveway (Hillside)
N.T.S.

Emergency Egress (Hillside)
N.T.S.

Typical Road Sections

ROBERT LAMB HART
Planners, Architects, and Landscape Architects
BESTOR ENGINEERS, INC.
Civil Engineers

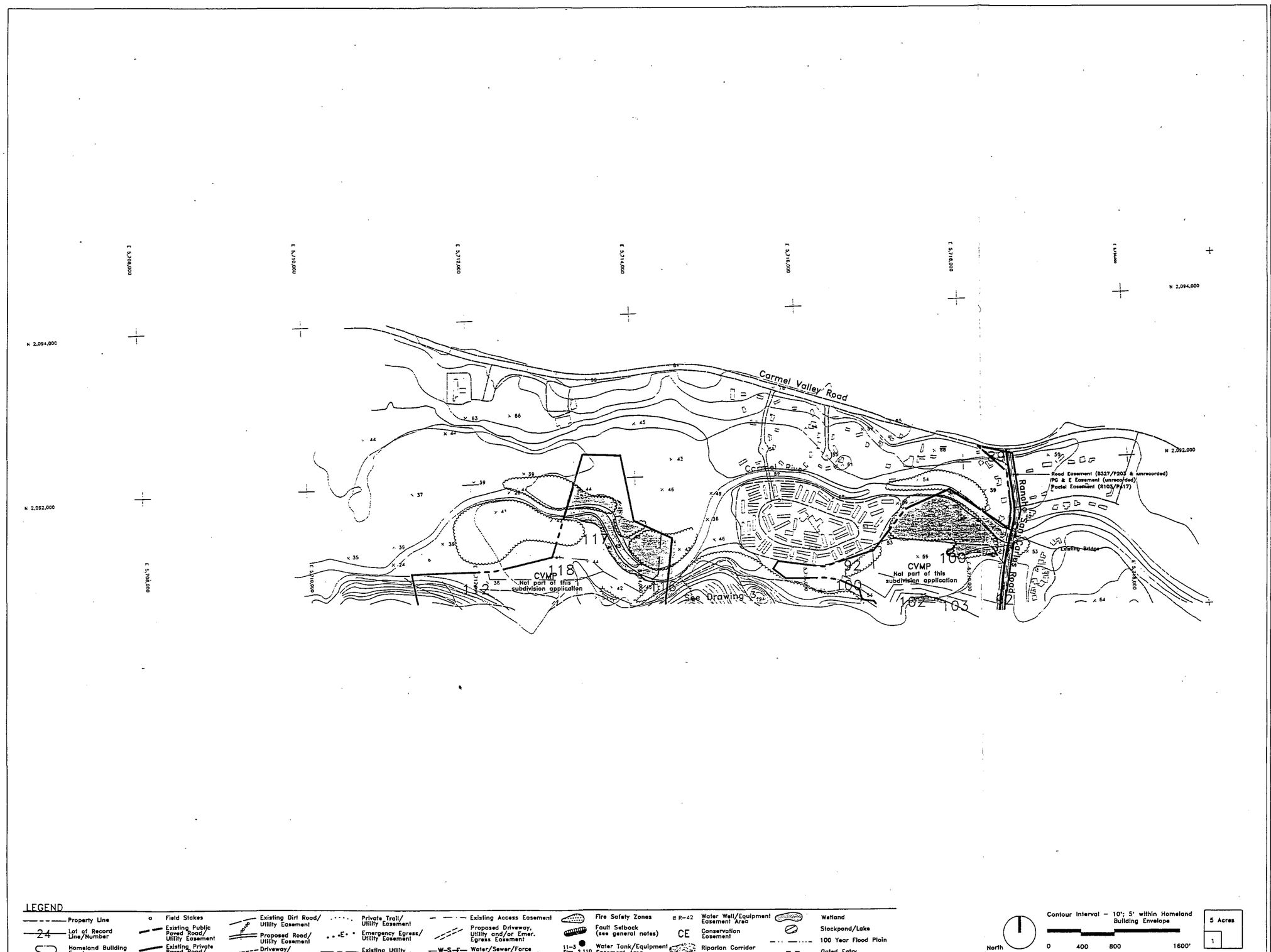
THE SANTA LUCIA PRESERVE
Monterey County, California

DATE:
January 21, 1994

REVISIONS:
November 8, 1994
August 14, 1996

DRAWING TITLE:
Phasing Diagram
Vesting Tentative Map

DRAWING NO:
1
SHEET 1 OF 14



LEGEND

- Property Line
- Lot of Record Line/Number
- Homeland Building Envelope
- Field Stakes
- Existing Public Paved Road/ Utility Easement
- Existing Private Paved Road/ Utility Easement
- Existing Dirt Road/ Utility Easement
- Proposed Road/ Utility Easement
- Driveway/ Utility Easement
- Private Trail/ Utility Easement
- Emergency Egress/ Utility Easement
- Existing Utility Easement
- Existing Access Easement
- Proposed Driveway, Utility and/or Emer. Egress Easement
- Water/Sewer/Force Main/Utility Easement
- Fire Safety Zones
- Fault Setback (see general notes)
- 11-3 Elev. 2,110 Water Tank/Equipment Easement Area
- R-42 Water Well/Equipment Easement Area
- CE Conservation Easement
- Riparian Corridor
- Wetland
- Stockpond/Lake
- 100 Year Flood Plain
- Gated Entry

North

Contour Interval – 10'; 5' within Homeland Building Envelope

0 400 800 1600'

5 Acres

1

ROBERT LAMB HART
Planners, Architects, and Landscape Architects
BESTOR ENGINEERS, INC.
Civil Engineers

THE SANTA LUCIA PRESERVE

Monterey County, California

DATE: January 23, 1994

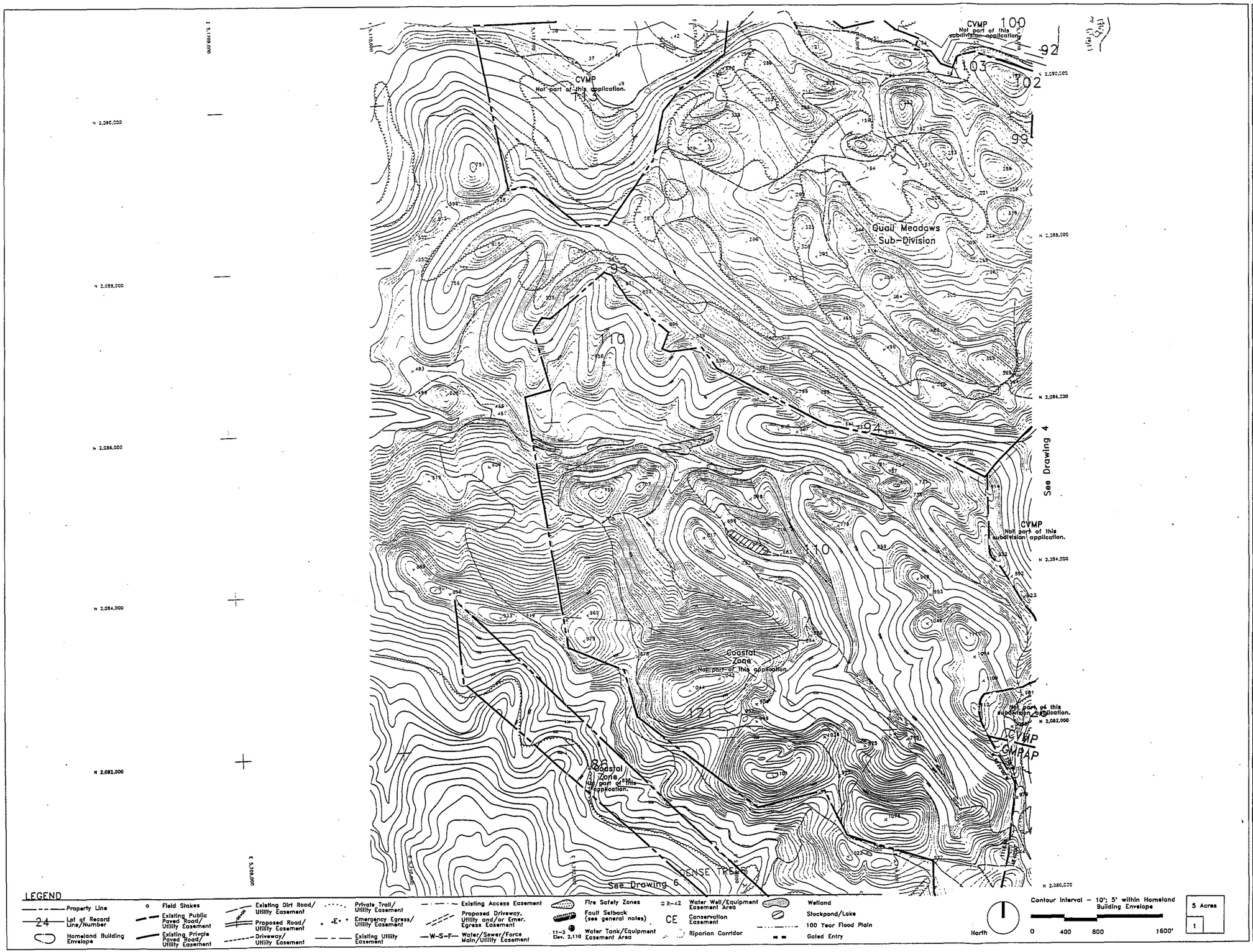
REVISIONS: November 8, 1994 August 14, 1995

DRAWING TITLE: Vesting Tentative Map

KEY MAP:

DRAWING NO: 2

SHEET 2 OF 14



ROBERT LAMB HART
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BESTOR ENGINEERS, INC.
Civil Engineers

