Gillibrand Soledad Canyon Mining Operations

Angeles National Forest, California

Final Environmental Impact Statement

September 1991

Prepared For:
U. S. Department of Agriculture
Forest Service
Angeles National Forest

Prepared By:
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San Bernardino, CA

Applicant:
P.W. Gillibrand Company
Simi Valley, California

GILLIBRAND SOLEDAD CANYON MINING OPERATIONS ANGELES NATIONAL FOREST, CALIFORNIA

FINAL ENVIRONMENTAL IMPACT STATEMENT

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RECORD OF DECISION
U.S.D.A. FOREST SERVICE

FINAL ENVIRONMENTAL IMPACT STATEMENT
GILLIBRAND SOLEDAD CANYON MINING OPERATIONS
ANGELES NATIONAL FOREST
LOS ANGELES COUNTY, CALIFORNIA

I. INTRODUCTION

This Record of Decision (ROD) documents my selection of Alternative 1, the proposed action, for the Gillibrand Soledad Canyon Mining Operations on the Angeles National Forest as described in the Final Environmental Impact Statement (FEIS). The Alternatives considered and my rationale for selecting Alternative 1 are described. The Environmentally preferred alternative is identified.

During the past two years, the Forest Service has completed its environmental review process for the Gillibrand Soledad Canyon Mining project that will result in the development and production phase of the project. This EIS displays and analyzes the environmental impacts and mitigation measures with respect to the following issues and concerns: air, soils, water, biological resources, cultural and paleontological resources, land use, noise, property values, recreation, transportation, public health and safety, visual resources, and cumulative impacts.

I. THE DECISION

My decision is to select Alternative 1. The revised plan of operation and reclamation plan is found in Appendix C. This revised plan of operation incorporates the requirements of the selected alternative and will be signed by the Forest Service responsible official and the required reclamation bond posted prior to beginning operations.

In making my decision I have reviewed the environmental consequences of the Project, proposed mitigation measures, and the alternatives which are disclosed in the Final EIS. A major component of the Final EIS and my decision are implementation of the mitigation measures, found at the end of each resource area discussion. I gave particular attention to public and agency comments on the Draft EIS, for which detailed responses were given and which are contained Chapter 8.0 of the Final EIS. All practicable means to avoid or minimize environmental harm have been adopted with the selection of Alternative 1.

Alternative 4, No Action, is the environmentally preferred alternative.

The EIS was developed in compliance with the National Environmental Policy Act ("NEPA"), Council on Environmental Quality (CEQ) Regulations, Title 40, Code of Federal Regulations, Parts 1500-1508 (40 CFR 1500-1508). In addition, the EIS also complies with the Forest Service's Revised Implementing Procedures for NEPA. Federal Register, Vol. 50, No. 121, Monday, June 24, 1985, pgs. 26078-26104.

II. PUBLIC PARTICIPATION

The Forest Service conducted an active public involvement program. The Forest Service determined that an EIS would be required for the proposed Project. The Forest Service became the Lead Agency under NEPA and subsequently prepared a

Notice of Intent ("NOI") which was published in the Federal Register on October 13, 1989, in accordance with NEPA. The Forest Service held a public scoping meeting on November 13, 1989.

The Forest Service issued the draft EIS on January 7, 1991 and published a Notice of Availability in the Federal Register. Public notice of the availability of the Draft EIS was given at the same time by notifying all organizations and individuals who had previously requested such notice. The 60-day public review period ended on March 12, 1991. Copies of the Draft EIS were made available to public libraries in the general area. In addition, the Draft EIS was made available at no cost to all interested individuals, community groups and local agencies. A Public meeting was held in Canyon Country on February 22, 1991, during which comments on the Draft EIS were received. Additional written comments from interested public agencies and individuals were received throughout the public review period. The Forest Service evaluated all oral and written comments received during the noticed comment period and prepared written responses. The responses are contained in Chapter 8.0 of the Final EIS.

The public participation process was very helpful in making my decision. It identified areas of confusion. The comments suggested corrections that could be made to the document, concerns that needed better explanation, and issues to be further addressed. Some issues were repeatedly raised, but the most important one was air quality. As a result, the air quality section has been rewritten, and the project revised to assure that the project would stay within the limits of the existing permits issued to the proponent by the South Coast Air Quality Management District.

III. ALTERNATIVES

A. **Selected Alternative** - Alternative 1 - Alternative 1 will be authorized by the approval of the plan of operation, as revised in Appendix C, for the conduct of mining operations in the Soledad Canyon area of the Angeles National Forest and to haul the ore by road to the adjacent plant site near Lang Station, California. The proponent plans to mine ilmenite, the titanium feedstock; apatite, a phosphate mineral; zircon, an industrial sand; magnetite, an iron -bearing mineral; and miscellaneous construction aggregate materials including sand and gravel. The claim area covers about 13,500 acres of National Forest land; however, project activities will be confined to three claim groups, (each bounded by a project boundary) and the access roads leading to these claim groups. The project boundaries surrounding the three claim groups and the access roads encompass 810 acres. Planned activities consist of (1) road building; (2) open-pit mining, stockpiling, and waste disposal; and (3) reclamation. The activity areas in total occupy less than 300 acres of forest environment.

B. OTHER ALTERNATIVES CONSIDERED:

Alternative 2 - Conveyor Transport - Claim Group II to Plant Location

Alternative 2 requires the construction of a conveyor belt system to transport ore from Claim Group II to the plant site. Substitution of a conveyor system would eliminate construction of 2.8 miles of 48-foot-wide haul road. However, a two-mile construction and maintenance road along the conveyor system will be required. The total land disturbance from the conveyor and road rights-of-way would be approximately half the disturbed area attributed to Road Section B.

The impacts identified were similar to the proposed action. (Table S-1, pg. S-5)

Alternative 3 - Road Section D to Claim Group II

Alternative 3 requires construction of Road Section D going south from Claim Group II and then west to meet with Road Section A. This was originally planned as Road Section B in 1989. The alignment of Road Section D has a greater haul distance (6.5 miles) from Claim Group II to the plant compared to the Road Section B distance of 3.4 miles, which is part of the proposed action. The impacts on air quality, soils, water resources, and biological resources would be higher. (Table S-1, pg. S-5)

Alternative 4 - No Action Alternative

The no action alternative disapproves the proposed action presented in the preliminary Plan of Operations by P.W. Gillibrand Company. The affected environment sections of this document describe the conditions that would prevail if no action is taken.

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

I considered five additional alternatives in reaching my decision: (1) Alternative 5 - Moving the mill site to the mineral source; (2) Alternative 6 - Reducing the scope of the project; (3) Alternative 7 - Using the conveyor transport only; (4) Alternative 8 - Using helicopter transport; (5) Alternative 9 - Conducting underground mining.

These alternatives were eliminated from detailed study because they were found to be infeasible for technical, cost, environmental effects, or operational reasons. (Final EIS, pg. 2-16)

IV. MITIGATION AND MONITORING

The mitigation measures and related monitoring and enforcement activities that were developed through the environmental process are fully described in Chapter 3 of the Final EIS. They are grouped by resource subject and issue area. Those mitigation measures and related monitoring activities which the Forest Service listed are incorporated into this Record of Decision by reference. Inclusion of these mitigation measures will provide for all feasible means to avoid or substantially reduce environmental harm from the Project.

V. REASONS FOR THE DECISION

The following are reasons for my choice of the selected alternative.

(1) The proponent has a statutory right under the General Mining Laws of 1872 to claim and develop the mineral resources on public land.

(2) This development of mineral resources contributes to the national mission of the Forest Service for exploration and viable development of minerals within the National Forest consistent with the use and protection of other resource values, and to provide for the reclamation of those lands.

(3) This operation, by the approval of the revised plan of operation, conforms to the regulations found in 36 CFR 228 which requires minimizing the impacts of surface disturbance on the land.

(4) This operation complies with the Angeles National Forest Land and Resource Management Plan, Pg. 3-20, and Pg. 4-40.

(5) After reviewing the Environmental Impact Statement, I find that no significant impacts were identified on any of the resources for the proposed action. Mitigation measures were incorporated into the final plan of operation that is found in Appendix C. That plan of operation is made part of this decision.

(6) I found that the project did not affect any unique characteristics of the geographic area, as defined in 40 CFR 1508.27.

(7) After reviewing the public concerns, I found that the mitigation measures that are made part of the decision will adequately reduce the impacts associated with the concerns brought forward by the public.

Based on the information contained in the Final EIS, I have determined that the project will not have a significant impact on the environment.

RIGHT TO ADMINISTRATIVE REVIEW

The decision documented in this record is subject to appeal in accordance with the provisions of 36 CFR 217.9, "Content of Notice of Appeal". The notice of appeal must be in writing, filed in duplicate and submitted to:

Regional Forester
Pacific Southwest Region
USDA - Forest Service
630 Sansome Street
San Francisco, CA 94111

The notice of appeal, a statement of reasons to support the appeal, and any request for oral presentation must be filed within 45 days of the date of publication in the Los Angeles Times, Los Angeles, Ca.

For more information regarding this project contact Charles McDonald, Environmental Coordinator, Angeles National Forest Supervisors office, 701 N. Santa Anita Ave., Arcadia, CA. 912006 or Telephone 1-818-574-5257.

MICHAEL J. ROGERS
Forest Supervisor

NOV 1 2 1991
Date

COVER SHEET

FINAL ENVIRONMENTAL IMPACT STATEMENT
GILLIBRAND SOLEDAD CANYON MINING OPERATIONS
ANGELES NATIONAL FOREST, CALIFORNIA

a. **Responsible Agency:** U.S. Department of Agriculture, Forest Service, Angeles National Forest, California

b. **Proposed Action:** Gillibrand Soledad Canyon Mining Operations, Los Angeles County, California

c. **Inquiries on this document should be directed to:**

Charles McDonald
Angeles National Forest
701 N. Santa Anita Avenue
Arcadia, California 91006
(818) 574-5257

d. **Designation:** Final Environmental Impact Statement (FEIS)

e. **Abstract:** In August 1989, the P.W. Gillibrand Company submitted a preliminary Plan of Operations to the Forest Service for the development and production of the Soledad Canyon Mining Project. In response, the Angeles Forest Supervisor directed the preparation of an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act (NEPA). This EIS analyzes effects and discloses the potential environmental consequences of the proposed action, no action, and two alternatives. The proposed action calls for the extraction of titanium ores and associated heavy minerals from the Proponent's lode and placer claims in the Angeles National Forest, Los Angeles County, California. The environmental analysis addresses the impacts of open-pit excavation, road construction, and conveyor construction on specific sites within an 810-acre project boundary. The Proponent expects to produce 400,000 tons of ilmenite per year at the peak of operations. This target will cause 300 acres of site disturbance over a 10-year operations period. The public used the scoping process to identify such issues as air quality, soils, water resources, biological resources, cultural and paleontological resources, transportation, visual resources, noise, recreational opportunities, land use, property values, and public health and safety. The preparers of the EIS evaluated these issues to formulate mitigation measures that will reduce environmental impacts to a non-significant level. The Proponent has incorporated these mitigation measures and other applicable regulatory requirements into a final Plan of Operations for the project (see Appendix C, separately bound).

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SUMMARY

INTRODUCTION

The Angeles National Forest has prepared this Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act (NEPA) and Forest Service regulations in order to assess the potential environmental impacts of the proposed P.W. Gillibrand mining operations in the Soledad Canyon area of the Angeles National Forest, Los Angeles County, California. The document will be used in considering approval of these mining operations on National Forest land.

The proposed project is site-specific. The *Angeles National Forest Land and Resources Management Plan* (Forest Plan) provides management direction from which site-specific EISs are tiered. The Forest Service determined that because the proposed project could have significant environmental impacts not fully considered in the Forest Plan, the preparation of an EIS was appropriate.

ALTERNATIVES INCLUDING THE PROPOSED ACTION

A total of nine alternatives including the proposed action were considered to meet the goals of the mining project. Alternative 1 describes the proposed action and evaluates its impacts on the environment. Alternatives 2 and 3 represent alternate ways of achieving the project's objectives. Alternative 4 is the no action alternative. Five additional alternatives (Alternatives 5 through 9) were initially considered but were eliminated from detailed study because they were found to be infeasible for technical, cost, or operational reasons. A brief description of the alternatives follows.

Alternative 1 (Proposed Action)

The proposed action is to conduct mining operations in the Soledad Canyon area of the Angeles National Forest and to haul the ore by road to the adjacent plant site near Lang Station, California. The Proponent plans to mine ilmenite, the titanium feedstock; apatite, a phosphate mineral; zircon, an industrial sand; magnetite, an iron-bearing mineral; and miscellaneous construction aggregate materials including sand and gravel. The northern boundary of the claim area (also called Operations area) of the P.W. Gillibrand Company (the Proponent) lies one mile south of the Antelope Valley Freeway (State Route 14), between the communities of Solemint and Acton. The claim area covers about 13,500 acres of the National Forest land; however, project activities will be confined to three

claim groups, (each bounded by a project boundary) and the access roads leading to these claim groups. The project boundaries surrounding the three claim groups and the access roads encompass 810 acres. Planned activities consist of (1) road building; (2) open-pit mining, stockpiling, and waste disposal; and (3) reclamation. The activity areas in total occupy less than 300 acres of forest environment.

Major activities to be performed under the proposed action include the following:

- Widening 8.1 miles of existing primary roads and building 2.8 miles of new primary roads to 48-foot double-lane haul roads.
- Locating and building 1.5 miles of 48-foot double-lane secondary roads that connect the primary roads to the mining sites.
- Clearing the chaparral brush from the mining sites and disposing of the slash.
- Removing the topsoil, low-grade ore, and non-mineralized overburden and transporting it to stockpile and spoil disposal areas.
- Mining the titanium ore deposits during the daylight hours.
- Hauling the crude ore to the Soledad Canyon plant and maintaining the road system.
- Reclaiming the mining sites, stockpiles, spoil disposal, waste areas, and secondary connector roads.

Three project alternatives, including the no action alternative, are also discussed in this document in order to evaluate all reasonable alternatives to the proposed action.

Alternative 2 - Conveyor Transport - Claim Group II to Plant Location

Alternative 2 requires the construction of a conveyor belt system to transport ore from Claim Group II to the plant site. Substitution of a conveyor system would eliminate construction of 2.8 miles of 48-foot-wide haul road. However, a two-mile construction and maintenance road along the conveyor system will be built. The total land disturbance from the conveyer and road rights-of-way would be approximately half the disturbed area attributed to Road Section B.

Alternative 3 - Road Section D to Claim Group II

Alternative 3 requires construction of Road Section D going south from Claim Group II and then west to meet with Road Section A. This was originally planned as Road Section B in 1989. The alignment of Road Section D has a greater haul distance (6.5 miles) from Claim Group II to the plant compared to the Road Section B distance of 3.4 miles, which is part of the proposed action.

Alternative 4 - No Action Alternative

The no action alternative disapproves the proposed action presented in the preliminary *Plan of Operations* by P.W. Gillibrand Company. The affected environment sections of this document describe the conditions that would prevail if no action is taken.

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

Five additional alternatives were initially considered but were eliminated from detailed study because they were found to be infeasible for technical, cost, environment effects, or operational reasons. These include:

- Alternative 5 - Moving the mill site to the mineral source;
- Alternative 6 - Reducing the scope of the project;
- Alternative 7 - Using the conveyor transport only;
- Alternative 8 - Using helicopter transport; and
- Alternative 9 - Conducting underground mining.

SCOPING PROCESS

The Forest Service initiated a public scoping process with the publication of a Notice of Intent in the *Federal Register* on October 13, 1989, and conducted a public scoping meeting in Canyon Country, California, on November 13, 1989. As a result of the scoping meeting, letters and comments received from agencies and individuals, and based on past experience with programs of similar types, 12 issue categories were identified for evaluation of environmental consequences of the proposed project. These issue categories are: (1) air quality, (2) soils, (3) water resources, (4) biological resources, (5) cultural and paleontological resources, (6) transportation, (7) visual/scenic resources, (8) noise, (9) recreational resources, (10) land use, (11) property values, and (12) public health and safety.