THE SANTA LUCIA PRESERVE

Monterey County, California

DATE: January 21, 1994

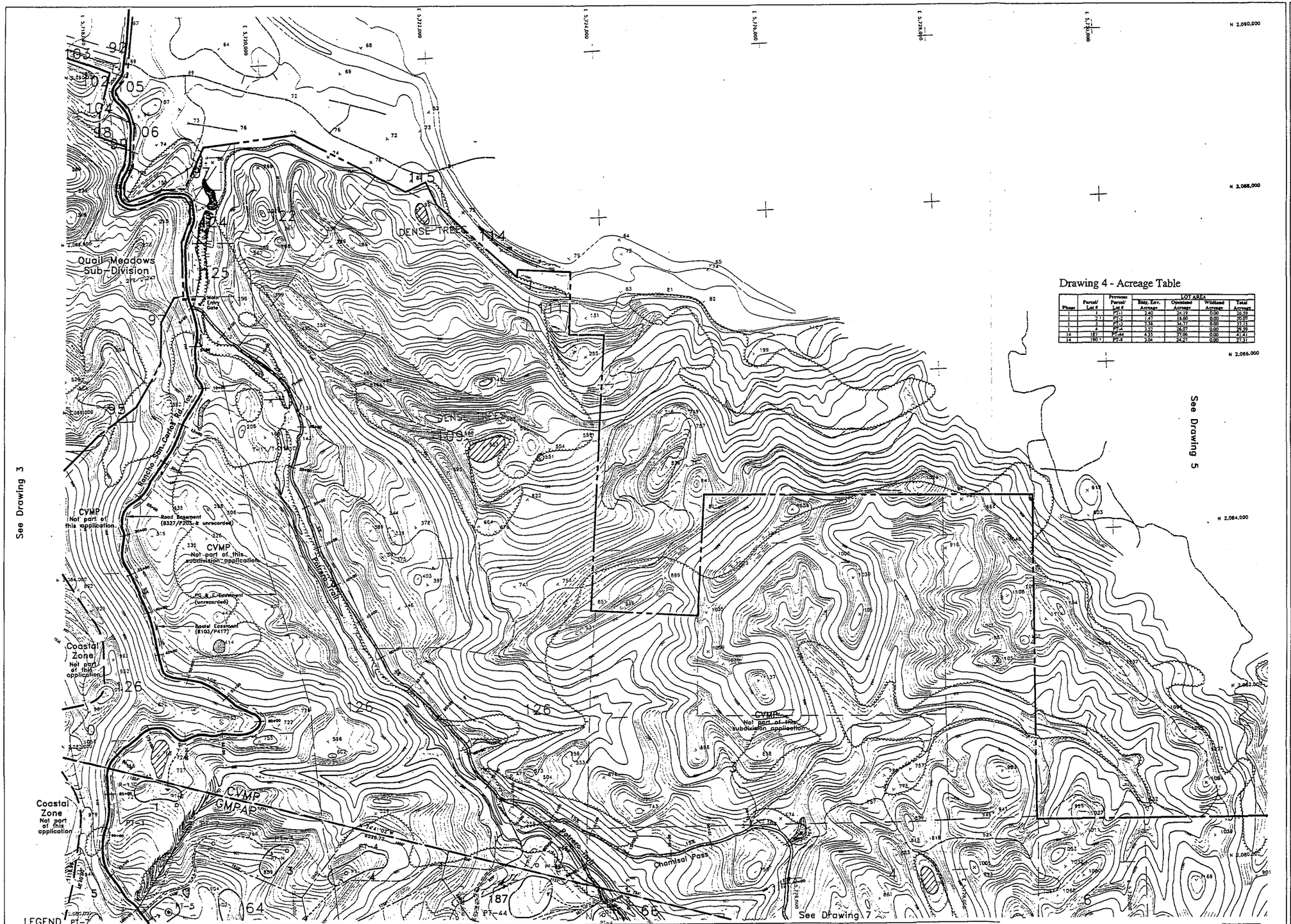
REVISIONS: November 8, 1994
August 14, 1998

DRAWING TITLE: Vesting Tentative Map

KEY MAP:

DRAWING NO: 3

SHEET 3 OF 14



Drawing 4 - Acreage Table

Phase	Parcel/ Lot #	Previous Parcel/ Lot #	LOT AREA Bldg. Env. Acreage	Openland Acreage	Wetland Acreage	Total Acreage
1	1	PT-1	2.40	24.19	0.00	26.59
1	2	PT-2	1.47	18.60	0.00	20.07
1	3	PT-3	2.38	34.77	0.00	37.15
1	4	PT-4	3.52	26.07	0.00	29.59
14	187	PT-44	4.35	37.06	0.00	41.41
14	190.1	PT-8	3.04	24.27	0.00	27.31

LEGEND

- Property Line
- 24 Lot of Record Line/Number
- Homeland Building Envelope
- Field Stakes
- Existing Public Paved Road/ Utility Easement
- Existing Private Paved Road/ Utility Easement
- Existing Dirt Road/ Utility Easement
- Proposed Road/ Utility Easement
- Driveway/ Utility Easement
- Private Trail/ Utility Easement
- E Emergency Egress/ Utility Easement
- Existing Utility Easement
- Existing Access Easement
- Proposed Driveway, Utility and/or Emer. Egress Easement
- W-S-F Water/Sewer/Force Main/Utility Easement
- Fire Safety Zones
- Fault Setback (see general notes)
- 11-3 Elev. 2,110 Water Tank/Equipment Easement Area
- R-42 Water Well/Equipment Easement Area
- CE Conservation Easement
- Riparian Corridor
- Wetland
- Stockpond/Lake
- 100 Year Flood Plain
- Gated Entry
- Building Envelope for Horse Barn

North

Contour Interval – 10'; 5' within Homeland Building Envelope

0 400 800 1600'

5 Acres

ROBERT LAMB HART
Planners, Architects, and Landscape Architects
BESTOR ENGINEERS, INC.
Civil Engineers

THE SANTA LUCIA PRESERVE

Monterey County, California

DATE: January 21, 1994

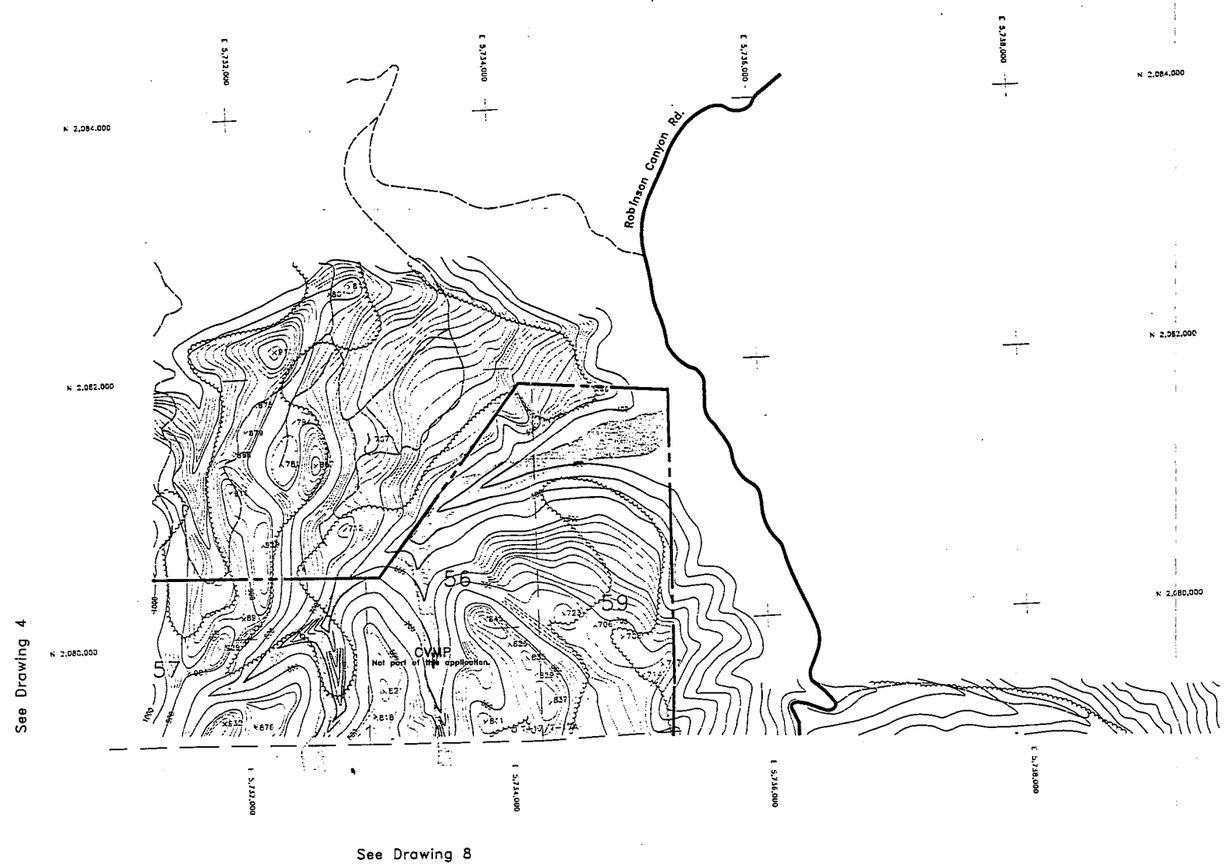
REVISIONS: November 6, 1994 August 14, 1995

DRAWING TITLE: Vesting Tentative Map

KEY MAP:

DRAWING NO: 4

SHEET 4 OF 14



NOTE: There are no sites on this drawing.

LEGEND

- Property Line
- 24 Lot of Record Line/Number
- Homeland Building Envelope
- Field Stakes
- Existing Public Paved Road/ Utility Easement
- Existing Private Paved Road/ Utility Easement
- Existing Dirt Road/ Utility Easement
- Proposed Road/ Utility Easement
- Driveway/ Utility Easement
- Private Trail/ Utility Easement
- Emergency Egress/ Utility Easement
- Existing Utility Easement
- Existing Access Easement
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- W-S-F Water/Sewer/Force Main/Utility Easement
- Fire Safety Zones
- Fault Setback (see general notes)
- 11-3 Elev. 2,110 Water Tank/Equipment Easement Area
- R-42 Water Well/Equipment Easement Area
- CE Conservation Easement
- Riparian Corridor
- Wetland
- Stockpond/Lake
- 100 Year Flood Plain
- Gated Entry

North

Contour Interval – 10'; 5' within Homeland Building Envelope

0 400 800 1600'

5 Acres

1

ROBERT LAMB HART
Planners, Architects, and Landscape Architects
BESTOR ENGINEERS, INC.
Civil Engineers