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The environmental consequences of the proposed action and its alternatives are evaluated for each of the 12 issue categories mentioned above. For each issue category, the affected environment, environmental impacts, and significance of impacts on the environment are discussed. Each section includes a discussion of mitigation measures that would be applied, as applicable, to eliminate or reduce the adverse impacts. A summary of the anticipated environmental impacts of the proposed action and its alternatives is presented in Table S-1. If no mitigation measures are implemented, significant impacts from the proposed action or its alternatives would occur on biological resources and visual resources. However, with the implementation of the mitigation measures identified in this document, all impacts would be reduced to a level of non-significance or will be within acceptable limits established by regulatory authorities. Mitigation measures are suggested for all adverse impacts, whether significant or not. With the no action alternative, project-related impacts would not occur. However, the Forest Service does not have the authority to deny approval of a locatable minerals project where the impacts to surface resources can be minimized, mitigated, and reclamation costs can be recovered by a performance bond secured prior to commencement of the activity.

MITIGATION MEASURES

Measures for the Proponent to reduce the identified effects are summarized below for each environmental issue category.

Air Quality:

A-1 Chemically treat unpaved road surfaces into and out of project site.

A-2 Restore vegetative ground covering to inactive or depleted sites.

A-3 Grass seed all material stockpile.

A-4 Reduce potential fugitive dust generation from mining sites by spraying the pit floors and sideslopes with water during active excavation periods.

Table S-1

Environmental Impacts Associated With the Proposed Gillibrand Soledad Canyon Mining Operations, Angeles National Forest, California

Alternative 1 (Prop. Action)	Alternative 2	Alternative 3	Alternative 4 (No Action)
Air Quality			
• Federal and state ambient PM_{10} and NO_2 standards are already exceeded in the airshed. Project would not add to these pollutants because the total production levels will not exceed existing levels. Impacts are not considered significant.	• Pollutant emissions would be about 4 percent less for gaseous pollutants and 20 percent less for particulate emissions than for the proposed action. Impacts would not be significant.	• Pollutant emissions from truck transport would be 1 to 2 percent higher than for the proposed action. These will still be lower than the existing emissions. Impacts will not be significant.	• Ambient air quality standards for selected criteria pollutants will remain in excess of federal and state standards. Additional impacts from proposed project would not occur.
Soils			
• Erosion of topsoil will not exceed tolerable soil loss of one ton/acre/year. Topsoil removed from 93 acres of mining areas will be stock-piled on sites totaling 4.6 acres. Erosion from the stockpile area, even at 10 times the rate of tolerable soil erosion, will be less than the erosion from undisturbed soil. • Road construction will result in short-term increases in soil erosion until revegetation takes hold on disturbed areas. • Impacts would not be significant. Suggested mitigation measures would further minimize the impacts on soil resources.	• The impacts of road construction on soil erosion would be less as the proposed road section would not be built. However, due to construction of conveyor system and maintenance road, impacts on soil resources would be essentially the same as impacts of the proposed action.	• Impacts of road construction on soil erosion would be slightly increased. Impacts from mining areas would remain the same as impacts of the proposed action.	• Soil erosion and sediment transport would continue to occur at current rates.
Water Resources			
• Increased debris flow during road construction will temporarily reduce water quality downstream. • Oak Springs Canyon has the highest potential for shallow flooding and increased debris flow from mining activities in Claim Group 1.	• Potential for debris flow during road construction, water use for dust abatement on haul roads, and contamination from accidental spills from haul trucks will be reduced slightly.	• With a 0.5 mile increase in road length for Road Section D, the potential for debris flow during road construction and water use for dust control would increase slightly.	• Activity levels will not increase beyond the existing operations. • Additional impacts would not occur.

Alternative 1 (Prop. Action)	Alternative 2	Alternative 3	Alternative 4 (No Action)
• Project-related water demand is estimated at 415,000 to 640,000 gallons per day. Private wells on the proponent's property can meet this demand without adversely affecting the groundwater resources in the local area.	• Overall, impacts would not be materially different from those of the proposed action.	• Overall, impacts would be similar to those of the proposed action.	
• Surface and groundwater could be exposed to hazardous materials from accidental spills.			
• Impacts to water resources from changes in natural soil erosion and sediment transport rates are not considered significant. Suggested mitigation measures would further minimize impacts.			
Biological Resources			
• Vegetation on 296 acres of land will be directly disturbed as a result of project activities.	• Vegetation on 276 acres of land will be directly disturbed as a result of project activities; the elimination of Road Section B reduces the level of impact under this alternative.	• Vegetation on 306 acres of land will be directly disturbed as a result of project activities.	• Project-related impacts to biological resources would not occur.
• About 3 acres of riparian vegetation may be disturbed by mining activities and construction and widening of primary and secondary roads; significant but unavoidable impacts will be mitigated by replacement or enhancement of existing riparian habitat.	• Impacts would be similar to those of the proposed action.	• Impacts would be similar to those of the proposed action.	
• Some loss of floral diversity would occur in Claim Groups 1 and III. A few Canyon Live Oaks may be lost in Claim Group III. Impacts to Greta's aster, a sensitive plant species and sycamores, cottonwoods, and willows along Pole Creek will be minimized.	• Impacts would be similar to those of the proposed action.	• Impacts would be similar to those of the proposed action.	

Alternative 1 (Prop. Action)	Alternative 2	Alternative 3	Alternative 4 (No Action)
• Loss of habitat will result in changes in wildlife populations of common species. No threatened and endangered species will be affected.	• Impacts would be similar to those of the proposed action.	• Impacts would be similar to those of the proposed action.	
• Impacts are considered significant because of the no net loss policy of riparian areas. Mitigation measures would minimize impacts.	• Impacts are considered significant. Mitigation measures would minimize impacts.	• Impacts are considered significant. Mitigation measures would minimize impacts.	
Cultural and Paleontological Resources			
• No prehistoric or historic sites eligible for National Register of Historic Places nomination occur in the area. No impacts are identified. • No Native American sensitive resources would be affected. • Potential for disturbance to paleontological resources is negligible because the geologic deposits are not conducive to fossilized material.	• Impacts would be similar to those of the proposed action.	• Impacts would be similar to those of the proposed action.	• No impacts to cultural and paleontological resources would occur.
Transportation			
• No additional sand and gravel truck traffic would occur from the proposed action. No change in the present level of service (A or B on the Soledad Canyon/State Route 14 intersection and D on the freeway) is expected. • Direct rail transport of ilmenite, if implemented, will add one train round trip carrying 8,000-10,000 tons of minerals per week to haul 400,000 tons per year. No appreciable increase in rail traffic in the Lang Station area would occur.	• Impacts would be the same as those from the proposed action.	• Impacts would be the same as those from the proposed action.	• Traffic generated by the existing operations would continue without change.

Alternative 1 (Prop. Action)	Alternative 2	Alternative 3	Alternative 4 (No Action)
Visual/Scenic Resources			
• Mining Site #11 North in Claim Group I will be exposed to views from select residential areas within Sand Canyon to the west. With some preventive mitigation measures, the activity will remain in compliance with "partial retention" Visual Quality Objectives (VQO) for this area. • All significant viewpoints exposed to views from Claim Group III activities are more than 3 miles distant and meet the "modification" VQO. • Visual impacts associated with the roads are more substantial than those from the mining activities. The "partial retention" VQO will not be met and impacts would be considered significant. Impacts will be minimized through appropriate mitigation measures.	• Impacts would be similar to impacts of the proposed action.	• Impacts would be similar to impacts of the proposed action.	• No impacts to visual resources would occur.
Noise			
• Construction of haul roads would temporarily increase noise levels by 2 to 3 decibels on the A-weighted scale (dBA) in the communities west of the project area. This increase is not detectable to the human ear. • At the peak of operations, number of haul trips would remain at the current levels. Because of changes in mining locations to more distant areas, there will be a net decrease in ambient daytime levels of 1 to 2 dBA. • Noise impacts on residential communities to the west would not be significant.	• Noise generated by trucks hauling ore from Claim Group II would be replaced by the noise generated by the conveyor system. Noise impacts would not be materially different from those of the proposed action.	• Noise impacts would be approximately the same as the proposed action.	• Ambient noise levels in the region would remain at existing levels. No sensitive receptors are currently affected.

Alternative 1 (Prop. Action)	Alternative 2	Alternative 3	Alternative 4 (No Action)
Recreational Opportunities			
• No developed recreation sites occur in the project area. • Access to dispersed recreational opportunities would be restricted for safety reasons. Such restrictions would be in conformance with the Forest Service plan. Impacts are not considered significant. • Roads not reclaimed after the life of the project would enhance dispersed recreational opportunities.	• Impacts are the same as those from the proposed action.	• Impacts are the same as the proposed action.	• Future establish- ment of hiking trails and off-road vehicle routes by the Forest Service could occur as planned.
Land Use			
• Development of Claim Group II would overlay 170 acres of oil and gas leases. Development of haul roads for the project could be of benefit to the oil and gas lessee in the event leases are exercised. • The project is consistent with the adopted *Forest Service Plan* and the County of *Los Angeles Santa Clarita Valley Area Plan*. Land use impacts are not considered significant.	• Impacts would be similar to those for the proposed action.	• Impacts would be similar to those for the proposed action.	• Because no action would take place, there will be no impacts on the existing federal and local jurisdiction land use plans and policies.
Property Values			
• Project-related noise, flood potential, and visual effects could reduce property values in communities west and north of the project. Because these impacts are not found to be significant with mitigation measures in place, impacts on property values would not be significant. New construction is continuing to occur with no apparent drop in property values.	• Impacts would be similar to those for the proposed action.	• Impacts would be similar to those for the proposed action.	• No effect on property values other than what the market conditions will allow.

Alternative 1 (Prop. Action)	Alternative 2	Alternative 3	Alternative 4 (No Action)
Public Health and Safety			
• Use of dynamite and nitro-carbo-nitrate would increase but is not expected to change the probability of accidents above the existing levels.	• Potential for road accidents will be slightly reduced.	• Risks related to haul roads will increase slightly.	• Activity levels will not increase beyond the existing operations.
• Haul trips will increase from mine sites to the plant but decrease between existing sand and gravel locations and the plant. Potential for accidental spills and possible soil and water contamination would remain at the existing levels.	• Accident risk to visitors will also decrease as conveyor route will not be accessible to the public.	• Overall impacts would be about the same as the proposed action.	• Additional impacts from proposed action would not occur.
• With the increase in size and depth of mine pits, safety risks to recreationists would increase if mitigation measures are not implemented.	• Overall impacts would be about the same as the proposed action.		
• Increased project activity will increase risk of fire in the overmature vegetation in the area. However, project activity will break up the continuity of overmature vegetation and provide better access for ground attach forces to suppress fires.			
• Health and safety risks will not increase to unacceptable levels because Best Management Practices and all health and safety guidelines established by Occupational Safety and Health Administration, Mine Safety and Health Act, and Forest Service will be followed.			

A-5 Comply with all applicable California Air Resources Board and SCAQMD rules and regulations, including installations of mufflers and smog control devices on project equipment.

A-6 Establish onsite monitoring stations to measure ambient PM_{10} concentrations.

A-7 Develop and implement a mitigation monitoring plan (to be monitored by the Forest Service) that will ensure that the projected production levels are not exceeded.

Soils:

S-1 Construct sedimentation traps such as the existing sand and gravel pits within normal channels to trap any additional materials over the natural erosion that occurs from soils and bedrock associated with the forest. In accordance with the policies of the Los Angeles County, allow sufficient overflow to maintain the stream channels in their present shape.

S-2 Use control measures, such as wattling, erosion nets, terraces, side drains, blankets, mats, riprapping, mulch, tackifiers, pavement, soil sealers, and gunite, where necessary. Size riprap and install in such a way that it effectively resists erosive water velocities.

S-3 Locate and design roads with minimal resource damage. Construct all roads to comply with the Angeles National Forest Minimum Standards for Road Construction.

S-4 Minimize sediments originating from outer shoulders of the road during road construction or upgrading by the application of the Best Management Practices currently in force.

S-5 Reduce airborne dust by employing road surface treatments listed in Best Management Practices, such as watering and chemical dust suppressants.

S-6 Reshape excavated pits generally with a final cut slope at a 1:1 ratio and smooth and stabilize general pit area. Make terrace benches wide enough to allow small machinery or tractors to scarify the ground to prepare a seed bed for revegetation species. Use the spoil to fill in the mined-out quarries. Break the pit slopes with rock sculpting with variable size benches and slope angles of up to 3:1 in selected areas recommended by the Forest Service.

S-7 Spread the stockpiled topsoil over contoured terraces in patches thick enough to provide for a good root system during reclamation and revegetation processes.

S-8 Revegetate disturbed areas to prevent accelerated sheet erosion or gullying in accordance with the *Angeles National Forest Erosion Control and Revegetation Plan* reproduced in the Final Mining and Reclamation Plan (Appendix C).

S-9 Fertilize the soil by applying a 16-20-0 commercial mix at the rate of 500 pounds per acre. A light topping of straw mulch (2.0 tons per acre) can be hand spread to furnish organic matter and retain soil moisture. Consider fertilization with a granular, slow-release, complete fertilizer and incorporate appropriate biological growth enhancers, such as mycorrhizal fungi, to promote native vegetation establishment. Seed and mulch freshly disturbed sites annually by November 15. Avoid seeding and planting between April 1 and August 31 to reduce need for supplemental watering.

Water Resources:

W-1 Apply appropriate mitigation measures for water quality protection from mining activities. These include Best Management Practices (Appendix B), erosion control and prevention techniques, streamside management requirements, and watershed restoration.

W-2 Protect water quality by complying with the Regional Water Quality Control Board standards, as well as federal, state, and county laws and regulations.

W-3 Notify the California Department of Fish and Game of any diversion, obstruction of the natural flow, or changes in the bed, channel, or bank of any river, stream, or lake as called for in the Fish and Game Code. This notification (with fee) and the subsequent agreement must be completed prior to initiating any such changes. Notification shall be made after the project is approved by the Lead Agency. Similar notification shall be made to the U.S. Army Corps of Engineers, if needed.

W-4 Reduce impacts on flooding and debris flow by employing soil erosion control measures described above.

W-5 Reduce impacts on groundwater from contamination by complying with the health and safety procedures described in Section 3.13.

W-6 Reduce impacts on water use by using Forest Service approved chemical dust suppressant.

W-7 Continue surface water quality sampling to monitor the effects of runoff from the mining operations.

Biological Resources:

Vegetation.

B-1 Minimize soil disturbance to reduce impacts to the habitat and to reduce the impact of vegetative manipulation on small mammal communities.

B-2 Stabilize topsoil stockpiles with material that is oxygen permeable so seeds within the piles remain viable. Stabilize disposal piles.

B-3 Contour the final grade of reclaimed mining pits with disposable spoils to prevent erosion, resemble the surrounding natural habitat, or be suitable for revegetation with native plant species.

B-4 Restore disturbed areas to resemble the surrounding natural habitat. Maintain stated objectives of maximizing species and habitat diversity, as well as structural diversity. Create edges and openings in mosaic patterns.

B-5 Plant native species from local nursery stock in order to preserve the genetic integrity of the native plant populations and to ensure adaptability of planted materials to local conditions.

B-6 Control weeds, especially invasive weeds, through herbicide application or hand weeding, during construction, mining, and site reclamation to prevent these species from becoming established and invading the native communities.

B-7 Obtain seed or other propagules and plant materials used in all revegetation and some erosion control activities from native species and from local nursery sources. Create new species and habitat diversity in reclaimed areas.

Riparian Areas.

B-8 Monitor construction activities to ensure that no loss of riparian acreage will occur. Forest Service will conduct monitoring. Mitigate unavoidable disturbance by replacement or enhancement of existing riparian habitat in areas identified by the Forest Service at a ratio agreed upon by the responsible agencies (Forest Service, USACE, USFWS, and CDFG). Restore any riparian habitat disturbed during the project life after the activity in the disturbed area terminates. Inventory and replace mature trees and snags, if removed from the draws, at Sites selected by the Forest Service.

B-9 Design road crossings and alignments within riparian zones to minimize the area affected.

B-10 Relocate spoil disposal area in Claim Group I to minimize impacts to a cottonwood tree.

B-11 Relocate topsoil stockpile and spoil disposal areas in Claim Groups II and III to minimize impacts to riparian areas.

B-12 Protect oak riparian woodlands at the head of Oak Spring Canyon from potential indirect impacts resulting from road construction.

B-13 Notify U.S. Army Corps of Engineers of potential disturbance to riparian habitat and obtain Section 404 permit.

B-14 To offset disturbances to localized wildlife, place wildlife water catchment guzzlers at the mouth of Pole Canyon and near Claim Group III. As onsite mitigation for the loss of extensive areas of chaparral habitat and mining-related disturbances to local wildlife utilizing the watering sources are unquantifiable, the placement of additional watering sources at strategic locations will help reduce or minimize adverse impacts to localized wildlife. On-site reconnaissance and discussions with forest service biologists indicate the most feasible location for the guzzler in Pole Canyon is near a stand of sycamore trees on a bench just west of the

approved Pole Creek haul road crossing. This area is just below the approved Upper Pole Canyon Project Area. Placement of the water catchment guzzler upslope to the northeast would minimize wildlife crossing the haul road. The water source in the vicinity of Claim Group III could either be in the form of a wildlife water catchment guzzler, or a water trough. Should the existing storage tanks at the summit of Magic Mountain be rejuvenated for use by Gillibrand's mining operations, a water line extending from the reservoir could feed the water trough.

B-15 Provide a year-round water source in the vicinity of the wildlife corridor extending from the big-cone spruce grove for deer and other large mammals whose home range extend into the project area. Design the water trough similar to a cattle trough, rather than a guzzler type design. Construct the trough of cement and rock (rather than metal) with a cement bottom. Make trough rectangular or circular in shape, with the top of the trough extending no more than one foot above the surrounding ground surface. The trough shall have a minimum capacity of 25 gallons. Supply a sufficient amount of water to the trough to offset evaporation and allow some water to overflow or drip out of the trough. Place a metal grate or rock steps in the trough to prevent small mammals and birds from drowning.

B-16 Do not remove vegetation from the project area during the migratory bird breeding season (approximately March to August) and apply for a permit from U.S. Fish and Wildlife Service if removal and relocation of migratory bird eggs and young to licensed rehabilitation care centers is required.

Sensitive Species.

B-17 Avoid or minimize disturbance of sensitive species by constructing the road or conveyor system in Pole Canyon so as to minimize impacts to riparian vegetation, particularly the populations of Greta's aster.

Cultural and Paleontological Resources:

C-1 Because no significant surface remains of cultural resources were identified, mitigation measures are not required. However, upon discovery of any subsurface cultural or major paleontological resource during project activities, all work shall be stopped in the immediate area of the find. The district ranger shall be promptly notified so as to initiate a scientific

cultural examination of the site. Work shall not be resumed until authorized by the district ranger.

Transportation:

T-1 If demand permits, consider use of the Southern Pacific Railroad as the primary means of transporting of minerals to market to reduce traffic impacts on State Route 14 and become more cost effective.

T-2 Construct a 60-car industrial siding to load the railroad cars at Lang Station. The existing industrial siding accommodates only six cars. Or use the existing passing siding if SP decides it isn't needed for through freight movement on the mainline.

Visual/Scenic Resources:

V-1 Make initial cuts in mining areas on the east side of Pit #11-N to conceal activity behind the pit wall in Claim Group I.

V-2 Relocate the proposed spoil disposal area in Claim Group III to a point south of the visible Magic Mountain ridgeline.

V-3 Reduce ground disturbance and vegetation clearance associated with road construction and mining areas to the minimum.

V-4 Reclaim slopes in a manner designed to blend smoothly with the remaining existing topography.

V-5 Mine during daylight hours to minimize light and glare.

Noise:

N-1 Use standard noise reduction techniques (e.g., mufflers on construction equipment exhaust and enclosures on noisy stationary sources) to minimize the noise generated by the project so that the standards described in Section 3.9.2 are not exceeded.

Recreational Opportunities:

R-1 Mitigate temporary losses of recreational opportunities by reclamation of the site. Primary project roads may be kept open and made available to the public for off-road vehicle or other dispersed recreation uses at the discretion of the Forest Service.

R-2 Reroute established off-road vehicle routes and the proposed hiking trail around the mining sites to reduce the loss of dispersed recreation opportunities during the 10-year operational phase.

Land Use:

L-1 Notify holders of special use permits in advance of any mining activities that might affect full enjoyment of their authorized uses. Responsibility for disruption of use or relocation of facilities for permits that predate mining operations shall be borne by the proponent.

L-2 Solicit oil and gas lessee comments regarding potential conflicts with planned oil and gas operations and negotiate a solution. Incorporate the terms of any agreement in the approved *Soledad Canyon Plan of Operations*.

L-3 Coordinate periodically with local planning jurisdictions or participate periodically in interagency meetings to ensure compliance with local jurisdiction planning regulations and general plans.

Property Values:

Because no significant impacts are identified, no mitigations measures are suggested.

Public Health and Safety:

P-1 Comply with all regulations and requirements of the Occupational Safety and Health Act, Mine Safety and Health Act, Forest Service Best Management Practices, and Los Angeles County Fire Department.

P-2 Store explosives in secured areas constructed and maintained in accordance with federal and local regulatory requirements.

P-3 Restrict vehicle use by the public on haul roads until the project or logical subdivisions of the project are completed.

P-4 Fence accident-prone areas and post "no entry" signs at selected points of possible entry to project areas. Maintain fences and signs during the life of the project.

P-5 Comply with the Project Fire Plan in the *Plan of Operations*.

P-6 Maintain an approved Spill Prevention Control and Countermeasure (SPCC) Plan in compliance with the Clean Water Act, Section 311 and 40 CFR 112.

1.0 PURPOSE AND NEED FOR ACTION

1.1 INTRODUCTION

The P.W. Gillibrand Company submitted a *Preliminary Plan of Operations* (Plan of Operations) for the development and production of titanium ores and associated minerals from its Soledad Canyon claims in the Angeles National Forest, Los Angeles County, California. In addition to meeting the demands of both the domestic and foreign markets, the company's production plans will reduce United States dependency on foreign imports of rutile or titania slag (the United States now imports 80 percent of its titanium feedstock needs) and eliminate the unfavorable prospect of titanium metal shortages during periods of national emergency. Based on the size, nature, public concern, and location of this project, the Forest Supervisor determined that an environmental impact statement (EIS) should be prepared before approval of the Plan of Operations.

Pursuant to United States General Mining Law of 1872 (17 Stats. 19), as amended (30 U.S.C. 21-54), qualified prospectors have a statutory right to enter the public domain lands for the purpose of discovery of valuable mineral deposits, location of mining claims, and subsequent entitlement to reasonable access for further prospecting, mining, and necessary related activities subject to other applicable laws and regulations. The National Forests' Surface Use regulations, 36 CFR 252, dated September 1, 1974, and revised under 36 CFR 228, July 14, 1981, under the United States Mining Laws, require mining operations to be conducted to minimize the adverse environmental impacts on National Forest system surface resources.

This EIS has been prepared in accordance with the National Environmental Policy Act (NEPA) and the Forest Service regulations to assess the environmental impacts of the proposed project and describe the measures or alternatives that have been considered for minimizing the impacts to environmental resources. This project-specific EIS is tiered to the Forest Plan. The Forest Plan gives forestwide Standards and Guidelines and individual Management Prescriptions for specific areas and requires that all future EISs and Records of Decision be tiered to the Forest Plan.

1.2 SCOPING PROCESS

The Council on Environmental Quality (CEQ) regulations implementing NEPA require an early and open process for determining the scope of issues and concerns related to the proposed action. The objectives of scoping are to identify the significant issues for study in the EIS and determine the scope of the research for each issue. The Forest Service initiated this process with the publication of a Notice of Intent in the *Federal Register* to prepare an EIS for the Gillibrand Soledad Canyon Mining Operations on October 13, 1989. Soon after, written requests were sent to the responsible federal, state, and local agencies to submit their issues and concerns to the Forest Service to be analyzed in the EIS. On November 13, 1989, a public scoping meeting was conducted at the Church of the Canyons in Canyon Country, California, to solicit comments and identify concerns related to the proposed mining operation. Written comments were accepted by the Forest Service through January 15, 1990, the closing date for the public scoping period.

1.3 SUMMARY OF PUBLIC SCOPING ISSUES AND CONCERNS

The scoping meeting in Canyon Country, California, was attended by approximately 35 persons. Twelve persons spoke or read prepared statements during the public comment period. In addition to verbal comments, numerous written comments were received. Written comments were submitted both at the meeting and in letters mailed before and after the meeting. All comments received are summarized below.

- It is assumed that the preparers of the EIS will look at the standard checklist of concerns that have been identified for similar developments of this nature.

- People in the nearby residential areas north and west of the proposed project will be exposed to increased noise levels.

- The proposed project will adversely affect the property values of residents in the area.

- The proposed project will degrade the visual and scenic resources of the area.

- The mining operation will result in removal of vegetation including oak trees.

- The mining operations will put strains on the enjoyment of natural parks and recreation areas by the local residents.

- The project will increase air pollution from dust and from pollutant emissions from trucks hauling the ore.

- The proposed mining operation will require significant landform alteration including extensive access road construction and will result in substantial impacts to wildlife resources; threatened, endangered, or locally unique species; riparian habitats; and oak woodlands.

- The project will affect roads and highways in the vicinity of the project, particularly the Antelope Valley Freeway and Soledad Canyon Road.

- The project will have adverse effects on water resources including natural springs, groundwater (as a result of possible pumping from local aquifers), and surface water quality (as a result of sedimentation and possible contamination), and increased potential for changes in peak flood flows in the Santa Clarita River.

- The mining operations may change the drainage patterns in the area as a result of land disturbance. More loose gravel and rock may come down Oak Spring Canyon Road from mining areas and haul roads.

- The EIS should consider public health impacts from the proposed processing activities and spills.

1.4 ISSUES AND CONCERNS DISCUSSED IN THIS ENVIRONMENTAL IMPACT STATEMENT

As a result of public scoping meetings, letters and comments received from agencies and individuals, and based on past experience with programs of similar scope, all important issues were grouped into 12 categories. These issue categories, and issues within each category, are identified below. The environmental consequences of the proposed action and its alternatives on these issue categories are discussed in Chapter 3.0.

1. Air Quality:

   - Adverse impacts on the air quality of the area.
   - Increased dust generation from road construction, mining operations, and hauling of ore on unpaved roads.
   - Increased hydrocarbon emissions from use of hauling trucks, mining equipment, and other vehicles in the project area.

2. Soils:

   - Changes in the rate of soil erosion and increased sedimentation downstream of mining sites.
   - Increased soil erosion from road construction and mining operations.
   - Soil contamination from potential hazardous materials spills (mainly fuel and motor oils).

3. Water Resources:

- Degradation of water quality in the affected canyons and increased runoff and flood potential.
- Degradation of surface water quality from sedimentation and potential contamination.
- Increased rate of erosion and siltation that may modify the drainage patterns or stream channels.
- Changes in the drainage and flood characteristics of streams that may cause increased downstream damage.
- Withdrawal of groundwater from local aquifers that may reduce the flow of natural springs and result in substantial depletion of groundwater resources.
- Substantial reduction in the amount of water otherwise available for public water use.

4. Biological Resources:

- Permanent destruction of biological resources of the area.
- Decrease in chaparral, oak trees, riparian, and sensitive plant communities.
- Reduction in the numbers of unique, rare, or endangered animal species.
- Deterioration of existing fish and wildlife habitat and watershed.
- Reduction of wetlands as a result of water diversion from existing stream channels.

5. Cultural and Paleontological Resources:

- Destruction of or adverse impacts on existing cultural and paleontological sites in the area.

- Alteration or destruction of prehistoric or historic sites.

- Adverse physical effects on historic buildings, structures, or objects.

- Restrictions on existing Native American religious or sacred uses within potential impact areas.

- Alteration or destruction of fossil remains.

6. Transportation:

- Increased congestion and damage to public roads.

- Increased vehicular traffic from trucks hauling ores and minerals and from other project-related traffic on highways and roads in the project vicinity.

- Increased potential rail traffic, if this mode is used for hauling minerals.

- Increased traffic hazards and accident rates.

- Increased damage to Soledad Canyon Road and increased road maintenance costs.

7. Visual/Scenic Resources:

- Changes in the visual quality (as seen from various points in the surrounding area) from mining operations and associated roads.

- Decrease in the visual quality of the area as a result of the project's effects on vegetation and changes in landform.

- Possible light and glare from night operations.

- Activities in conflict with Visual Quality Objectives of the Forest Service.

8. Noise:

- Increase in noise levels beyond acceptable levels.
- Increased noise levels from road construction and maintenance, mining, and milling operations.
- Increased noise levels from truck traffic hauling ore to the plant and minerals to the market.
- Exposure of people to severe noise levels; that is, noise levels in excess of Los Angeles County's standards for noise exposure.

9. Recreational Opportunities:

- Loss of existing recreation opportunities due to mining operations.
- Restrictions on current or potential dispersed recreation opportunities, such as hiking, hunting, riding, or off-road vehicle use.
- Loss of land for dispersed developed recreation opportunities during the life of the project.
- Impact on quality of existing recreation opportunities.

10. Land Use:

- Conformity with local and Forest Service Land Management Plans.
- Alteration of the present or planned land use identified in the Forest Plan.
- Conflicts with other land uses.

11. Property Values:

- Potential reduction in property values in the vicinity of the project.
- Decrease in serenity, country atmosphere, and aesthetic appeal that motivated the property owners to invest in their properties.

12. Public Health and Safety:

- Increased risks to public health and safety from mining operations and associated traffic.
- Increased public health risk from potential spills of diesel, motor oils, and other hazardous materials.
- Increased risk of accidents from use of explosives.
- Creation of health hazard or potential health hazard from dust generation and groundwater contamination.
- Increased safety hazard to other road users in the project vicinity.

2.0 ALTERNATIVES INCLUDING PROPOSED ACTION AND COMPARISON OF IMPACTS

This chapter contains a description of four viable alternatives, including the proposed action, considered for detailed analysis, and five alternatives that were considered but eliminated from further, detailed study.

2.1 ALTERNATIVE 1 - PROPOSED ACTION

The proposed action is to conduct mining operations in the Soledad Canyon claim area of the Angeles National Forest, Los Angeles County, California, and to haul the ore, by road, to the plant site adjoining the claim area. The claim area generally lies 10 miles north of the San Fernando Valley and one mile south of State Route 14, the Antelope Valley Freeway, between Solemint and Acton (Figure 2.1-1).

The Proponent plans to mine ilmenite, the titanium feedstock; apatite, a phosphate mineral; zircon, an industrial sand; magnetite, an iron-bearing mineral; and miscellaneous construction aggregate materials including sand and gravel. The overall P.W. Gillibrand Company mining mineral claim area (also known as Operations Area) encompasses about 13,500 acres of National Forest Land (Figure 2.1-2). Exploration results indicate that the richest deposits of the minerals sought are located in the vicinity of three claim groups shown in Figure 2.1-3. The project boundaries surrounding the three claim groups and the system of primary and secondary roads will encompass 810 acres. These project boundaries are drawn to facilitate environmental analysis of the proposal and allow for reasonable adjustment of the activity areas within them as mining progresses. Activity areas where actual mining and related activities will take place occupy a total of less than 300 acres of forest environment. Project activities consist of road building, open-pit mining, topsoil and low-grade ore stockpiling, spoil disposal, ore transportation and road maintenance, and reclamation. These activities are described below.