THE SANTA LUCIA PRESERVE

Monterey County, California

DATE:
January 21, 1994

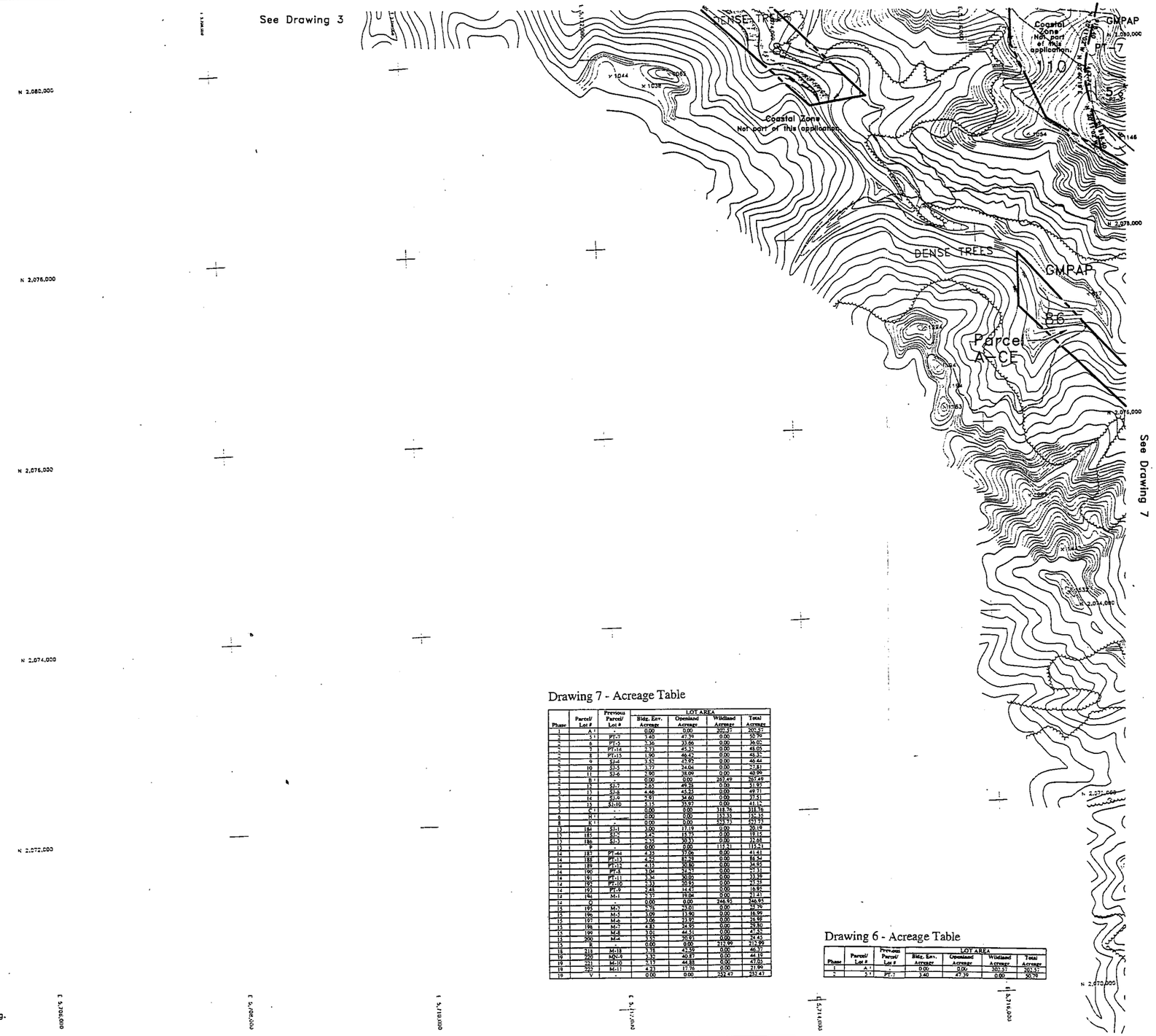
REVISIONS:
November 8, 1994
August 14, 1995

DRAWING TITLE:
Vesting Tentative Map

KEY MAP:

DRAWING NO:
5

SHEET 5 OF 14



NOTE: There are no entire sites on this drawing.

Drawing 7 - Acreage Table

Phase	Parcel/ Lot #	Previous Parcel/ Lot #	LOT AREA Bldg. Env. Acreage	Openland Acreage	Wildland Acreage	Total Acreage
1	A-1	-	0.00	0.00	202.57	202.57
2	5-1	PT-7	3.40	47.39	0.00	50.79
2	6	PT-3	3.36	33.66	0.00	36.02
2	7	PT-14	2.73	45.32	0.00	48.05
2	8	PT-15	1.90	46.42	0.00	48.32
2	9	SJ-4	3.52	43.92	0.00	46.44
2	10	SJ-5	3.77	24.04	0.00	27.81
2	11	SJ-6	2.00	38.09	0.00	40.99
2	B-1	-	0.00	0.00	207.49	207.49
2	12	SJ-7	4.83	49.28	0.00	51.93
3	13	SJ-8	4.46	45.25	0.00	49.71
3	14	SJ-9	2.91	34.60	0.00	37.51
3	15	SJ-10	5.15	35.97	0.00	41.12
3	C-1	-	0.00	0.00	318.76	318.76
6	H-1	-	0.00	0.00	352.35	352.35
8	K-1	-	0.00	0.00	523.73	523.73
13	184	SJ-1	3.00	17.19	0.00	20.19
13	185	SJ-2	3.42	15.73	0.00	19.15
13	186	SJ-3	5.19	30.33	0.00	32.68
13	P	-	0.00	0.00	115.21	115.21
14	187	PT-4a	4.35	37.06	0.00	41.41
14	188	PT-13	4.22	82.42	0.00	86.64
14	189	PT-12	4.13	30.80	0.00	34.93
14	190	PT-8	3.06	54.31	0.00	57.31
14	191	PT-11	3.34	30.05	0.00	33.39
14	192	PT-10	5.33	20.95	0.00	26.28
14	193	PT-9	2.48	14.47	0.00	16.95
14	194	M-1	2.37	19.04	0.00	21.41
14	Q	-	0.00	0.00	246.95	246.95
15	195	M-7	2.76	53.01	0.00	55.76
15	196	M-5	3.09	13.90	0.00	16.99
15	197	M-6	3.06	23.92	0.00	26.98
15	198	M-7	4.83	24.95	0.00	29.80
15	199	M-8	3.01	44.51	0.00	47.52
15	200	M-9	3.55	20.91	0.00	24.45
15	R	-	0.00	0.00	212.99	212.99
18	218	M-18	3.78	42.59	0.00	46.37
19	220	MN-9	3.32	40.87	0.00	44.19
19	221	M-10	2.13	44.88	0.00	47.01
19	222	M-11	4.23	17.76	0.00	21.99
19	V	-	0.00	0.00	252.47	252.47

Drawing 6 - Acreage Table

Phase	Parcel/ Lot #	Previous Parcel/ Lot #	LOT AREA Bldg. Env. Acreage	Openland Acreage	Wildland Acreage	Total Acreage
1	A-1	-	0.00	0.00	202.57	202.57
2	5-1	PT-7	3.40	47.39	0.00	50.79

LEGEND

- Property Line
- Lot of Record Line/Number
- Homeland Building Envelope
- Field Stakes
- Existing Public Paved Road/ Utility Easement
- Existing Private Paved Road/ Utility Easement
- Existing Dirt Road/ Utility Easement
- Proposed Road/ Utility Easement
- Driveway/ Utility Easement
- Private Trail/ Utility Easement
- Emergency Egress/ Utility Easement
- Existing Utility Easement
- Existing Access Easement
- Proposed Driveway, Utility and/or Emer. Egress Easement
- W-S-F Water/Sewer/Force Main/Utility Easement
- Fire Safety Zones
- Fault Setback (see general notes)
- 11-3 Elev. 2,110 Water Tank/Equipment Easement Area
- R-42 Water Well/Equipment Easement Area
- CE Conservation Easement
- Riparian Corridor
- Wetland
- Stockpond/Lake
- 100 Year Flood Plain
- Gated Entry

North

Contour Interval - 10'; 5' within Homeland Building Envelope

0 400 800 1600'

5 Acres

1

ROBERT LAMB HART
Planners, Architects, and Landscape Architects
BESTOR ENGINEERS, INC.
Civil Engineers

THE SANTA LUCIA PRESERVE

Monterey County, California

DATE: January 21, 1994

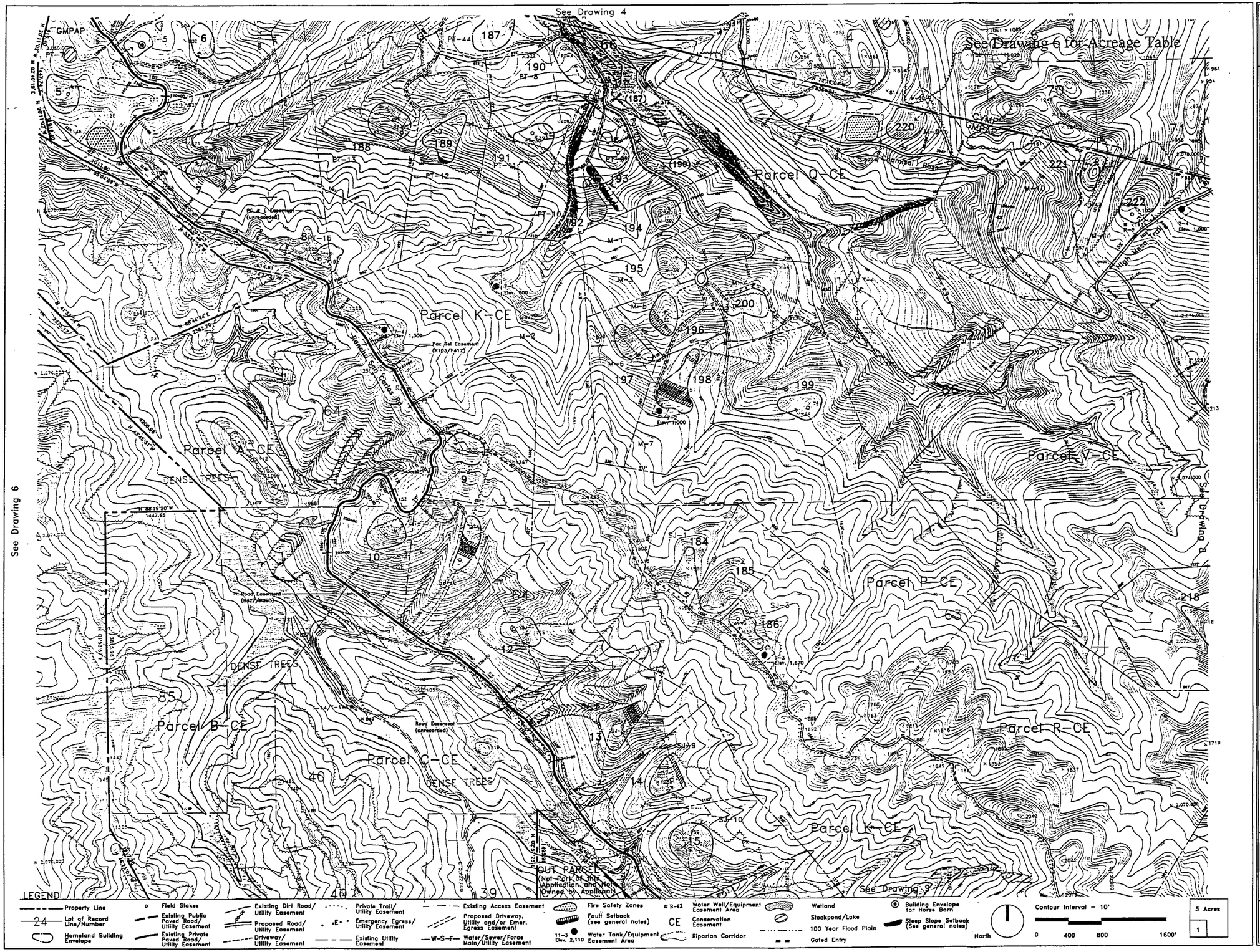
REVISIONS: November 8, 1994 August 14, 1995