Road Building. Project access consists of primary and secondary haul routes within the project boundaries. The primary haul route is divided into three sections. Each section reaches the vicinity of a key claim group where production mining will occur (Figure 2.1-4). The proponent built Sections A and C to a 20-foot interim standard during exploration. Development of the primary haul

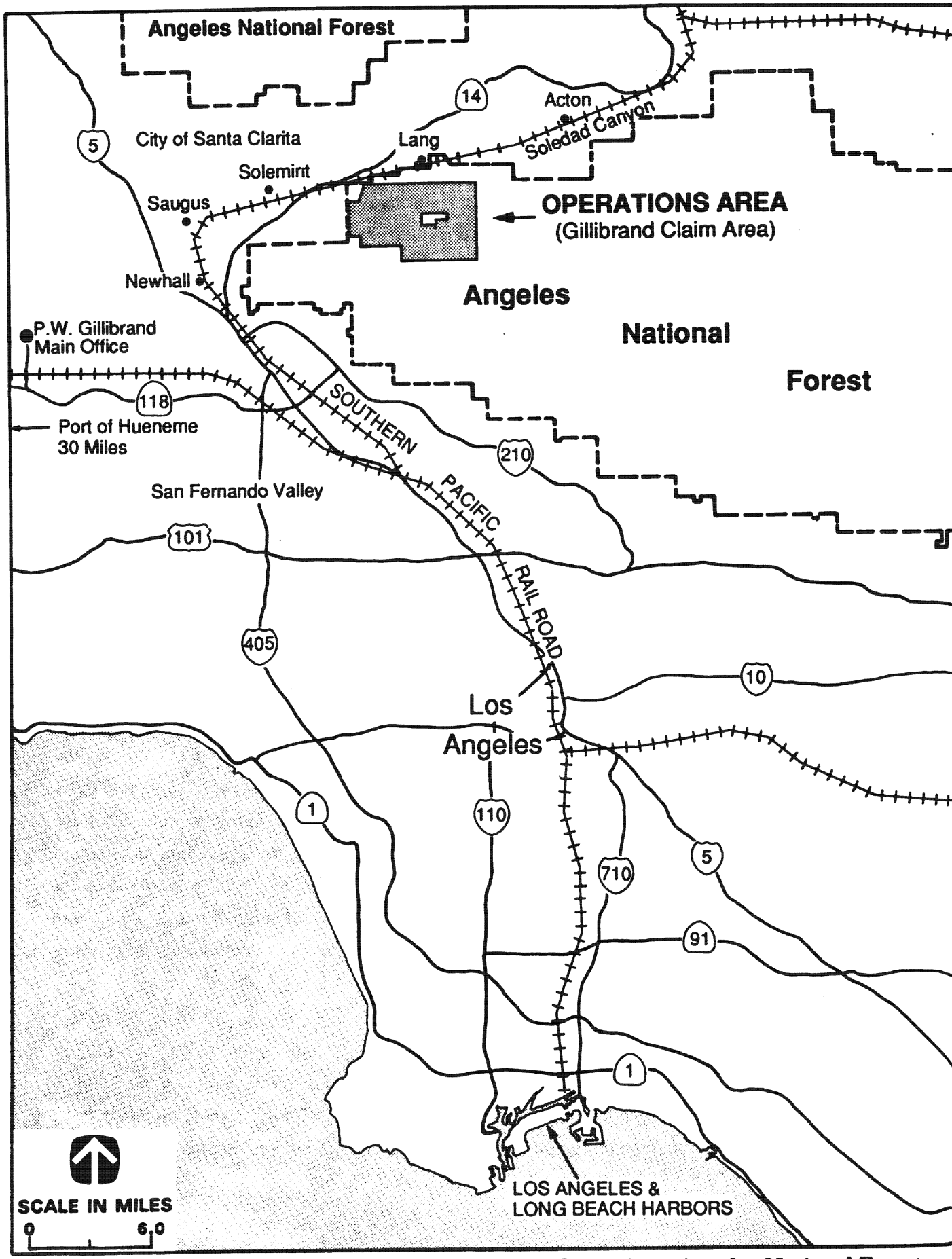
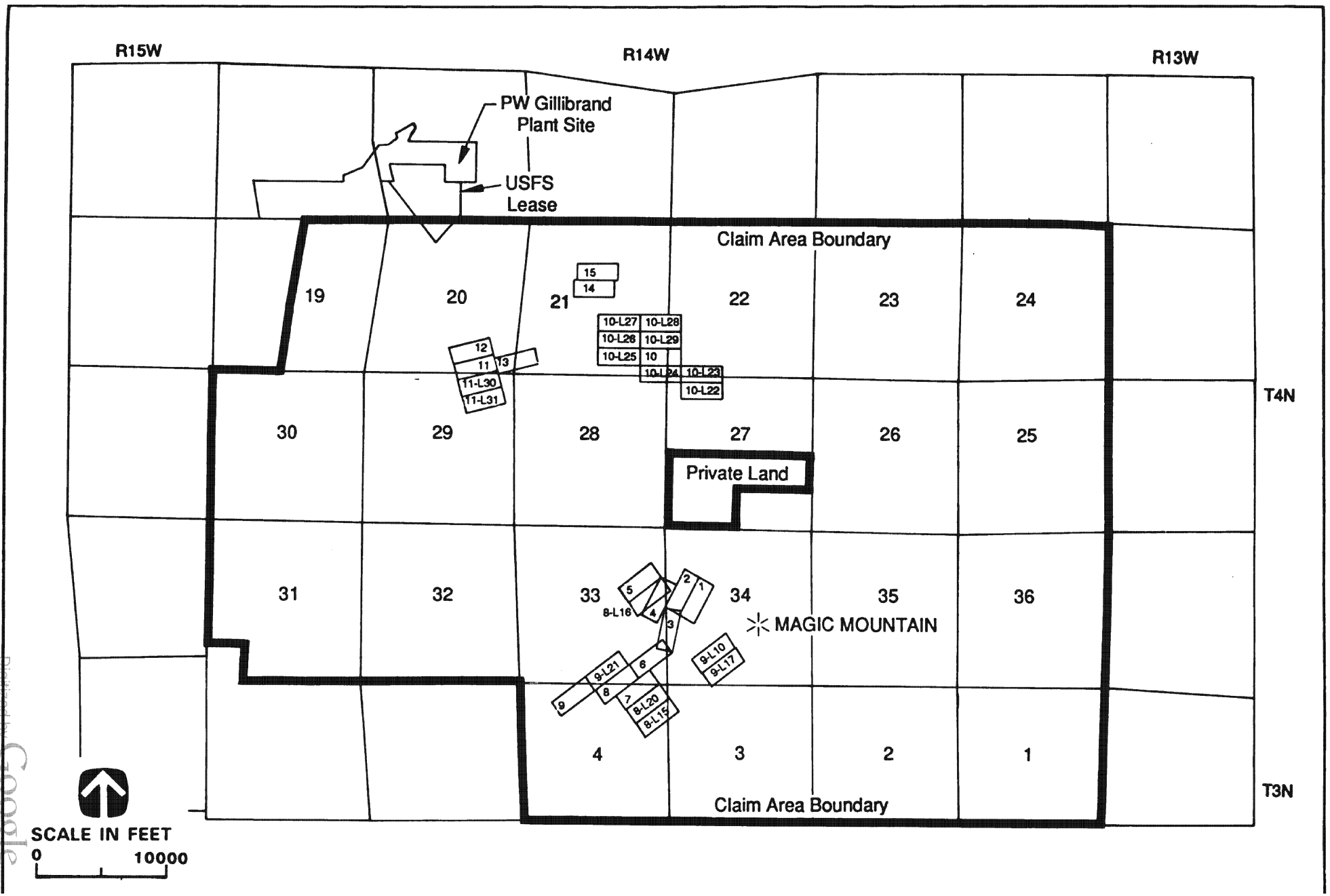


Figure 2.1-1 Regional Setting, Gillibrand Mining Operations, Angeles National Forest, California


R15W
R14W
R13W
PW Gillibrand
Plant Site
USFS
Lease
Claim Area Boundary
19
20
21
22
23
24
15
14
10-L27
10-L28
10-L26
10-L29
10-L25
10
10-L24
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10-L22
12
11
13
11-L30
11-L31
T4N
30
29
28
27
26
25
Private Land
31
32
33
34
35
36
8-L16
5
2
1
4
3
MAGIC MOUNTAIN
9-L10
9-L17
9-L21
6
8
9
7
8-L20
8-L15
4
3
2
1
T3N
Claim Area Boundary
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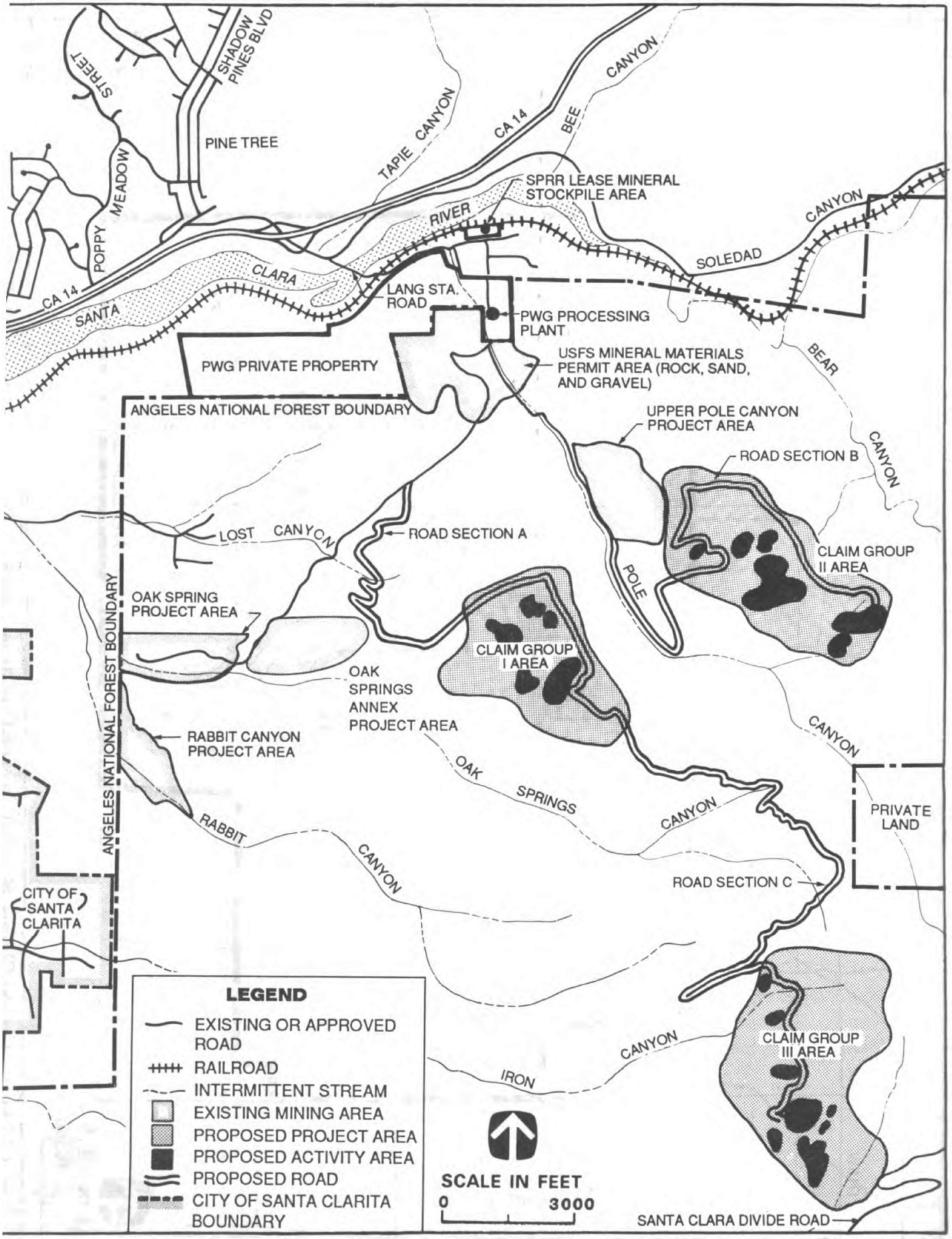

Figure 2.1-3 Location of Proposed Soledad Canyon Mining Operations, Angeles National Forest, California

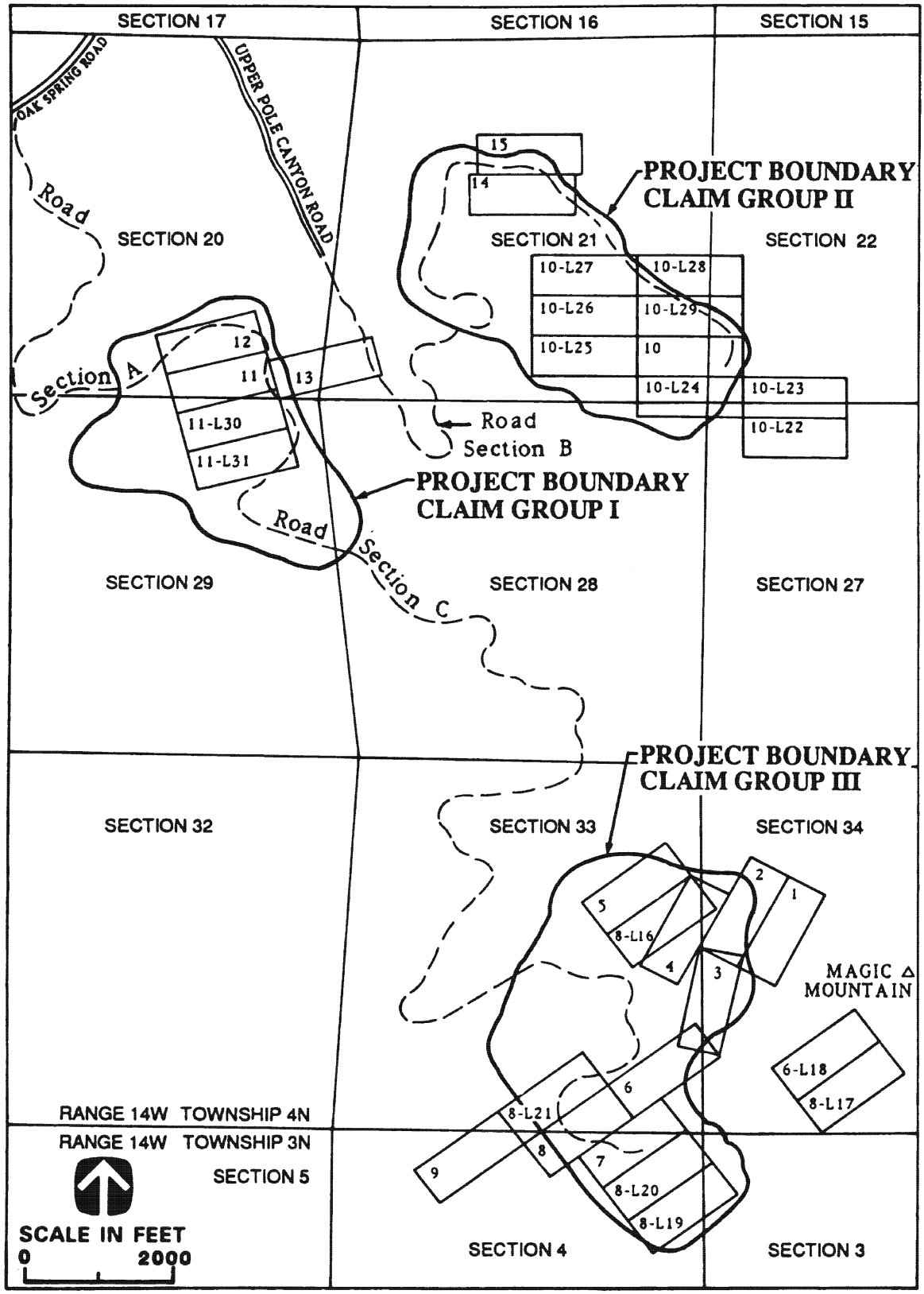

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Figure 2.1-4 Proposed Roads and Project Areas, Angeles National Forest, California

route will entail widening Sections A and C to a 48- foot double-lane standard. Section B will be built to the same standard as part of the proposed action. The combined length of the right-of-way totals 10.9 miles (2.2 miles for Section A; 2.8 miles for Section B; and 5.9 miles for Section C) and covers approximately 150 acres. The proponent will narrow the running surface to 24-foot single-lane width on road segments where truck drivers have good intervisible sight distance.

A series of secondary roads will connect primary haul routes to the mining sites. These roads, involving 1.5 miles of new construction and covering approximately 25 acres, will lie within the project boundary of each claim group. The secondary roads will be temporary and will be reclaimed when associated reclamation work is completed in the mining areas they serve. All primary and secondary haul roads will be within the project boundaries and will not be open to public use.

Open-Pit Mining. The proponent will excavate nine individual mining sites. The sites are designed to meet a desired production capacity of 400,000 tons of ilmenite per year for the first 10-year period of operations. Each of the three key claim groups will consist of two or more mining sites, topsoil stockpiles, low-grade ore stockpiles, and spoil disposal areas. The total volume of all sites is estimated to be 12.7 million cubic yards distributed by claim group as follows:

Claim Group I	2.0 million cubic yards
Claim Group II	6.6 million cubic yards
Claim Group III	4.1 million cubic yards

Surveyors will establish the perimeter of each open-pit mine before brush clearing and excavation. Figures 2.1-5 through 2.1-7 show the general location and configuration of the pits or mining sites. The mining sites in these figures reflect current knowledge and would disturb approximately 92.5 acres of land within the project boundaries. However, as mining progresses, the pit limits may be increased or decreased to conform to the actual distribution of heavy minerals within the host rocks. The project boundary shown on these figures was located to allow for reasonable adjustments in the pit limits or size of stockpile and spoil areas, and for the environmental analysis to be conducted for all the area within the project boundary so that minor shifts will not create unrecognized environmental effects on the land and resources.

Before mining at any location, the topsoil will be removed and stockpiled for future site rehabilitation. The proponent will not necessarily conduct mining activities at one specific location

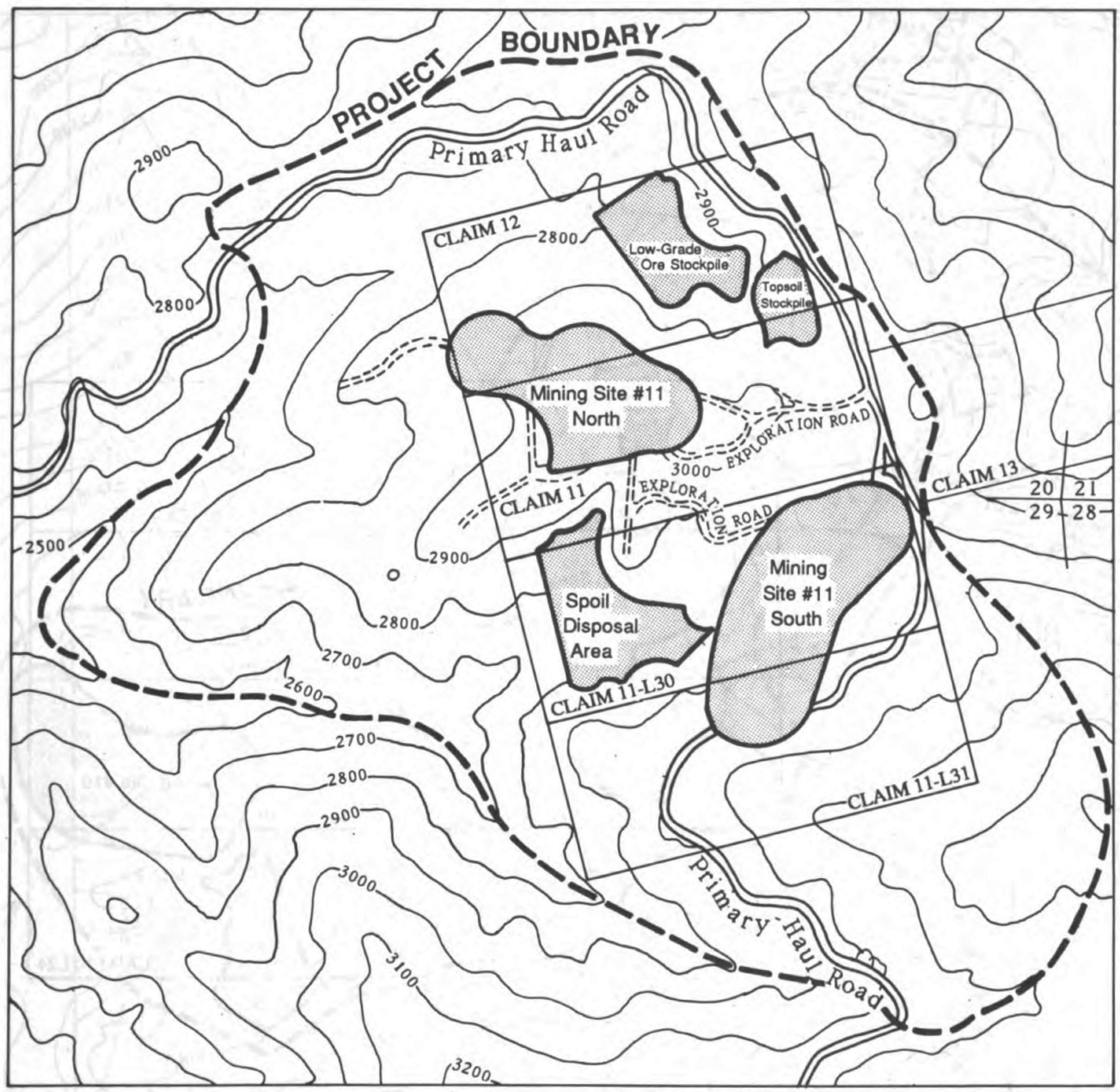

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Figure 2.1-5 General Location and Configuration of Proposed Mining Activities, Claim Group I

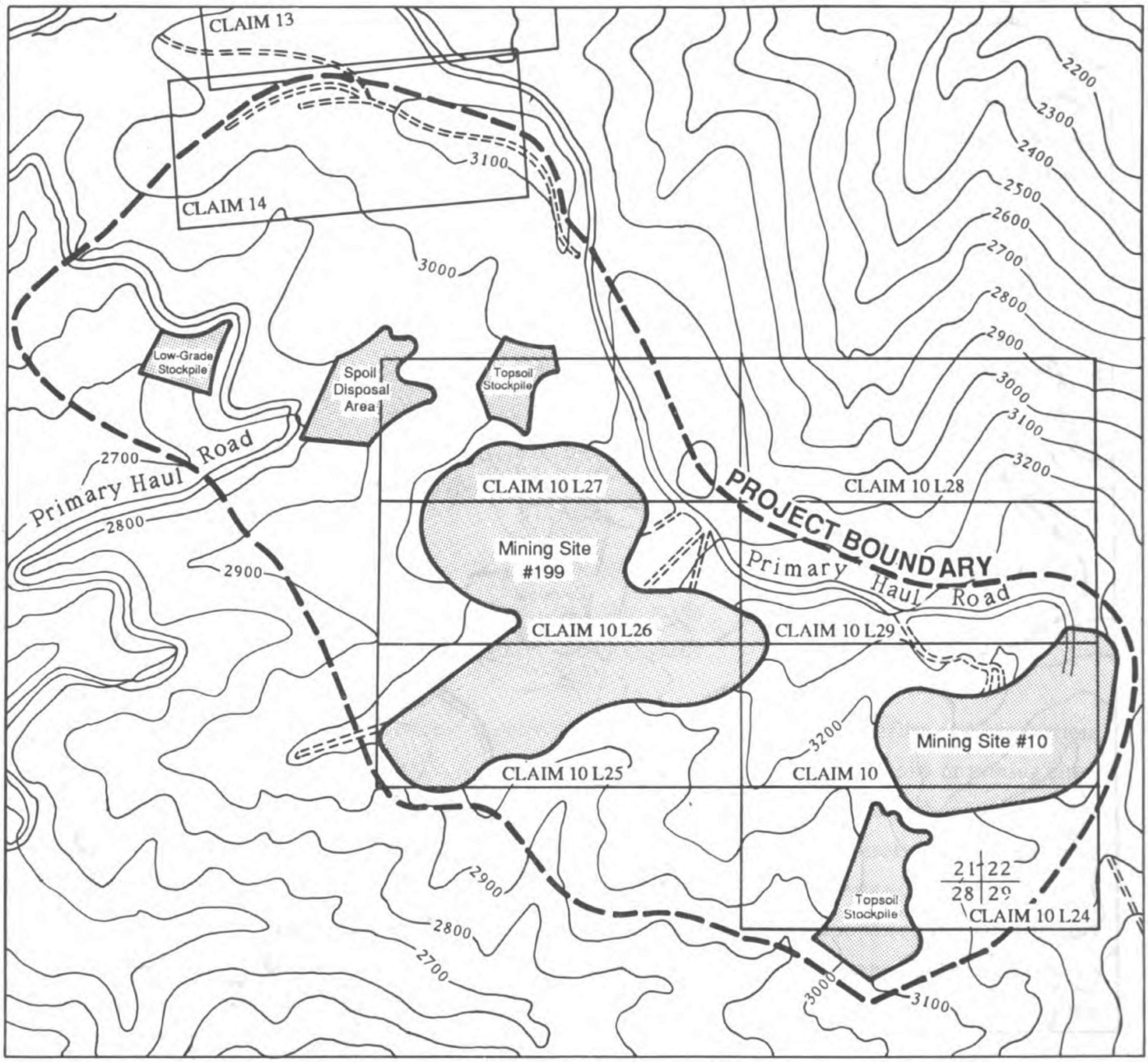


Figure 2.1-6 General Location and Configuration of Proposed Mining Activities, Claim Group II

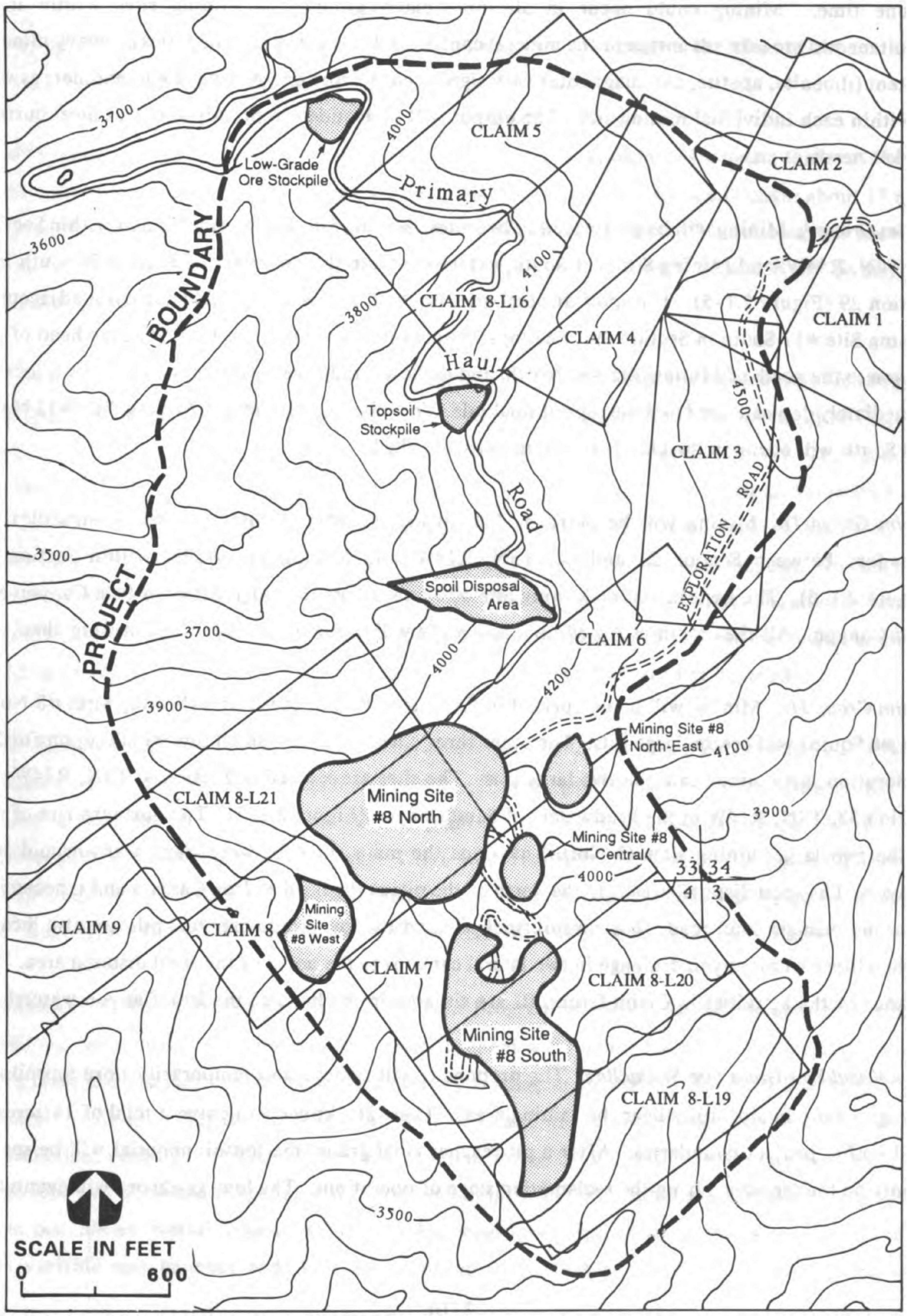


Figure 2.1-7 General Location and Configuration of Proposed Mining Activities, Claim Group III

at one time. Mining could occur in all three claim groups and mining sites within them simultaneously to take advantage of the mineral content at different sites. The ratios of heavy mineral content (ilmenite, apatite, and magnetite) vary significantly from one mining site to another, as well as within each individual mining site. The output will be blended in proportions that meet current market needs.

Claim Group I. Mining will be performed in two sites: Mining Site #11 North, located within Section 20, T4N, R14W; and Mining Site #11 South, extending from the boundary of Section 20 south into Section 29 (Figure 2.1-5). The spoil disposal area for both pits is located down canyon adjacent to Mining Site #11 South in Section 29. The topsoil stockpile for both pits is located at the head of the canyon to the north of Mining Site #11 North, and the low-grade ore stockpile for both pits is located immediately downstream from the topsoil stockpile. The mining activities for Mining Sites #11 North and South will occur in the Oak Spring Canyon Watershed.

Claim Group II. Mining will be performed in two sites: Mining Site #10, which straddles the boundary between Section 21 and 22, T3N, R14W; and Mining Site #199, within Section 21 (Figure 2.1-6). The eastern rim of Mining Site #10 cuts across the ridge between Pole Canyon and Bear Canyon. All the activities for Mining Site #199 will occur in the Pole Canyon watershed.

Claim Group III. Mining will be performed in five sites: Two of these sites (Mining Sites #8 North and #8 South) will create large pits. The other three sites will create small pits which, upon further exploration, may merge into the two large pits. The sites are located in Section 4, T3N, R14W and Section 33, T4N, R14W in the headwaters of Sand Canyon (Figure 2.1-7). The northern rim of one of the two large mining sites (8 North) overlaps the main ridge between Sand Canyon and Iron Canyon. The spoil disposal area is to the north of the pits at the head of Iron Canyon and is accessible from the primary haul road. The topsoil stockpile and the low-grade ore stockpile are also located in the Upper Iron Canyon drainage in two lateral canyons to the north of the spoil disposal area. The balance of the activities in Claim Group III are situated in the head of the Iron Canyon watershed.

Topsoil and Low-Grade Ore Stockpiling. The proponent will remove and temporarily store topsoil and low-grade ore in stockpiles near the mining areas. These stockpiles will cover a total of 11 acres of land within project boundaries. After a pit reaches final grade, the topsoil material will be spread evenly on the terraces during the reclamation stage of operations. The low-grade ore will eventually

be utilized at the plant, and the stockpile will be eliminated. Prospective locations of the stockpiles are shown in Figures 2.1-5 through 2.1-7.

Spoil Disposal. Spoil is not suitable material for construction aggregates. It is waste that must be left at the mining sites rather than transported to the plant. Spoil stockpile areas will cover about 17 acres of land within the project boundaries. Prospective locations of the spoil disposal areas are shown in Figures 2.1-5 through 2.1-7. Upon completion of mining, most of the spoil materials will be disposed of in the mined-out pits.

Ore Transportation and Road Maintenance. The proponent will transport ore from mine sites to the plant on a year-long schedule of 250 working days. A total of 1.5 million tons of feed would be mined to achieve a production of 400,000 tons of ilmenite and 954,000 tons of sand and gravel. The combined production of ore and alluvium would not exceed the 1989 peak excavation of about 1.6 million tons of alluvium. Therefore, no additional equipment (haul trucks, bulldozers, loaders, etc.) over that presently used would be required for the proposed action. Workers will continuously maintain all actively used road cross-sections and routinely grade the surface to provide smooth hauling conditions and maintain road profiles including earth cross-drains. Mining activities will be mostly confined to the daylight hours. Twenty-four hour operations at mining sites are not planned.

Water Requirements. The amount of water needed for plant activities and dust abatement on roads is estimated at 415,000 to 640,000 gallons per day (225,000 gallons per day for a single shift and 450,000 gallons per day for a double shift of plant activities and 190,000 gallons per day for dust abatement) for 250 working days per year. There are three wells currently operating on Gillibrand's private property that will supply project-related water. Bottled water will be purchased for domestic use. Dust suppressants other than water shall be utilized if water conservation is desired.