DRAWING TITLE: Vesting Tentative Map

KEY MAP:

DRAWING NO: 6

SHEET 6 OF 14



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BESTOR ENGINEERS, INC.
Civil Engineers

THE SANTA LUCIA PRESERVE

Monterey County, California

DATE: January 23, 1994

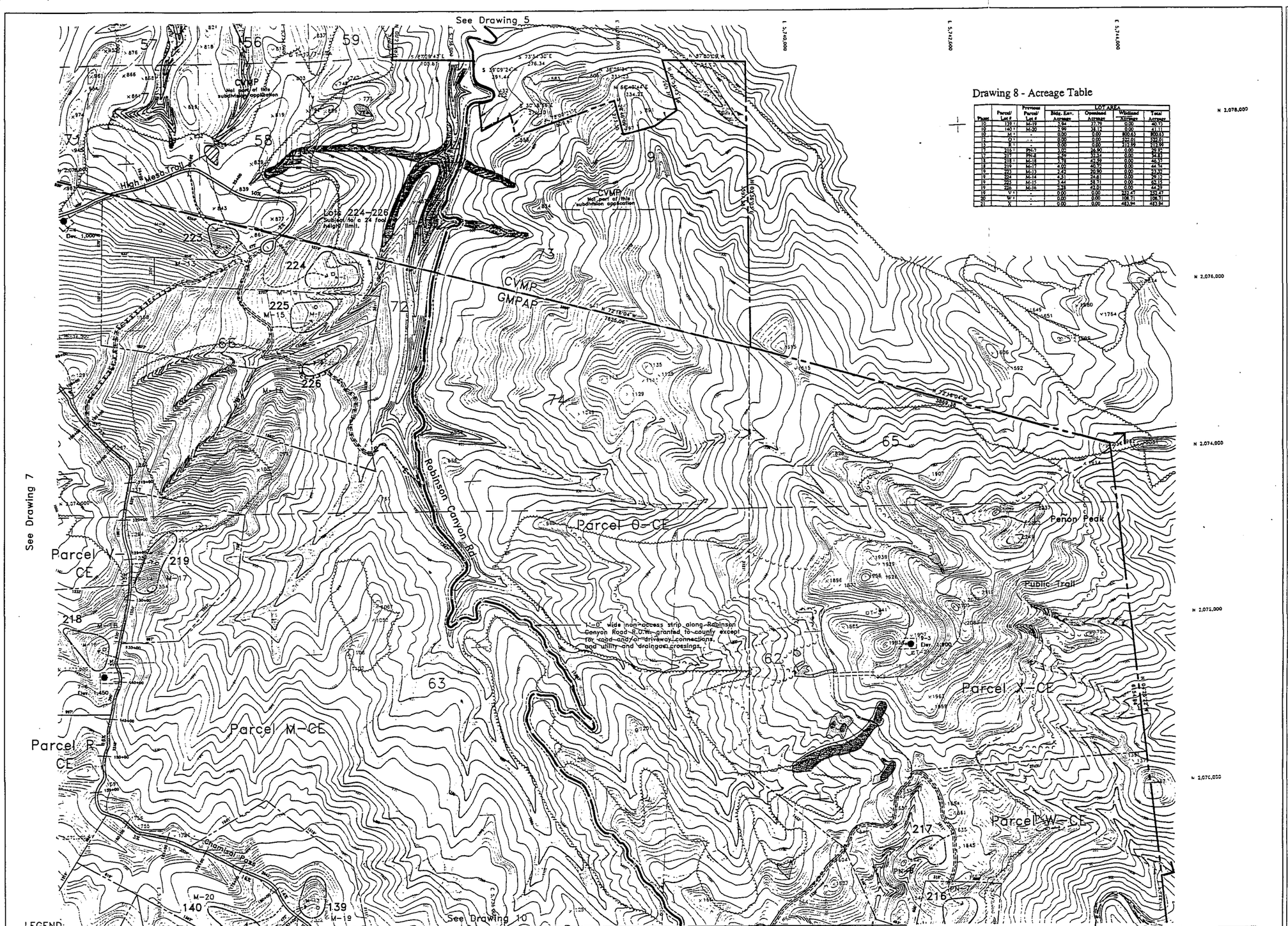
REVISIONS: November 6, 1994 August 14, 1995

DRAWING TITLE: **Vesting Tentative Map**

KEY MAP:

DRAWING NO: 7

SHEET 7 OF 14



Drawing 8 - Acreage Table

Phase	Parcel/ Lot #	Previous Parcel/ Lot #	LOT AREA Bldg. Env. Acreage	Developed Acreage	Wildland Acreage	Total Acreage
10	139	M-19	3.84	37.79	0.00	40.71
10	140	M-20	2.96	38.12	0.00	41.11
10	M-1	-	0.00	0.00	800.63	800.63
13	O	-	0.00	0.00	222.01	222.01
13	R	-	0.00	0.00	212.99	212.99
13	218	PN-3	3.20	24.90	0.00	28.10
13	219	PN-4	2.59	62.57	0.00	65.16
13	218	M-18	5.18	42.59	0.00	46.77
13	219	M-17	4.07	40.67	0.00	44.74
15	223	M-13	2.41	20.90	0.00	23.31
15	224	M-14	4.31	24.81	0.00	29.12
15	225	M-15	3.44	58.71	0.00	62.15
15	226	M-16	2.33	42.02	0.00	44.35
17	V	-	0.00	0.00	323.47	323.47
20	W	-	0.00	0.00	108.71	108.71
21	X	-	0.00	0.00	483.34	483.34

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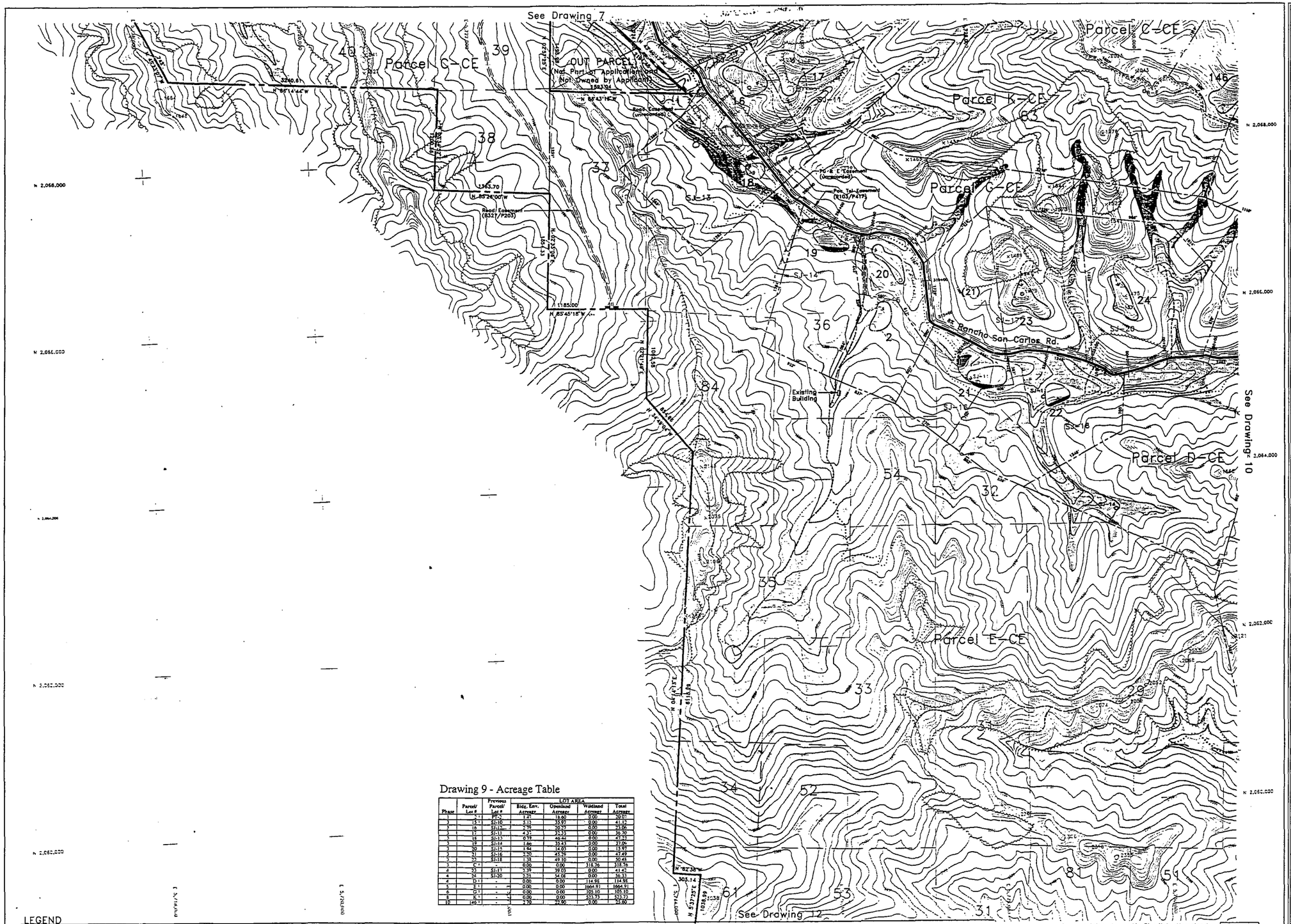
REVISIONS: November 8, 1994 August 14, 1995

DRAWING TITLE: Vesting Tentative Map

KEY MAP:

DRAWING NO: 8

SHEET 8 OF 14



Drawing 9 - Acreage Table

Phase	Parcel/ Lot #	Previous Parcel/ Lot #	LOT AREA Bldg. Env. Acreage	Openland Acreage	Wildland Acreage	Total Acreage
1	A-1	PT-5	1.47	19.60	0.00	20.07
3	13-1	SJ-10	5.13	35.92	0.00	41.15
3	16	SJ-12	2.96	30.27	0.00	33.06
3	17	SJ-13	4.35	32.35	0.00	36.70
3	18	SJ-13	6.79	40.44	0.00	47.23
3	19	SJ-14	1.66	33.43	0.00	35.09
3	20	SJ-15	1.94	14.03	0.00	15.97
3	21	SJ-16	2.20	45.29	0.00	47.49
3	22	SJ-18	1.38	49.10	0.00	50.48
3	C-1	-	0.00	0.00	318.76	318.76
4	23	SJ-17	2.39	39.03	0.00	41.42
4	24	SJ-20	2.26	34.08	0.00	36.33
4	D-1	-	0.00	0.00	114.98	114.98
5	E-1	-	0.00	0.00	1664.91	1664.91
6	G-1	-	0.00	0.00	105.10	105.10
8	K-1	-	0.00	0.00	523.73	523.73
10	146-1	-	2.70	52.90	0.00	55.60

LEGEND

- Property Line
- Lot of Record Line/Number
- Homeland Building Envelope
- Field Stakes
- Existing Public Paved Road/ Utility Easement
- Existing Private Paved Road/ Utility Easement
- Existing Dirt Road/ Utility Easement
- Proposed Road/ Utility Easement
- Driveway/ Utility Easement
- Private Trail/ Utility Easement
- Emergency Egress/ Utility Easement
- Existing Utility Easement
- Existing Access Easement
- Proposed Driveway, Utility and/or Emer. Egress Easement
- Water/Sewer/Force Main/Utility Easement
- Fire Safety Zones
- Fault Setback (see general notes)
- Water Tank/Equipment Easement Area
- Water Well/Equipment Easement Area
- Conservation Easement
- Riparian Corridor
- Wetland
- Stockpond/Lake
- 100 Year Flood Plain
- Gated Entry
- Steep Slope Setback
- Contour Interval – 10'; 5' within Homeland Building Envelope
- North
- 0 400 800 1600'
- 5 Acres

ROBERT LAMB HART
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BESTOR ENGINEERS, INC.
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THE SANTA LUCIA PRESERVE

Monterey County, California

DATE: January 23, 1994

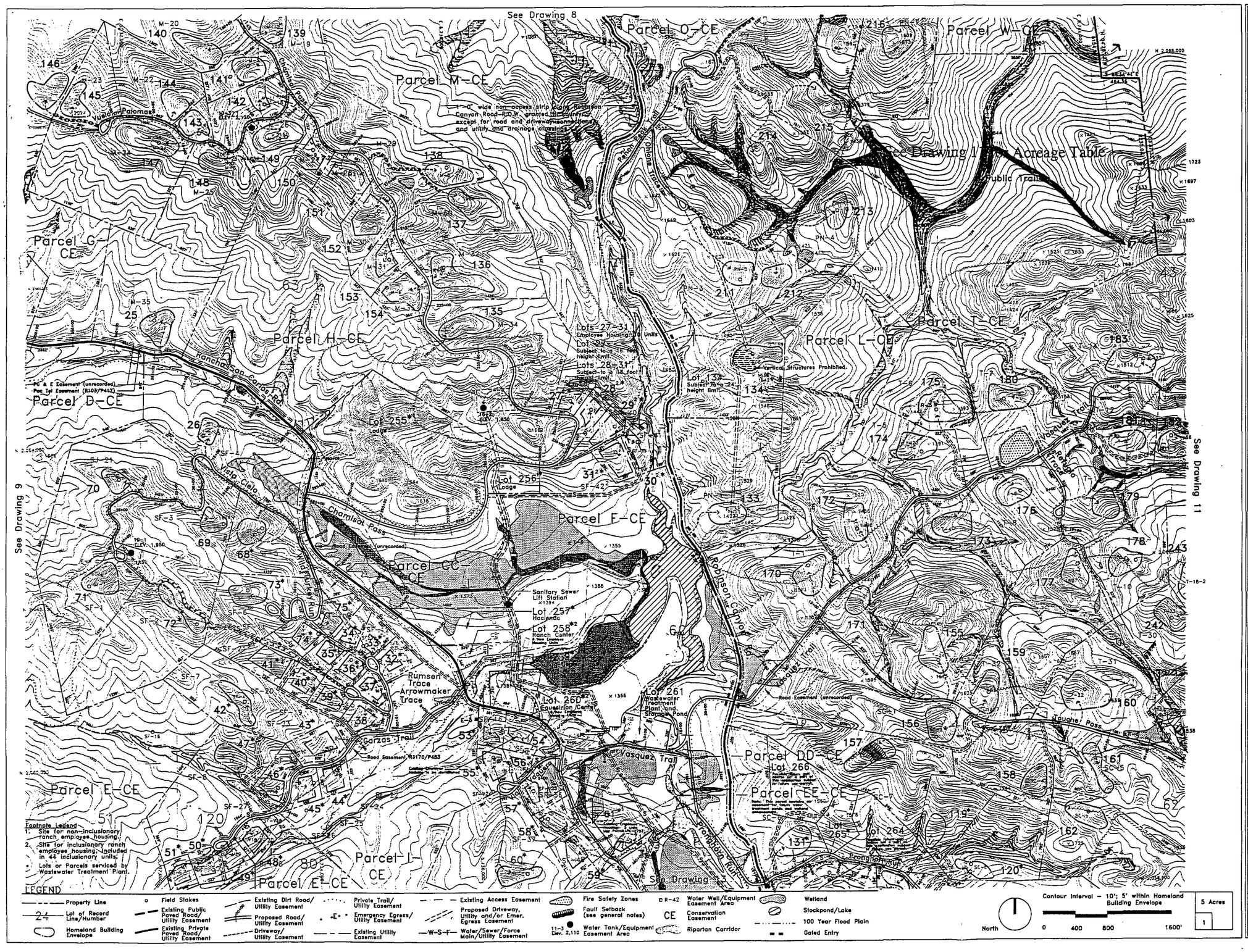
REVISIONS: November 8, 1994 August 14, 199

DRAWING TITLE: Vesting Tentative Map

KEY MAP:

DRAWING NO: 9

SHEET 9 OF 14



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Monterey County, California

DATE
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REVISIONS
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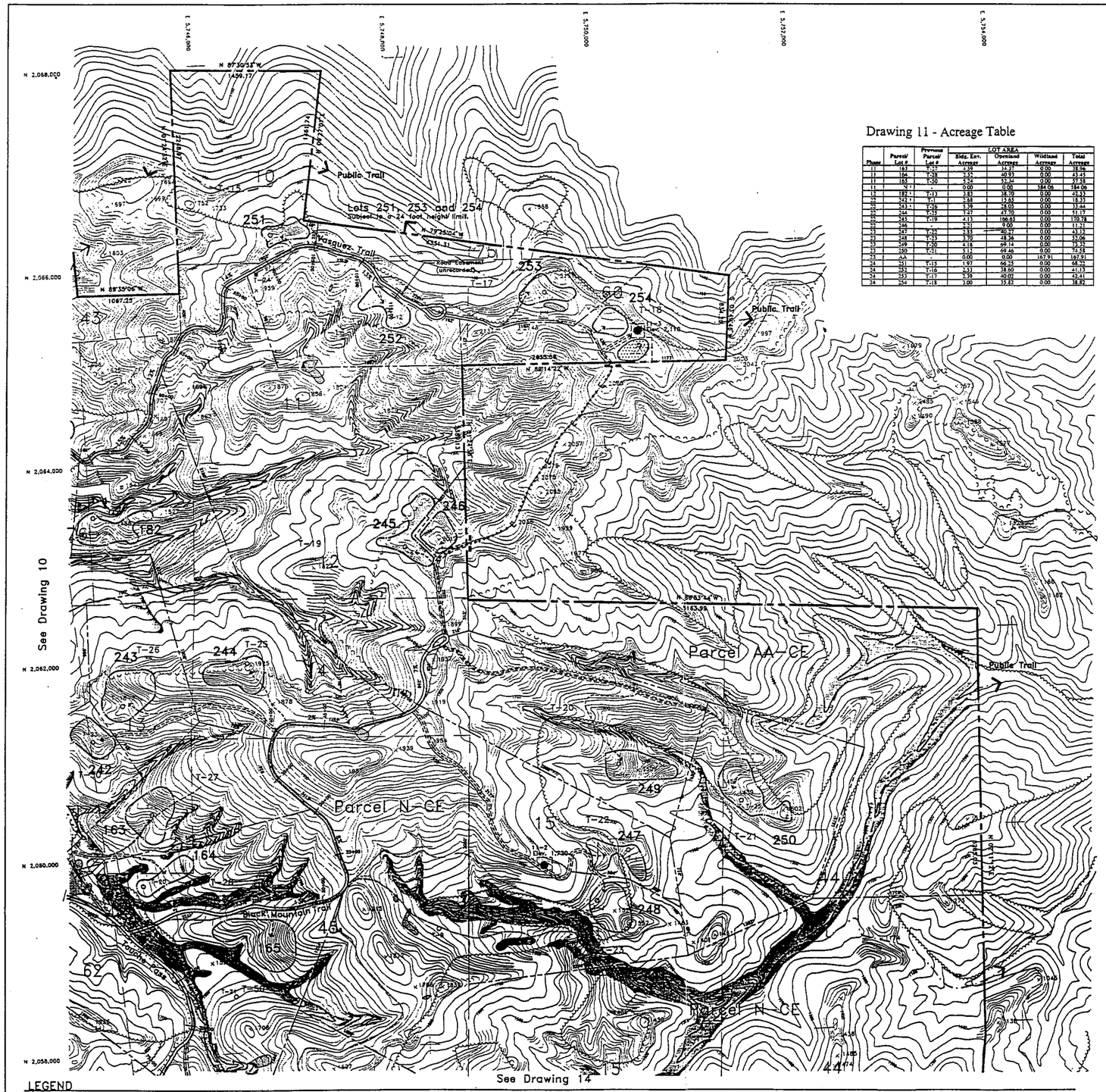
August 14, 1995

DRAWING TITLE
Vesting Tentative Map

KEY MAP

DRAWING NO:
10
SHEET 10 OF 14



Drawing 11 - Acreage Table

Phase	Parcel/ Lot #	Previous Parcel/ Lot #	LOT AREA Bldg. Env. Acreage	Open/and Acreage	Wildland Acreage	Total Acreage
11	183	T-27	4.58	34.37	0.00	38.96
11	184	T-28	3.53	40.93	0.00	43.45
11	185	T-30	5.24	52.34	0.00	57.58
11	N-1	-	0.00	0.00	584.06	584.06
12	182	T-13	3.83	38.70	0.00	42.53
12	343	T-1	3.44	15.15	0.00	18.59
12	343	T-26	5.39	28.05	0.00	33.44
12	344	T-25	3.47	47.70	0.00	51.17
12	345	T-19	4.13	166.65	0.00	170.78
12	346	-	2.51	9.00	0.00	11.51
12	347	T-24	3.55	40.37	0.00	43.92
12	348	T-23	3.70	48.36	0.00	52.06
12	349	T-20	4.18	69.14	0.00	73.32
12	350	T-21	5.13	69.46	0.00	74.58
12	AA	-	0.00	0.00	167.91	167.91
24	251	T-15	1.97	66.75	0.00	68.72
24	252	T-16	2.53	38.60	0.00	41.13
24	253	T-17	2.39	40.02	0.00	42.41
24	254	T-18	3.00	35.82	0.00	38.82

Drawing 10 - Acreage Table

Phase	Parcel/ Lot #	Previous Parcel/ Lot #	LOT AREA Bldg. Env. Acreage	Open/and Acreage	Wildland Acreage	Total Acreage
2	5	-	0.00	0.00	112.98	112.98
2	25	M-35	3.20	36.40	0.00	39.60
5	26	SP-4	1.78	55.81	0.00	57.59
5	27	SP-38	0.76	1.13	0.00	1.89
5	28	SP-39	0.87	2.59	0.00	3.46
5	29	SP-40	1.53	1.11	0.00	2.64
5	30	SP-41	1.26	2.88	0.00	4.13
5	31	SP-42	3.15	1.00	0.00	4.15
5	32	SP-14	0.86	2.11	0.00	2.97
5	33	SP-12	0.64	2.80	0.00	3.44
5	34	-	0.75	2.46	0.00	3.21
5	35	SP-13	1.53	1.98	0.00	3.51
5	36	SP-15	1.30	2.06	0.00	3.36
5	37	SP-17	1.07	2.02	0.00	3.09
5	38	SP-18	1.50	2.38	0.00	3.88
5	39	SP-19	1.31	2.33	0.00	3.64
5	40	SP-20	1.24	2.49	0.00	3.73
5	41	SP-21	2.75	2.53	0.00	5.27
5	42	SP-7	3.33	26.76	0.00	29.09
5	43	SP-23	1.49	2.27	0.00	3.76
5	44	SP-24	1.42	1.76	0.00	3.18
5	45	SP-25	1.30	1.98	0.00	3.28
5	46	SP-49	1.05	4.14	0.00	5.19
5	47	SP-8	2.21	33.95	0.00	36.18
5	48	SP-26	1.79	1.50	0.00	3.29
5	49	SP-29	0.77	1.81	0.00	2.58
5	50	SP-30	0.71	1.69	0.00	2.40
5	51	SP-31	0.90	2.34	0.00	3.24
5	53	SP-46	0.55	2.96	0.00	3.51
5	54	SP-47	0.95	5.36	0.00	6.31
5	55	SP-34	1.00	2.76	0.00	3.76
5	56	-	0.69	1.66	0.00	2.35
5	57	SP-36	0.72	5.14	0.00	5.86
5	58	SP-37	1.53	3.03	0.00	4.56
5	59	SP-48	1.54	4.37	0.00	5.91
5	60	SP-31	2.05	38.38	0.00	40.43
5	61	SP-9	7.50	4.89	0.00	12.39
5	355	-	78.07	0.00	0.00	78.07
5	356	-	5.78	0.00	0.00	5.78
5	357	-	17.43	0.00	0.00	17.43
5	358	-	2.88	0.00	0.00	2.88
5	359	-	6.46	0.00	0.00	6.46
5	360	-	28.13	0.00	0.00	28.13
5	361	-	3.67	0.00	0.00	3.67
5	B1	-	0.00	0.00	1664.91	1664.91
5	F	-	0.00	0.00	33.57	33.57
5	CC	-	0.00	0.00	33.61	33.61
5	DD1	-	0.00	0.00	18.96	18.96
5	EE1	-	0.00	0.00	106.02	106.02
6	68	SP-5	2.73	14.18	0.00	16.93
6	69	SP-3	1.90	23.84	0.00	25.74
6	70	SP-21	1.64	34.56	0.00	36.20
6	71	SP-1	3.00	31.11	0.00	34.11
6	72	SP-2	3.11	44.08	0.00	47.19
6	73	SP-6	2.41	21.83	0.00	24.24
6	74	SP-11	1.68	2.51	0.00	4.19
6	75	SP-10	0.97	1.30	0.00	2.27
6	G1	-	0.00	0.00	106.20	106.20
6	H	-	0.00	0.00	152.35	152.35
7	364	-	317.00	0.00	0.00	317.00
7	365	-	6.14	0.00	0.00	6.14
7	366	-	13.50	0.00	0.00	13.50
7	I	-	0.00	973.42	0.00	973.42
7	119	SC-7	1.83	12.01	0.00	13.83
7	120	-	1.60	37.28	0.00	38.88
7	121	SC-8	1.37	2.43	0.00	3.80
7	131	SC-6	2.68	22.31	0.00	24.99
7	132	-	1.30	8.67	0.00	9.97
9	133	PN-1	2.37	42.51	0.00	44.88
9	134	PN-2	3.78	30.08	0.00	33.86
9	J	-	0.00	0.00	96.48	96.48
10	135	M-34	3.13	29.29	0.00	32.42
10	136	M-32	4.12	20.62	0.00	24.74
10	137	M-30	3.50	17.63	0.00	21.13
10	138	M-29	3.91	22.65	0.00	26.56
10	139	M-19	2.94	37.79	0.00	40.73
10	140	M-20	3.99	38.12	0.00	42.11
10	141	-	2.23	6.42	0.00	8.77
10	142	M-21	1.46	9.09	0.00	10.55
10	143	-	1.97	1.66	0.00	3.63
10	144	M-22	1.97	18.76	0.00	20.73
10	145	M-23	1.88	11.35	0.00	13.23
10	146	-	2.70	22.90	0.00	25.60
10	147	M-24	4.63	41.95	0.00	46.58
10	148	M-25	3.21	27.13	0.00	30.34
10	149	M-26	4.16	6.30	0.00	10.46
10	150	M-27	1.87	3.93	0.00	5.75
10	151	M-28	2.75	6.15	0.00	8.90
10	152	M-30	3.72	6.01	0.00	9.73
10	153	M-31	1.83	4.93	0.00	6.76
10	154	M-33	3.12	4.52	0.00	7.64
10	M	-	0.00	0.00	805.63	805.63
11	155	T-33	3.22	29.37	0.00	32.59
11	156	SC-1	3.13	39.04	0.00	42.19
11	157	SC-2	3.16	35.06	0.00	38.22
11	158	SC-3	2.34	21.92	0.00	24.26
11	159	T-32	3.07	22.73	0.00	25.78
11	160	T-31	2.05	29.31	0.00	31.37
11	161	SC-5	2.17	41.96	0.00	44.13
11	162	SC-4	2.70	43.76	0.00	46.46
12	170	T-1	3.39	19.43	0.00	22.82
12	171	T-2	1.87	17.73	0.00	19.60
12	172	T-3	2.72	27.97	0.00	30.69
12	173	T-4	3.23	31.81	0.00	35.04
12	174	T-5	1.21	18.59	0.00	21.80
12	175	T-6	2.83	34.94	0.00	37.77
12	176	T-8	2.79	17.96	0.00	20.75
12	177	T-9	2.53	34.60	0.00	37.13
12	178	T-10	3.39	47.16	0.00	50.55
12	179	T-11	2.31	32.23	0.00	34.54
12	180	T-7	3.19	43.48	0.00	46.67
12	181	T-12	2.93	16.06	0.00	18.99
12	182	T-13	3.83	38.70	0.00	42.53
12	183	T-14	1.46	60.77	0.00	62.23
12	K	-	0.00	0.00	522.01	522.01
17	211	PN-3	2.28	48.77	0.00	51.05
17	212	-	1.96	14.71	0.00	16.67
17	213	PN-4	2.38	59.56	0.00	61.89
17	214	PN-5	2.80	38.11	0.00	41.91
17	215	-	2.73	43.11	0.00	45.84
17	216	PN-7	3.02	26.90	0.00	29.92
17	L	-	0.00	0.00	243.33	243.33
20	W-1	-	0.00	0.00	108.71	108.71
22	342	T-30	3.68	12.63	0.00	16.31

North

Contour Interval – 10'; 5' within Homeland Building Envelope

0 400 800 1600'

5 Acres

1

LEGEND

- Property Line
- Lot of Record Line/Number
- Homeland Building Envelope
- Field Stakes
- Existing Public Paved Road/ Utility Easement
- Existing Private Paved Road/ Utility Easement
- Existing Dirt Road/ Utility Easement
- Proposed Road/ Utility Easement
- Driveway/ Utility Easement
- Private Trail/ Utility Easement
- Emergency Egress/ Utility Easement
- Existing Utility Easement
- Existing Access Easement
- Proposed Driveway, Utility and/or Emer. Egress Easement
- Water/Sewer/Force Main/Utility Easement
- Fire Safety Zones
- Fault Setback (see general notes)
- Water Tank/Equipment Easement Area
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THE SANTA LUCIA PRESERVE