Reclamation. Reclamation is a prominent part of the program and will mitigate the impacts of mining activities. Before excavating the minerals, the proponent will remove the topsoil, low-grade ore, and spoils from the deposits. Once the mining activity is completed, topsoil and spoils will be returned to the pit. Any spoil disposal areas that are permanent and not returned to the pits will be stabilized by mulching, seeding, or planting. Once excavation in the open pits is brought to final grade, the proponent will slope and shape the walls of the openings with 25' benches and 50' cuts at an angle of 63° to provide an overall slope of 45° or 1:1. However, breaking the pit slopes with rock sculpting with variable size benches and slope angles of up to 3:1 will be implemented in selected areas

recommended by the Forest Service. Also, the possibility of taking one of the pit sides down to form a ramp at 3:1 slope will be considered in consultation with the Forest Service. The pit bottoms will be smoothed and stabilized before topsoil or spoil that has been retained in the stockpiles is spread. The proponent will follow ground restoration by mulching, seeding, and fertilizing the pit floors and benches. Sediment catch basins will be built as needed. Temporary connector roads to the mining sites will be obliterated by ripping, reshaping, draining, and blocking them to traffic.

All reclamation will conform with 36 CFR 228.8 (Requirements for Environmental Protection-Reclamation) as a minimum. The proponent will take measures to control onsite and offsite damage to the environment and forest surface resources. Reclamation work will be carried out on a year-long basis. However, stockpiles and waste disposal areas will need seasonal erosion control measures. Those sites where the interim stockpiles are permanently removed for low-grade ore production or backfilling the pits will be reshaped to their natural contours and revegetated immediately following removal of the material. At the completion of the mining operations, no disturbed sites will remain unreclaimed for more than one year beyond cessation of the production phase. The Forest Service will monitor the success of seeding and planting work until selected species are established.

Hazardous Materials. The proponent will not use toxic materials in connection with mining operations. The only hazardous materials on the project will be used in the operation of vehicles and heavy equipment. These materials generally consist of gasoline, diesel fuel, motor oil, hydraulic fluid, and solvents. Explosives will be used to blast the ore deposits loose. The blasting caps and dynamite will be stored in the powder magazine at the Soledad plant site. Only that quantity required for current shots will be transported to road building locations or mining pits.

2.2 ALTERNATIVES CONSIDERED IN DETAIL

The CEQ regulations (40 CFR 1502-14) implementing NEPA require rigorous exploration and objective evaluation of all reasonable alternatives to the proposed action. This includes a "no action" alternative as well as alternatives not within the jurisdiction of the agency to implement. The identification and discussion of alternatives eliminated from detailed study is also required. In response to these regulations, three alternatives to the proposed action including the no action alternative were developed as viable alternatives for detailed analysis. These are described below.

2.2.1 Alternative 2 - Conveyor Transport - Claim Group II to Plant Location

This alternative would be the same as the proposed action, except that a conveyor belt would be used to transport ore from Claim Group II to the plant. The Proponent would not build the proposed Road Section B. However, the Proponent would have to build a construction and maintenance road for the conveyor system in place of a truck haul route. The conveyor system right-of-way would start at the western part of Claim Group II and pass through the adjoining Upper Pole Canyon project area enroute to the plant (Figure 2.1-8). The conveyor system will be designed to handle the larger-sized pit-run material and avoid the need to install two in-pit crushers to feed the belt.

Substitution of a conveyor system for Claim Group II would eliminate construction of 2.8 miles of 48-foot-wide high-standard haul road resulting in a disturbance of about 40 acres. The length of the conveyor outside the already-approved Upper Pole Canyon project boundary would be about 5,600 feet. The attendant construction and maintenance road would be about 2.0 miles long. The total land disturbance from the conveyor and road rights-of-way would be approximately 20 acres, half the amount of disturbance attributed to Road Section B.

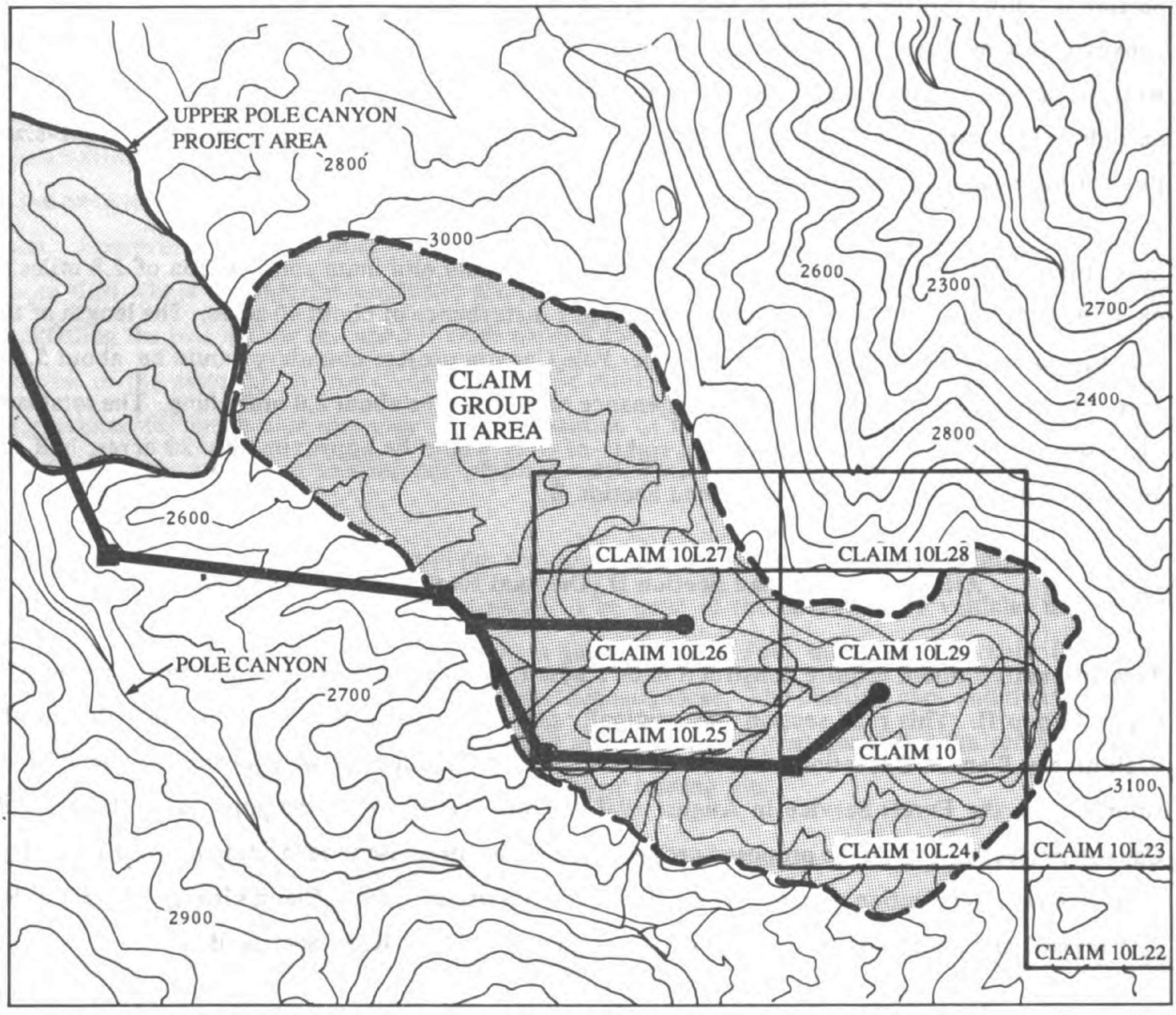
2.2.2 Alternative 3 - Road Section D (Original Road Section B) to Claim Group II

This alternative would require construction of a new Road Section D connecting Road Section A to Claim Group II. This road section was originally planned as Road Section B and described in the Preliminary Plan of Operations for the Development and Production of Soledad Canyon Project, submitted to the Forest Service in August 1989 (Figure 2.1-9). With the approval of Upper Pole Canyon project adjoining the proposed project, the Proponent revised the location of this road section to reduce the construction distance by 0.5 mile and haul distance from Claim Group II by 3.1 miles. The revised alignment now forms part of the proposed action as Road Section B.

Road Section D has a greater haul distance (6.5 miles) from Claim Group II to the plant compared to the Road Section B distance of 3.4 miles. Road Section D would also require a second major crossing of the Pole Canyon stream channel.

2.2.3 Alternative 4 - No Action Alternative

The no action alternative is defined as disapproving the *Plan of Operations* for the proposed project.



SCALE IN FEET
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Figure 2.1-8 Conveyor System Right-of-Way, Claim Group II to Plant Location

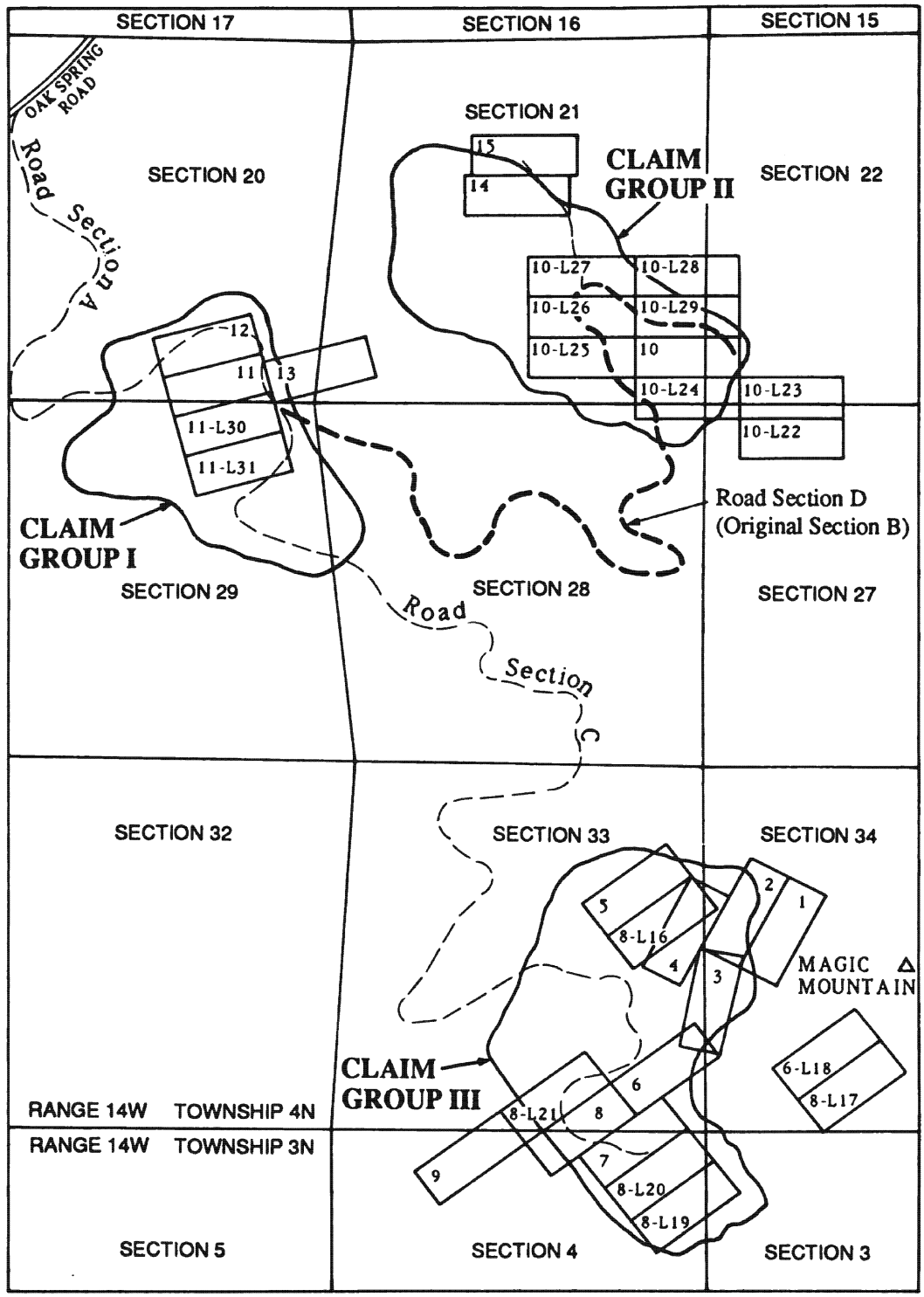

Figure 2.1-9 Road Section D to Claim Group II, as Originally Planned

However, the Forest Service does not have the authority to deny approval of an operations plan where the impacts to surface resources can be minimized, mitigated, and reclamation costs can be recovered by a performance bond secured prior to commencement of the activity. The affected environment sections of this document describe the conditions that would prevail if the no action alternative is implemented.

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

Several additional alternatives to the proposed action were considered but were eliminated from detailed study. These alternatives and the reasons for their elimination are given below.

2.3.1 Alternative 5 - Move Mill Site to the Mineral Source

This alternative was determined to be infeasible for the following reasons:

- The proponent has invested $8.0 million to date on the construction of the existing pilot plant to concentrate the minerals in the titanium ore. Moving the plant to the mineral source would be costly.

- The existing facilities are on private land and do not occupy space or cause environmental disturbance associated with siting them on National Forest land. Thus, a significant impact would be avoided by using the mill in place.

- The existing facilities are integrated with Gillibrand's aggregate material operations on the same private land site. Moving the mill site to the mineral source would cancel this advantage which makes mining the minerals economically feasible and eliminates tailings or waste.

- The proposed mining program does not progress sequentially from one pit to another. Instead, the program is predicated on mining at any one of three lode claim groups, based on market demand (sales orders) for a particular mineral product. Each of the three groups contains a higher percentage of the principal minerals (ilmenite, apatite, and magnetite) found in the ore reserves. This mobility is needed to avoid costly and unnecessary inventory build-up. Siting three separate mills would be wholly impractical.

- The plant requires large volumes of water for gravity separation of the minerals. Water is not available at the claim groups, and it is uncertain that wells could be developed near the source of minerals. Piping water from where it is already available at the existing plant to the mineral source could not be economically justified. Pumping costs would be exorbitant.

- Placing a mill at the mineral source would not forestall the need to transport as much as 90 to 95 percent of the total materials mined to a transfer point near the freeway and railroad since all by products (sand, gravel, rocks) are also sold as construction materials. Stockpile areas would have to be constructed at the mountain mill sites, disturbing even more forest land.

2.3.2 Alternative 6 - Reduce the Scope of the Project

A reduction in the scope of the project in terms of volume of production, area disturbed, and the duration of project was considered. This alternative was dropped from further consideration for the following reasons:

- Volume - A reduction in volume mined over the 10-year operations period would reduce pit and stockpile areas. However, this change would prevent the proponent from meeting production goals.

- Area - The primary road system will occupy 125 acres if built to the desired 48-foot double-lane standard to accommodate 65-ton ore trucks. Road Sections A and C could be kept at their existing 20 foot width, and Road Section B could be built to this reduced standard. This change would cause the proponent to shift to highway-size trucks to transport the ore to the mill. Such trucks are not designed to haul bulk ore, which might contain considerable oversize rock fragments.

  The proposed mining areas total 92.5 acres. The configuration of the mining sites and surface area is based on exploratory drilling results. Additional test drilling might better define the density of heavy minerals in the ore body. If richer concentrations were discovered, site dimensions could be reduced, because the desired volume could be mined from a smaller ore zone. More drilling would delay the start of the project,

and there is no guarantee that richer concentrations of heavy minerals would be found.

- Duration - A reduction in duration would lessen total land disturbance and reduce the volume of ore accordingly; however, the configuration of the sites selected for production would not change.

2.3.3 Alternative 7 - Conveyor Transport Only

This alternative was determined to be infeasible for the following reasons:

- The proponent would have to design a conveyor system right-of-way from each of the three claim groups to the mill. Construction and service roads would have to be built alongside the conveyors. The 8.1 miles of interim road already built to Claim Groups I and III would be of no value, negating the proponent's $528,000 investment in their construction. The strategy sanctioned by the Forest Service in the Operations Plan for Exploration was that these interim roads would be upgraded to production hauling standards.

- A conveyor system would not be able to handle oversize material resulting from a hardrock operation of this nature. That means the usable oversize rocks would have to be wasted at the claim area or a portable crusher would have to be placed at each of the claim groups. Electricity would have to be stubbed to the crushing sites, causing further disturbance and raising costs.

- The proponent's present operations are all geared to truck transportation of the ore. The proponent would have to forego the opportunity to use equipment on hand.

2.3.4 Alternative 8 - Helicopter Transport

Helicopter transport would not be feasible for the proposed type of mining, for the following reasons:

- Need for a large fleet of helicopters to transport planned production of ore.

- Excessive cost compared to truck transport or even conveyor systems.

- Need for exotic loading and unloading equipment.

- Need for a helicopter service facility.

- Inability to meet desired production capacity because of limited payload. Load capacity of helicopters is approximately one-tenth of a large truck.

- Increased noise and dust, especially using large Sikorsky Sky Crane type craft. Loading and unloading pads would have to be paved or constantly watered to abate dust.

- Increased potential of accidents from equipment failure, flight conditions, and large number of trips required.

- Safety concerns for flight crews and ground load personnel operating in nonstandard landing facilities in steep, mountainous terrain.

- Frequent shut-downs due to limiting weather conditions such as low cloud cover.

- Added logistics (Federal Aviation Administration regulations, etc.) compared to conventional transport systems.

- About 75 percent of the planned road system is in place and will be efficiently utilized.

2.3.5 Alternative 9 - Underground Mining

This alternative was found to be impractical because the inherent nature of the western San Gabriel Mountain geology deters underground mining for titanium ore. Tunneling is normally used when the ore follows a vein. This is not characteristic of the titanium deposits, which are disseminated by the faulting and fracturing of past earthquake activity in the region. The only feasible method of mining is to excavate from the surface.

2.4 COMPARISON OF IMPACTS

A summary of project activities that drive the environmental impacts is presented in Table 2.4-1. Anticipated environmental impacts of the proposed action and its alternatives are summarized in Table S-1. If no mitigation measures are implemented, significant impacts from the proposed action would occur on biological resources and visual resources. However, with the implementation of the mitigation measures identified in this document, all impacts would be reduced to a level of nonsignificance.

Environmental impacts of alternatives are not materially different from those of the proposed action as shown in Table S-1. With the no action alternative, project-related impacts would not occur.

Table 2.4-1

Comparison of Alternatives (Activities)

Activities	Unit	Alternative 1 (Prop. Action)	Alternative 2	Alternative 3	Alternative 4 (No Action)
Total Project Area	Acres	810	790	820	None
Total Activity Area	Acres	296	276	306	None
Primary Roads	Acres	150	130	160	None
Secondary Roads	Acres	25	25	25	None
Mining Sites	Acres	93	93	93	None
Topsoil Stockpiles	Acres	4.6	4.6	4.6	None
Low-Grade Ore	Acres	6.5	6.5	6.5	None
Spoil Disposal Areas	Acres	17	17	17	None
Total Primary Road Length	Miles	10.9	10.1	11.4	None
Road Section A	Miles	2.2	2.2	2.2	None
Road Section B	Miles	2.8	2.0*	3.3	None
Road Section C	Miles	5.9	5.9	5.9	None
Secondary Road Length	Miles	1.5	1.5	1.5	None
Volume of Ore Removed	Million Cubic Yards	12.7	12.7	12.7	None
Claim Group I	Million Cubic Yards	2.0	2.0	2.0	None
Claim Group II	Million Cubic Yards	6.6	6.6	6.6	None
Claim Group III	Million Cubic Yards	4.1	4.1	4.1	None
Maximum Ilmenite Production (per year)	Tons	400,000	400,000	400,000	None
Ore Haulings (per day for 250 days/year)	Tons	4,000	4,000	4,000	None
Haul Truck Trips (per day; 85-ton truck)	Trip	70	34	70	None
Water Consumption (per day)	Gallons	415,000	366,000	423,000	None
Dust Control on Roads	Gallons	190,000	141,000	198,000	None
Plant Activities	Gallons	225,000	225,000	225,000	None

Note: *Would require construction of 2 miles of 20-foot-wide maintenance road for conveyor system.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

Affected Environment and Environmental Consequences, which are separated into two chapters in most EISs, have been combined in this document for a clearer presentation of the subject matter. Because the environmental consequences analysis must be performed with consideration of the existing environmental conditions, it was deemed more helpful to the reader if the consequences or impacts of the proposed action and its alternatives on the existing environment were presented along with the description of the existing environment.

This combined chapter is divided into 12 sections, each representing a resource or issue category that was identified for analysis in Chapter 1.0. These resources are air quality, soils, water resources, biological resources, cultural and paleontological resources, transportation, visual/scenic resources, noise, recreational opportunities, land use, property values, and public health and safety. Each section starts with a description of the environmental conditions that currently exist in the affected area. This discussion provides the baseline against which changes are measured to understand the consequences of implementing the proposed project. This is followed by the analysis of environmental consequences, or impacts and effects, of the proposed action and each of its alternatives. It is hoped that this arrangement will help the reader to see the relationship of the alternatives to existing conditions.

For each resource, both direct and indirect impacts are discussed, followed by an evaluation of the significance of impacts on the environment. Significance is evaluated to the extent possible, against established criteria based on the Council on Environmental Quality (CEQ) guidelines and other relevant environmental laws and regulations. Each section includes a discussion of mitigation measures that would be applied to eliminate or reduce the adverse impacts to the extent practicable.

Also covered in this combined chapter are sections on adverse environmental impacts which cannot be avoided, irreversible or irretrievable commitment of resources, the relationship between short-term uses of the environment, and the maintenance and enhancement of long-term productivity.

3.1.1 Conformity With the Forest Plan

The environmental significance of the project is measured by its conformance to management direction for the impacted area, which comes from the Forest Plan. The entire 780-acre project is covered by Management Prescription #2, which emphasizes age - class diversity in chaparral vegetation. The objective of this prescription is to establish a 0-25 year age-class mosaic in at least 40 percent of the chamise chaparral, resulting in a randomly distributed pattern throughout the type and mixed as follows:

- 10 percent early seral stage of 0-5 years age-class
- 20 percent intermediate seral stage of 6-15 years age-class
- 10 percent late seral stage of 16-25 years age-class.

Riparian zone, threatened and endangered (T&E) species and cultural resource values are protected by complying with the forestwide Standards and Guidelines as part of this prescription (see Appendix B).

Project Conformity with Prescription #2 is discussed in Section 3.5, Biological Resources, which covers vegetation including riparian zones and T&E species and in Section 3.6, Cultural and Paleontological Resources. In addition, conformity with the visual quality objectives of the Forest Plan is discussed in Section 3.8, Visual/Scenic Resources.

The Magic Mountain area in the vicinity of the proposed project was identified as a Roadless Area Review and Evaluation (RARE II) area during the 1977 review when 13 roadless areas were inventoried for potential wilderness in the Angeles National Forest. The 1984 California Wilderness Bill released 10 of these areas including the Magic Mountain from further consideration. Past mining practices and the development of the current road system have eliminated wilderness potential of this area. Therefore, no further discussion of RARE II areas is provided in this document.

3.2 AIR QUALITY (ISSUE CATEGORY #1)

The pollutant emissions from sources and atmospheric interactions determine the quality of air. The pollution effects on receptors establish the extent to which air quality is degraded. Air quality in a given location is described by the concentration of various pollutants in the atmosphere, which are expressed in units of concentration, generally parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). The significance of pollutant concentrations is determined by comparing it with appropriate

federal and/or state ambient air quality standards. These standards represent the allowable pollutant concentrations at which public health and welfare are protected and include a reasonable margin of safety. An area is designated as being in attainment for a pollutant if ambient concentrations of that pollutant are below the National Ambient Air Quality Standards (NAAQS) and is nonattainment if violations of the NAAQS occur.

Federal and California Ambient Air Quality Standards have been established for the following pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter smaller than 10 micrometers in diameter (PM_{10}), lead (Pb), sulfate, hydrogen sulfide (H_2S), and vinyl chloride. The NAAQS are presented in Table 3.2-1.

The proposed project area is in the western portion of the main block of the Angeles National Forest, which is included in the Federal Metropolitan Los Angeles Air Quality Control Region (AQCR No. 24) and the California South Coast Air Basin. The South Coast Air Quality Management District is the local agency responsible for issuing and enforcing air quality rules and regulations in the South Coast Air Basin.

3.2.1 Affected Environment

The South Coast Air Basin is currently classified as nonattainment for O_3, NO_2, CO, and PM_{10}. It is classified attainment for SO_2.

There are currently no air quality monitoring stations on the site that can provide site-specific estimates of existing air pollution concentrations. The nearest air quality station is in Santa Clarita, approximately 8 miles west-southwest of the project site, at an elevation of 1,256 feet above mean sea level. Ozone data at this site were available for 1986 through 1989. However, the monitoring of CO, NO_2, SO_2, and PM_{10} did not begin until March 1989.

The daytime transport of pollutants through the project area originates in the San Fernando Valley and the Oxnard Plain and moves northeastward across the mountains into the Antelope Valley (Mojave Desert). Air quality monitoring stations at Burbank, in the San Fernando Valley; at Santa Clarita, in the Newhall Pass; and at Palmdale, in the Antelope Valley, measure pollutant concentrations in these transport corridors. Maximum pollutant concentrations that have occurred at these stations from 1986 through 1989 are shown in Table 3.2-2. Based on the data in Table 3.2-2, it is estimated that the transport of O_3 and its precursors into the project area would result in 1-hour average maximum O_3 concentrations that could range from about 0.20 ppm to 0.25 ppm. It is highly

Table 3.2-1

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]	National Standards[2]	
		Concentration[3]	Primary[3,4]	Secondary[3,5]
Ozone	1 Hour	0.09 ppm (180 $\mu g/m^3$)	0.12 ppm (235 $\mu g/m^3$)	Same as Primary Std.
Carbon Monoxide	8 Hour	9.0 ppm (10 mg/m^3)	9 ppm (235 $\mu g/m^3$)	-
	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	-
Nitrogen Dioxide	Annual Average	-	0.053 ppm (100 mg/m^3)	Same as Primary Std.
	1 Hour	0.25 ppm (470 $\mu g/m^3$)	-	
Sulfur Dioxide	Annual Average	-	80 $\mu g/m^3$ (0.03 ppm)	-
	24 Hour	0.05 ppm[6]	365 $\mu g/m^3$ (0.14 ppm)	-
	3 Hour	-	-	1,300 $\mu g/m^3$ (0.5 ppm)
	1 Hour	0.25 ppm (655 $\mu g/m^3$)	-	-
Suspended Particulate Matter (PM_{10})	Annual Geometric Mean	30 $\mu g/m^3$	-	-
	24 Hour	50 $\mu g/m^3$	150 $\mu g/m^3$	Same as Primary Std.
	Annual Arithmetic Mean	-	50 $\mu g/m^3$	
Sulfates	24 Hour	25 $\mu g/m^3$	-	-
Lead	30-Day Average	1.5 $\mu g/m^3$	-	-
	Calendar Quarter	-	1.5 $\mu g/m^3$	Same as Primary Std.
Hydrogen Sulfide	1 Hour	0.03 ppm (42 $\mu g/m^3$)	-	-
Vinyl Chloride (chloroethene)	24 Hour	0.010 ppm (26 $\mu g/m^3$)	-	-

Notes: [1]California standards for ozone, carbon monoxide, sulfur dioxide (1 hour), nitrogen dioxide, and particulate matter - PM_{10}, are values that are not to be exceeded. The sulfates, lead, hydrogen sulfide, and vinyl chloride standards are not to be equaled or exceeded.

[2]National standards, other than ozone and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.

[3]Concentration expressed first in units in which it was promulgated. Equivalent units given in parenthesis are based upon a reference temperature of 25°C and a reference pressure of 760 millimeters of mercury. All measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 millimeters of mercury (1,013.2 millibar); ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[4]National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by the Environmental Protection Agency (EPA).

[5]National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must attain the secondary standards within a "reasonable time" after the implementation plan is approved by the EPA.

[6]At locations where the state standards for ozone and/or suspended particulate matter are violated. National standards apply elsewhere.

Source: California Air Resources Board 1988.

Table 3.2-2

Maximum Pollutant Concentrations Monitored at Burbank, Lancaster, and Santa Clarita (Newhall), California

Pollutant	Averaging Time	Burbank Elev. 567 ft				Lancaster Elev. 2,346 ft				Santa Clarita Elev. 1,256 ft			
		1986	1987	1988	1989	1986	1987	1988	1989	1986	1987	1988	1989
Ozone (ppm)	1 hour	0.25	0.23	0.24	0.20	0.20	0.17	0.18	0.21	0.24	0.21	0.30	0.25
Carbon monoxide (ppm)	1 hour	19.0	15.0	15.0	20.0	9.0	12.0	11.0	13.0	NM	NM	NM	12.0
	8 hours	16.4	12.5	11.9	13.9	4.6	3.9	5.9	7.1	NM	NM	NM	5.4
Nitrogen dioxide (ppm)	1 hour	0.28	0.26	0.26	0.25	0.09	0.09	0.09	0.08	NM	NM	NM	0.13
	Annual	0.057	0.052	0.53	0.050	0.014	0.016	0.016	0.020	NM	NM	NM	0.039
Sulfur dioxide (ppm)	1 hour	0.02	0.02	0.02	0.03	NM[3]	NM	NM	NM	NM	NM	NM	0.02
	24 hours	0.016	0.013	0.014	0.012	NM	NM	NM	NM	NM	NM	NM	0.007
	Annual	0.003	0.002	0.002	0.002	NM	NM	NM	NM	NM	NM	NM	0.001
Particulates (PM_{10}) ($\mu g/m^3$)	24 hours	211	147	138	133	NM	NM	NM	110	NM	NM	NM	100
	Annual GM[1]	55.4	53.7	61.6	59.6	NM	NM	NM	43.0	NM	NM	NM	48.8
	Annual AM[2]	61.3	60.2	65.5	64.7	NM	NM	NM	47.0	NM	NM	NM	53.5
Total Suspended Particulates ($\mu g/m^3$)	24 hours	241	180	217	183	137	187	257	154	NM	NM	NM	NM
	Annual GM	90.0	91.2	101.9	92.1	61.5	64.2	69.9	72.6	NM	NM	NM	NM

Notes: [1]GM: Geometric Mean.
[2]AM: Arithmetic Mean.
[3]NM: Not Measured.

Source: California Air Resources Board Air Quality Data, Annual Summaries, 1986, 1987, 1988, and 1989.

probable that violations of the federal and California O_3 ambient air quality standards not necessarily attributed to the Proponent occur in the project area.

CO transport and the source-receptor relationship between CO emissions and ambient air concentrations are relatively simple. Vehicle emission sources, accounting for 95 percent of the CO in the South Coast Air Basin, are spread widely across the basin, with the maximum CO concentrations occurring in the area of heaviest traffic. Because vehicular traffic along State Route 14 is a major source of CO emissions in the project area, the CO concentrations measured at Lancaster (also near State Route 14) are considered representative of the site. Current CO maximum 1-hour average concentrations range from 9 ppm to 13 ppm while the 8-hour average maximum concentrations range from 4 ppm to 7 ppm. These concentration estimates would indicate that the California and the federal CO ambient air quality standards are probably not violated in the project area.

NO_2 is a secondary pollutant in the atmosphere formed by the oxidation of nitric oxide (NO). Both NO_2 and NO take part in the photochemical reactions that form ozone. Transport of NO_2 from source to receptor during the summer is limited, compared with O_3 transport which often involves transport from the coastal areas to the boundary limits of the basin. NO_2 daily maximums occur at or near high-density traffic sources in the Los Angeles area and the immediate coastal valleys. Based on the data in Table 3.2-2, NO_2 maximum 1-hour average concentrations in the project area should range from about 0.10 ppm to 0.15 ppm, while the annual average concentrations should range from 0.02 ppm to 0.04 ppm. The California and federal NO_2 ambient air quality standards should not be currently violated in the project area.

SO_2 emissions in recent years have not produced ambient concentrations that have exceeded the ambient standards. The principal SO_2 sources in the basin are power plants, refineries, chemical plants, coke kilns, and metal industries. The source locations are important because the maximum SO_2 concentrations are found along the downwind path from the sources. Along transport routes, the SO_2 becomes diluted with vertical and horizontal mixing. Some SO_2 is removed by conversion to sulfate. No major SO_2 sources are located in the project area. Therefore, SO_2 concentrations should be low in this region. Maximum 1-hour average SO_2 concentrations should range from 0.2 ppm to 0.3 ppm. The maximum 24-hour and annual concentrations should be less than 0.1 ppm. Therefore, it is highly probable that the federal and California SO_2 ambient air quality standards are not exceeded in the project area.