Monterey County, California

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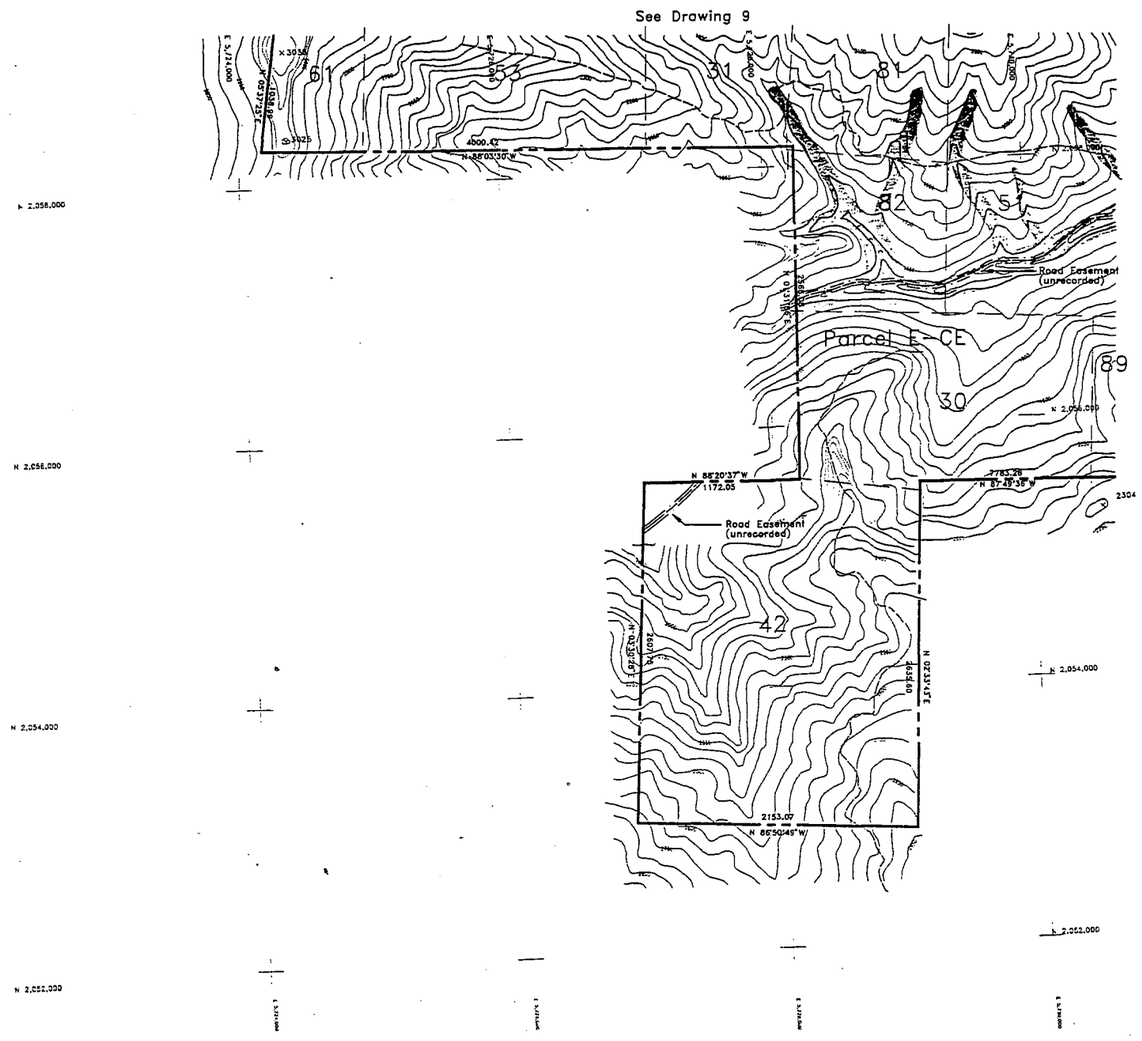
DRAWING TITLE: Vesting Tentative Map

KEY MAP:

DRAWING NO: 11

SHEET 11 OF 14



NOTE: There are no sites on this drawing.

LEGEND

- Property Line
- 24 Lot of Record Line/Number
- Homeland Building Envelope
- Field Stakes
- Existing Public Paved Road/ Utility Easement
- Existing Private Paved Road/ Utility Easement
- Existing Dirt Road/ Utility Easement
- Proposed Road/ Utility Easement
- Driveway/ Utility Easement
- Private Trail/ Utility Easement
- Emergency Egress/ Utility Easement
- Existing Utility Easement
- Existing Access Easement
- Proposed Driveway, Utility and/or Emer. Egress Easement
- W-S-F Water/Sewer/Force Main/Utility Easement
- Fire Safety Zones
- Fault Setback (see general notes)
- 11-3 Elev. 2,110
- Water Tank/Equipment Easement Area
- R-42
- CE Conservation Easement
- Riparian Corridor
- Water Well/Equipment Easement Area
- Wetland
- Stockpond/Lake
- 100 Year Flood Plain
- Gated Entry

Drawing 12 - Acreage Table

Phase	Parcel/ Lot #	Previous Parcel/ Lot #	LOT AREA Bldg. Env. Acreage	Open/Land Acreage	Wildland Acreage	Total Acreage
3	E	-	0.00	0.00	1642.72	1642.72

North

Contour Interval – 10'; 5' within Homeland Building Envelope

0 400 800 1600'

5 Acres

1

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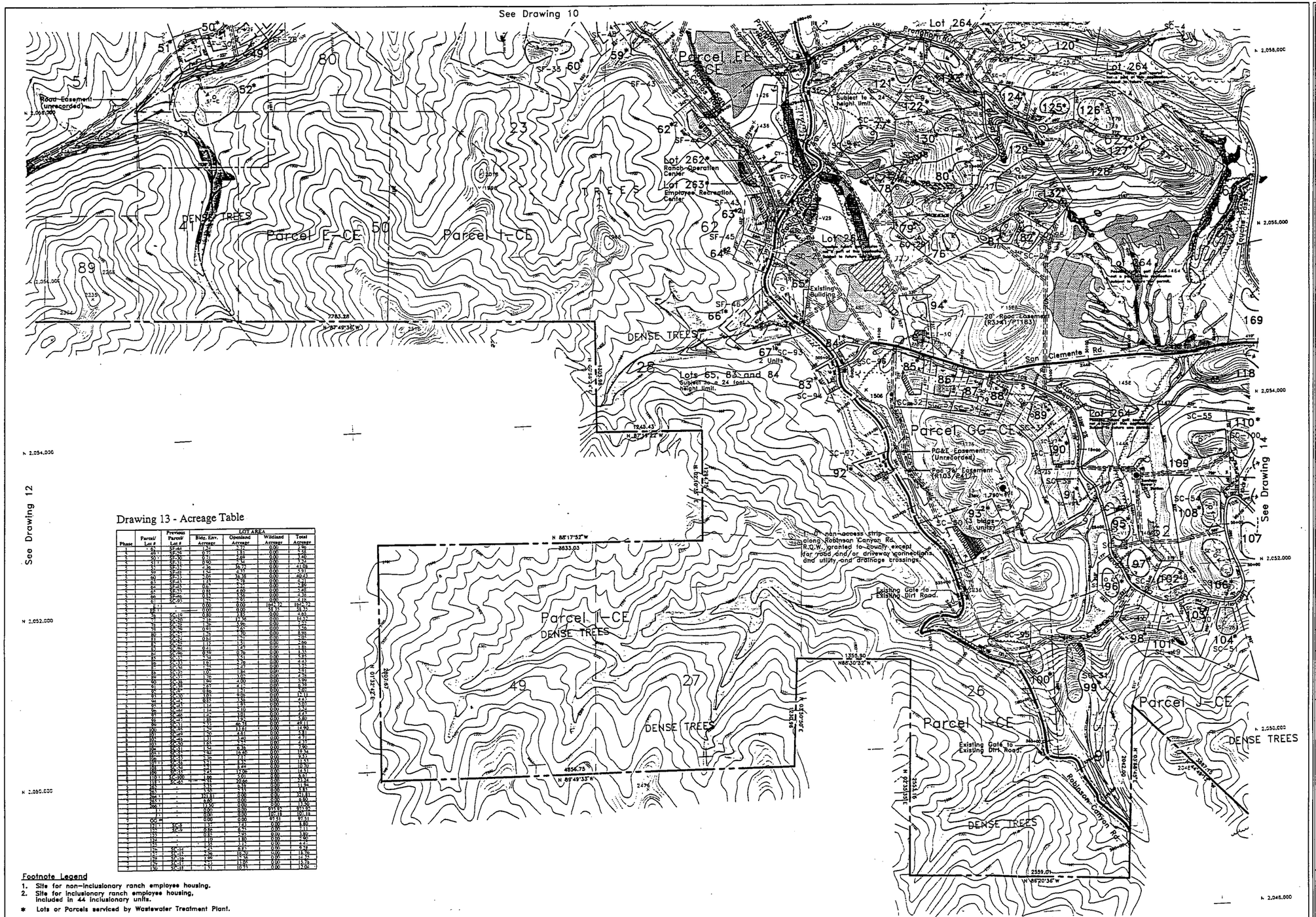
KEY MAP:

DRAWING NO: 12

SHEET 12 OF 14



Drawing 13 - Acreage Table

Phase	Parcel/ Lot #	Previous Parcel/ Lot #	Bldg. Env. Acreage	LOT AREA Openland Acreage	Wildland Acreage	Total Acreage
1	6	SC-82	1.34	1.77	0.00	3.11
1	48	SC-83	0.91	1.83	0.00	2.74
1	50	SC-30	0.31	1.49	0.00	1.80
1	51	SC-31	0.90	1.42	0.00	2.32
1	52	SC-32	0.31	1.19	0.00	1.50
1	57	SC-21	2.35	16.73	0.00	41.08
1	59	SC-23	1.42	2.37	0.00	3.79
1	60	SC-24	1.04	38.38	0.00	40.42
1	61	SC-25	1.04	3.28	0.00	4.31
1	62	SC-26	0.64	2.17	0.00	2.80
1	63	SC-27	0.83	1.42	0.00	2.25
1	64	SC-28	0.83	1.55	0.00	2.38
1	65	SC-29	0.83	3.28	0.00	4.11
1	67	SC-91	-	0.00	102.74	102.74
1	68	-	-	0.00	32.14	32.14
1	69	-	-	0.00	0.00	0.00
1	73	SC-18	0.80	1.82	0.00	2.63
1	74	SC-20	2.16	1.06	0.00	3.22
1	75	SC-19	1.80	1.50	0.00	3.30
1	76	SC-36	0.81	4.43	0.00	5.24
1	80	SC-37	1.23	1.30	0.00	2.53
1	81	SC-38	0.83	1.77	0.00	2.60
1	82	SC-39	1.12	1.53	0.00	2.65
1	83	SC-40	0.81	1.04	0.00	1.85
1	84	SC-41	0.94	0.78	0.00	1.72
1	85	SC-42	0.54	2.43	0.00	2.97
1	86	SC-43	1.14	1.39	0.00	2.53
1	87	SC-44	1.14	2.37	0.00	3.51
1	88	SC-45	1.06	1.85	0.00	2.91
1	89	SC-46	1.06	1.70	0.00	2.76
1	90	SC-47	1.80	2.00	0.00	3.99
1	91	SC-48	1.47	4.31	0.00	5.78
1	92	SC-49	0.80	1.27	0.00	2.07
1	93	SC-50	1.81	9.06	0.00	10.11
1	94	SC-51	0.83	1.59	0.00	2.42
1	95	SC-52	1.12	1.91	0.00	3.03
1	96	SC-53	1.14	2.18	0.00	3.32
1	98	SC-54	1.14	3.07	0.00	4.21
1	99	SC-55	1.14	19.46	0.00	3.60
1	100	SC-56	1.83	44.31	0.00	46.14
1	101	SC-57	1.14	13.86	0.00	14.99
1	102	SC-58	1.20	2.61	0.00	3.81
1	103	SC-59	1.21	1.49	0.00	2.71
1	104	SC-60	1.21	2.96	0.00	4.17
1	105	SC-61	1.42	6.38	0.00	7.80
1	106	SC-62	1.42	10.40	0.00	11.82
1	107	SC-63	1.26	2.15	0.00	3.41
1	108	SC-64	1.21	1.13	0.00	2.34
1	109	SC-65	1.21	9.49	0.00	10.70
1	110	SC-66	1.21	13.06	0.00	14.27
1	110.1	SC-100	1.06	3.01	0.00	4.07
1	110.2	SC-92	1.14	20.06	0.00	21.20
1	111	-	1.15	10.69	0.00	11.84
1	112	-	1.00	2.81	0.00	3.81
1	113	-	111.81	0.00	0.00	111.81
1	114	-	6.60	0.00	0.00	6.60
1	115	-	13.50	0.00	0.00	13.50
1	116	-	0.00	0.00	973.93	973.93
1	117	-	0.00	0.00	102.18	102.18
1	118	-	0.00	97.51	0.00	97.51
1	SC-9	-	0.00	0.00	1.80	1.80
1	121	SC-8	1.12	7.81	0.00	8.93
1	122	SC-9	0.84	2.27	0.00	3.11
1	123	-	0.83	0.97	0.00	1.80
1	124	-	0.10	1.86	0.00	1.96
1	125	-	1.12	3.42	0.00	4.54
1	126	SC-12	1.14	8.22	0.00	9.36
1	127	SC-13	1.26	18.70	0.00	19.96
1	128	SC-14	1.06	15.54	0.00	16.60
1	129	SC-15	1.21	13.02	0.00	14.23
1	130	SC-16	1.11	10.51	0.00	11.62

Footnote Legend

1. Site for non-inclusionary ranch employee housing.
2. Site for inclusionary ranch employee housing, included in 44 inclusionary units.

* Lots or Parcels serviced by Wastewater Treatment Plant.

LEGEND

- Property Line
- 24 Lot of Record Line/Number
- Homeland Building Envelope
- Field Stokes
- Existing Public Paved Road/ Utility Easement
- Existing Private Paved Road/ Utility Easement
- Existing Dirt Road/ Utility Easement
- Proposed Road/ Utility Easement
- Driveway/ Utility Easement
- Private Trail/ Utility Easement
- Emergency Egress/ Utility Easement
- Existing Utility Easement
- Existing Access Easement
- Proposed Driveway, Utility and/or Emer. Egress Easement
- W-S-F Water/Sewer/Force Main/Utility Easement
- Fire Safety Zones
- Fault Setback (see general notes)
- 11-3 Elev. 2,110 Water Tank/Equipment Easement Area
- R-42
- CE Conservation Easement
- Riparian Corridor
- Water Well/Equipment Easement Area
- Wetland
- Stockpond/Lake
- 100 Year Flood Plain
- Gated Entry
- Steep Slope Setback (See general notes)

North

Contour Interval – 10'; 5' within Homeland Building Envelope

0 400 800 1600'

5 Acres

ROBERT LAMB HART
Planners, Architects, and Landscape Architects
BESTOR ENGINEERS, INC.
Civil Engineers

THE SANTA LUCIA PRESERVE

Monterey County, California

DATE: January 21, 1994

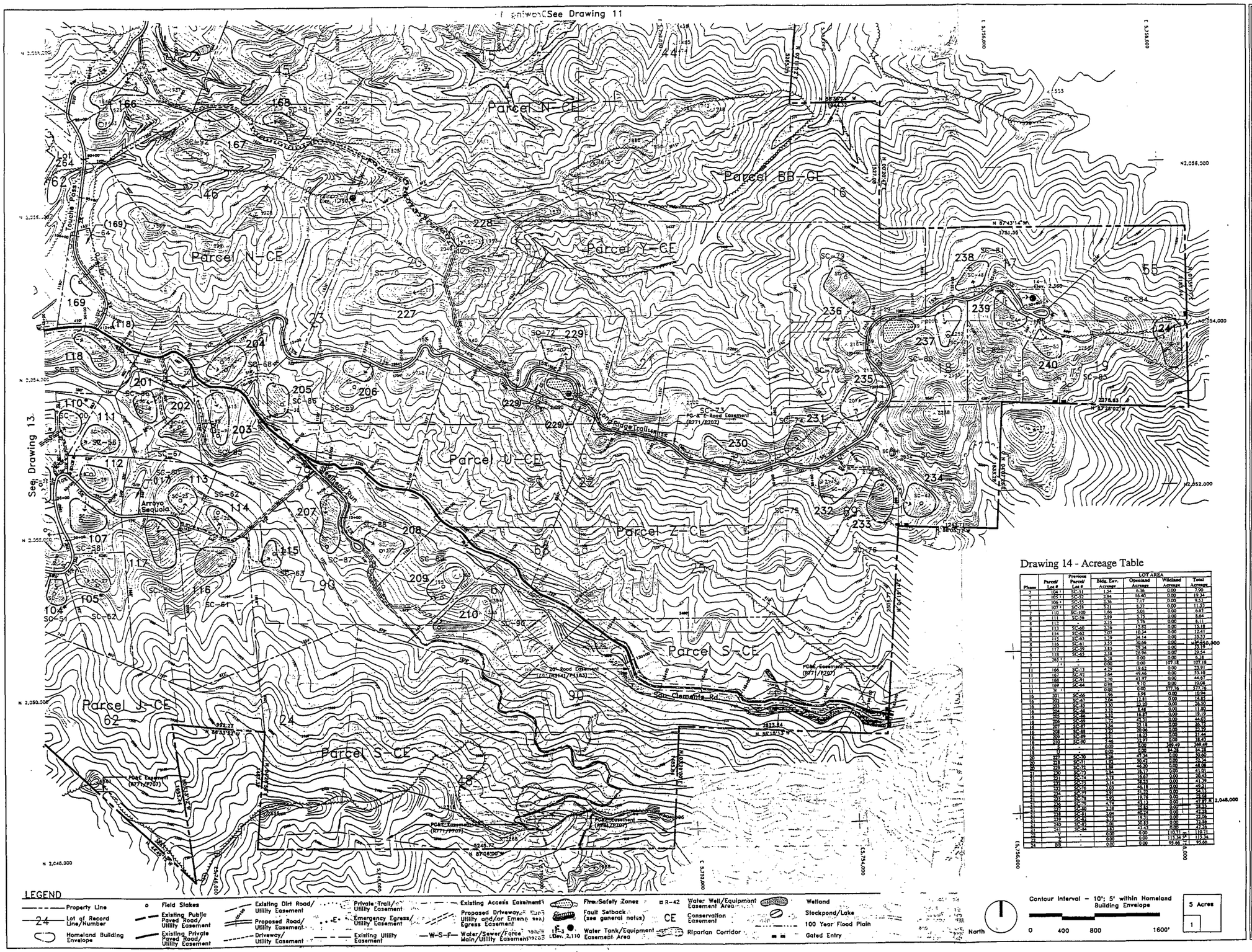
REVISIONS: November 8, 1994 August 14, 1995

DRAWING TITLE: Vesting Tentative Map

KEY MAP:

DRAWING NO: 13

SHEET 13 OF 14



Drawing 14 - Acreage Table

Phase	Parcel/ Lot #	Previous Parcel/ Lot #	LOT AREA Bldg. Env. Acreage	Openland Acreage	Wildland Acreage	Total Acreage
7	104'	SC-51	1.52	6.38	0.00	7.90
7	105'	SC-52	2.84	16.40	0.00	19.24
7	106'	SC-53	2.35	7.17	0.00	9.52
7	107'	SC-55	3.31	8.22	0.00	11.53
7	110	SC-100	1.86	5.01	0.00	6.87
7	111	SC-56	2.89	5.75	0.00	8.64
8	112	-	2.35	5.76	0.00	8.11
8	113	SC-60	3.35	12.82	0.00	16.18
8	114	SC-62	2.07	10.34	0.00	12.41
8	115	SC-63	1.39	24.14	0.00	25.53
8	116	SC-61	3.53	50.66	0.00	54.19
8	117	SC-59	3.83	59.26	0.00	63.09
8	118	SC-65	2.53	26.96	0.00	29.54
7	363'	-	6.38	0.00	0.00	6.38
7	11	-	0.00	0.00	107.18	107.18
11	166	SC-13	4.29	19.62	0.00	23.91
11	167	SC-92	3.56	49.46	0.00	53.10
11	168	SC-91	2.58	41.97	0.00	44.67
11	169	SC-64	0.98	9.10	0.00	10.08
11	N 1	-	0.98	0.00	377.76	377.76
16	201	SC-66	1.96	8.98	0.00	10.94
16	202	SC-67	3.04	12.81	0.00	15.85
16	203	SC-83	1.30	33.20	0.00	34.50
16	204	SC-68	3.32	8.48	0.00	11.80
16	205	SC-86	3.32	16.87	0.00	20.19
16	206	SC-69	1.52	42.51	0.00	44.03
16	207	SC-88	3.54	23.11	0.00	26.65
16	208	SC-87	3.53	20.06	0.00	23.59
16	209	SC-89	3.47	18.19	0.00	21.66
16	210	SC-90	3.44	19.97	0.00	23.41
16	5	-	0.00	0.00	309.49	309.49
16	6	-	0.00	0.00	54.38	54.38
16	7	-	0.00	0.00	12.32	12.32
20	227	SC-70	3.96	47.34	0.00	50.60
20	228	SC-71	1.92	50.62	0.00	52.54
20	229	SC-72	1.88	42.20	0.00	44.08
20	230	SC-73	3.34	39.67	0.00	43.01
20	231	SC-74	3.04	16.61	0.00	19.65
21	232	SC-75	3.14	38.45	0.00	41.59
21	233	SC-76	2.03	46.18	0.00	49.21
21	234	SC-77	2.91	51.20	0.00	54.11
21	235	SC-78	2.92	19.78	0.00	22.70
21	236	SC-79	4.74	43.12	0.00	47.86
21	237	SC-80	2.38	12.85	0.00	15.23
21	238	SC-81	3.04	40.54	0.00	43.58
21	239	SC-82	3.93	19.31	0.00	23.24
21	240	SC-83	2.01	30.85	0.00	32.86
21	241	SC-84	3.00	43.43	0.00	46.43
22	7	-	0.00	0.00	110.71	110.71
22	8	-	0.00	0.00	133.34	133.34
24	BB	-	0.00	0.00	95.66	95.66

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DRAWING TITLE:
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DRAWING NO:
14
SHEET 14 OF 14