PM_{10} consists of particles in the atmosphere whose diameters are 10 micrometers (μm) or less. Particulate matter in the atmosphere is the result of natural and anthropogenic processes. In the project area, Santa Ana winds can lift considerable amounts of fugitive dust into the air. Fugitive dust can also be generated by current mining activities in the project area. The PM_{10} concentrations shown in Table 3.2-2 indicate that background 24-hour average PM_{10} concentrations in the project area could range from 100 $\mu g/m^3$ to 200 $\mu g/m^3$, while the annual averages (geometric and arithmetic) could range from 50 $\mu g/m^3$ to 60 $\mu g/m^3$. Both the federal and California PM_{10} air quality standards may be exceeded in the project area.

Existing Emissions. The estimated existing exhaust emissions from construction equipment and highway transport trucks used in the existing mining operations are presented in Table 3.2-3. It was assumed that the construction equipment was operated 10 hours per day and the highway transport trucks traveled an average distance of 30 miles. Emission factors from the Environmental Protection Agency (EPA) document, *Compilation of Air Pollutant Emission Factors* (AP 42, 1985), were used to calculate the emissions. Fugitive dust emissions, from ore mining operations and trucks moving on the haul roads, were also calculated. The results are presented in Table 3.2-4. It was assumed that water was used to reduce fugitive dust emissions by 50 percent.

The principal pollutant emitted in the exhaust emissions is NO_2. Approximately 624 pounds per day or 78 tons per year of NO_2 are emitted. Fugitive dust (PM_{10}) is generated at a rate of about 1,385 pounds per day or 173 tons per year.

3.2.2 Criteria for Significance of Impact Determination

Air quality impacts will be considered significant if:

- The project results in any increase in emissions of a pollutant and/or its precursors in an area that has been classified as nonattainment for that pollutant;

- The emissions from the project (direct and indirect sources) would cause a sufficient increase in predicted ambient concentrations of an individual pollutant when combined with background concentration levels to result in violations of the federal or state ambient air quality standard;

Table 3.2-3

Pollutant Exhaust Emissions From Construction Equipment and Highway Transport Trucks, Existing P.W. Gillibrand Mining Operations, Soledad Canyon, California

	Pollutants (lb/day)					Pollutants (tons/year)				
Construction Equipment	CO	HC*	NO_2	SO_2	Particulates	CO	HC	NO_2	SO_2	Particulates
5 Haul Trucks (off highway)	89.8	9.6	208.3	22.8	12.8	11.21	1.20	26.04	2.84	1.60
6 Loaders (track)	12.0	5.9	49.6	4.5	3.5	1.51	0.73	6.20	0.57	0.44
1 Loader (wheeled)	5.8	2.5	18.9	1.9	1.8	0.71	0.31	2.36	0.23	0.21
3 Dozers (track)	10.4	3.6	37.8	4.1	3.4	1.30	0.45	4.73	0.51	0.43
1 Slope Roller	3.0	0.6	8.6	0.6	0.5	0.38	0.09	1.08	0.09	0.06
1 Water Truck	18.0	1.9	41.6	4.5	2.5	2.24	0.24	5.21	0.56	0.31
1 Crane	6.8	1.5	16.9	1.4	1.4	0.85	0.19	2.11	0.18	0.18
1 Compressor	4.4	1.6	20.1	1.4	1.4	0.54	0.20	2.51	0.16	0.18
Subtotal:	150.2	27.2	401.8	41.2	27.3	18.74	3.41	50.24	5.14	3.41
Highway Transport Trucks (195 trucks/day)	107.9	37.8	221.8	41.3	42.6	13.49	4.72	27.73	5.16	5.32
TOTAL:	258.1	65.0	623.6	82.5	69.9	32.23	8.13	77.97	10.30	8.73

Note: *HC=Hydrocarbons.

Table 3.2-4

Fugitive Dust Emitted From Existing P.W. Gillibrand Mining Operations[1]
Soledad Canyon, California

	Total Suspended Particulates		PM_{10}[2]	
Operation	**Pounds/Day**	**Tons/Year**	**Pounds/Day**	**Tons/Year**
Ore Mining	1,440.0	180.0	388.8	48.6
Haul Roads	3,691.1	461.4	996.6	124.6
TOTAL:	5,131.1	641.4	1,385.4	173.2

Notes: [1]Assumes a 0.5 reduction factor for watering control.
[2]Assumed PM_{10}/TSP ratio = 0.27 (Environmental Protection Agency 1988).

- The emissions from the project (direct and indirect sources) would result in a sufficient increase in predicted ambient concentrations of an individual pollutant to cause the Prevention of Significant Deterioration increment to be exceeded in an area that is classified as attainment for that pollutant;

- The project would result in the emission of toxic or hazardous air pollutants; and

- The project does not conform to the requirements of any of the following documents:

  - South Coast Air Quality Management Plan (AQMP) (1991)
  - Rules and Regulations of the South Coast Air Quality Management District
  - State Implementation Plan (SIP).

3.2.3 Environmental Consequences

3.2.3.1 Alternative 1 - Proposed Action

A detailed analysis of the operational requirements for the proposed action indicates that no additional construction equipment (haul trucks, bulldozers, loaders, etc.) would be required to produce 400,000 tons of ilmenite per year. The analysis is based on P.W. Gillibrand Company's projection that the combined production of ore and alluvium would not exceed the 1989 peak excavation of 1,585,452 tons of alluvium which had the following composition:

Sand and Gravel	77%	1,220,800 tons
Ilmenite	8%	126,835 tons
Heavy Minerals	7%	110,980 tons
Waste	8%	126,835 tons
Total	100%	1,585,450 tons

It is also projected that over the 10-year project period the average production of sand and gravel would be 954,200 tons per year. The annual production of 400,000 tons of ilmenite would be achieved by blending the ore from the new claim groups with the alluvium from the present sources. An example of the blending composition is illustrated in Table 3.2-5. Presented in the table is the result of blending ore from Claim Group II with alluvium from Oak Spring Canyon.

As shown in the table, a total of 1,521,532 tons of feed would be used to achieve a production of 400,000 tons of ilmenite and 954,200 tons of sand and gravel. In this example, the gross feed of the blend would be 63,918 tons less than the 1989 alluvium processing. Many different blends of ore and alluvium could be made from the new and old sources to achieve the proposed annual production of 400,000 of ilmenite and remain at or below the 1989 production levels.

At the present time five 85-ton ore trucks are used to carry the material from the alluvial sites to the processing plant. Since the total amount of ore and alluvium processed is not projected to exceed the 1989 tonnage, the present truck capacity would be adequate to handle the material from the proposed action. Also the annual mileage traveled by the ore trucks for the proposed action would be approximately the same or less than the mileage traveled during the 1989 peak production year. Highway truck usage would be reduced by the proposed action as a result of the reduction of sand and gravel production from 1,220,800 tons per year to the projected annual average of 954,200 tons. Truck usage would decrease from 195 trucks per day to 153 trucks per day. This decrease would result in a 21 percent reduction in exhaust emissions. The pollutant reductions in terms of tons per year are shown in Table 3.2-6. The reduction in transport truck emissions would be offset, somewhat, by emission increases resulting from the annual shipment of minerals to a port by rail. Assuming an annual shipment of 506,469 tons (400,000 tons of ilmenite + 106,469 tons of heavy minerals) of minerals, it would require about 78 trains per year to transport them to a nearby port (Los Angeles or Port Hueneme). The pollutant emission increases resulting from rail transport are presented in Table 3.2-6. It was assumed that the transport distance was 60 miles. As shown in the table, a net decrease in pollutant emissions, produced from transportation sources, occurs with the proposed action.

Table 3.2-5

Result of Blending Ore From Claim Group II With Alluvium From Oak Spring Canyon

Material	Claim Group II Lode		Oak Spring Canyon Alluvial		Total (tons)
	Percent	Annual Production (tons)	Percent (tons)	Annual Production	
Sand & Gravel	46	365,735	81	588,465	954,200
Ilmenite	43	341,882	8	58,118	400,000
Heavy Minerals	7	55,655	7	50,814	106,469
Waste	4	31,803	4	29,060	60,863
	Total	795,075		726,457	1,521,532

Table 3.2-6

**Net Change in Pollutant Emissions (tons/year)
Resulting From Decrease in Highway Transport Trucks
and Increase in Shipment of Minerals by Rail**

Action	Pollutants				
	CO	HC	NO_2	SO_2	Particulates
Reduction in Highway Trucks	-2.91	-1.02	-5.97	-1.11	-1.15
Increase in Railroad Shipments	+2.20	+0.38	+4.51	+0.85	+0.37
Net Change	-0.71	-0.64	-1.46	-0.26	-0.78

The proposed project will conform to the AQMP/SIP as defined by the three conformity criteria specified in the Southern California Association of Governments "Guidelines for Implementing 1989 SIP Conformity Procedures Related to General Development," March 1990.

Criterion One has two options, of which one must be satisfied. The options in Criterion One require that the project proponent demonstrate a positive or neutral effect on the jobs/housing balance of either the subregion or the city. Since the project will result in no increase in employment, the project will not have a negative effect on the jobs/housing balance, and a mitigation plan is not required to offset negative impacts. Therefore, Criterion One is satisfied.

Criterion Two requires that the project demonstrate that it has reduced vehicle trips (VTs) and vehicle miles traveled (VMTs) to the greatest feasible extent. As shown previously, the proposed project will result in a decrease in highway truck usage from 195 to 153 trucks per day. This will result in a 21 percent reduction of VTs and VMTs. Therefore, the requirements of Criterion Two have been met.

Criterion Three requires that the project's environmental document provide analyses to demonstrate: (1) that the project's impact on air quality in the long run (five years) will not be a significant negative one; (2) that transportation, land use, and energy conservation control measures will be used to the fullest extent possible in order to mitigate the project's impact on air quality; and (3) that the impact of the project on air quality be analyzed on a subregional or city level, depending on the option chosen under Criterion One. As shown previously, long-term air quality impacts would not be significantly adverse so Criterion Three has been met.

Section 176 of the Clean Air Act Amendment of 1990 prohibits any federal agency from supporting in any way, or providing financial assistance for, licensing or permitting, or approving any activity which does not conform to a state or federal implementation plan. Conformity to an implementation plan means:

(a) conformity to an implementation plan's purpose of eliminating or reducing the severity and a number of violations of the national ambient air quality standards and achieving expeditious attainment of such standards; and

(b) that such activities will not

- cause or contribute to any new violation of any standard in any area;
- increase the frequency or severity of any existing violation of any standard in any area; or
- delay timely attainment of any standard or any required interim emission reductions or other milestones in any area. The determination of conformity shall be based on the most recent estimate of emission, and such estimates shall be determined from the most recent population, employment, travel, and congestion estimates as determined by the metropolitan planning organization or other agency authorized to make such estimates.

Because, as shown previously, the project would not result in an increase in emissions, the project would conform to the State Implementation Plan as defined under Section 176. Also, there would be no air quality impacts on the San Gabriel and Cucamonga Wilderness areas which are defined as Class I PSD areas in Section 81.405 of Title 40 Code of Federal Regulations. The San Gabriel and Cucamonga Wilderness areas are located 30 and 50 miles, respectively, from the proposed project area.

It should also be noted that the Gillibrand processing plant has air permits from the South Coast Air Quality Management District. A Permit to Operate (M 30749) for the processing facility allows the processing of up to 5,000 tons of material per day. A Permit to Construct, granted on October 22, 1990 will allow an expansion of the processing facility and permit the processing of up to 8,000 tons of material per day.

Therefore, with the projected production volumes described previously project pollutant emissions would not increase above the 1989 levels and could, in fact, be less than 1989 emissions. Thus, the proposed action would not cause any significant adverse air quality impacts.

3.2.3.2 Alternative 2 - Conveyor Transport - Claim Group II to Plant Location

This alternative would be the same as the proposed action, except that a conveyor belt would be used to transport ore from Claim Group II to the plant. This would reduce the number of off-highway haul trucks and their total number of miles traveled. The pollutant emissions for this alternative would be about 4 percent less for gaseous pollutants and 20 percent less for particulate emissions than the proposed action. As with the proposed action, the overall ambient air quality impacts for this alternative would not be significant.

3.2.3.3 Alternative 3 - Road Section D to Claim Group II

This alternative would utilize Road Section D for hauling ore from Claim Group II. If this alternative were used, it would increase the haul distance from Claim Group II by about 3 miles over that planned for the proposed action. This would result in a small increase in exhaust and fugitive dust emissions over those emitted by the proposed action. This increase (1 to 2 percent) would not be sufficient to cause a significant difference in the pollutant concentrations resulting from this alternative over the proposed action. The ambient air quality impacts from this alternative would not be significant.

3.2.3.4 Alternative 4 - No Action

With this alternative, the proposed project would not be implemented. The emissions from the current operations would remain the same. Ambient air quality standards may continue to be violated for selected criteria pollutants.

3.2.3.5 Mitigation Measures

Although mitigation measures are not required for the proposed action, good engineering practices in reducing pollution emission will be followed and include the following actions.

A-1 Chemically treat unpaved road surfaces into and out of project site.

A-2 Restore vegetative ground covering to inactive or depleted sites.

A-3 Grass seed all material stockpile.

A-4 Reduce potential fugitive dust generation from mining sites by spraying the pit floors and sideslopes with water during active excavation periods.

A-5 Comply with all applicable California Air Resources Board and SCAQMD rules and regulations, including installations of mufflers and smog control devices on project equipment.

A-6 Establish onsite monitoring stations to measure ambient PM_{10} concentrations.

A-7 Develop and implement a mitigation monitoring plan (to be monitored by the Forest Service) that will ensure that the projected production levels are not exceeded.

3.2.3.6 Significant Impacts Summary

The proposed action will not cause an increase in pollutant emissions over current operations and will, therefore, not produce any significant air quality impacts.

3.3 SOILS (ISSUE CATEGORY #2)

Project-related road construction and mining operations could affect the rates of soil erosion. This may, in turn, change flooding potential and sedimentation downstream from the project areas. Soils may also be contaminated by hazardous materials spills with possible secondary impacts on water quality. This section will evaluate soils in the project area to determine if project-related activities would accelerate soil erosion rates resulting from increases in ground disturbance. Potential soil contamination and effects on water quality are discussed in the public health and safety and water resources sections, respectively.

3.3.1 Affected Environment

The project area is within the Angeles National Forest on the slopes of Magic Mountain within the Soledad Canyon drainage, which is part of the Transverse Physiographic Range (U.S. Department of Agriculture 1987). The mountains located within the Transverse Physiographic Range are composed

of granitic rocks intermixed with formations of Precambrian igneous and metamorphic rocks. The surface topography is rugged and deeply incised with unstable V-shaped canyons. Many of the slopes of these canyons exceed the angle of repose.

The soils that occur on these mountains are relatively thin with little profile development. They tend to be less than 20 inches in depth and have an inherently low fertility and very weak structure. As a result, the potential for erosion within the Angeles National Forest is high. Tolerable soil loss to erosion for shallow soils over non-renewable parent material present in the project area is one ton per acre per year (U.S. Department of Agriculture 1978a).

Some of the typical soils found within the sites for the proposed action and alternatives at 2,000 to 5,000 feet in altitude are the Caperton, Trigo, and Lodo families (U.S. Department of Agriculture, 1978b). The Caperton family tends to be on mountainsides and ridges with a 50 to 85 percent slope and occupies 45 percent of the proposed project location. This soil is a 17-inch thick loam with a weak granular structure. The Trigo family also tends to be on mountainsides and ridges with a 50 to 85 percent slope and occupies 25 percent of the proposed project location. This soil has two horizons. The A horizon (surface layer) is 3 inches thick and is a loam with a weak granular structure. The C horizon (parent material) is a sandy loam with a weak granular structure. The third soil, the Lodo family, is on mountainsides with a 50 to 85 percent slope and occupies 15 percent of the proposed project location. This soil is a gravelly loam and is also only 17 inches thick and has a strong granular structure (U.S. Department of Agriculture 1990b). The water-holding capacity of all of these soils ranges from low to very low and permeability is moderate to moderately rapid. The rooting depth is as deep as the soils are developed and the typical vegetation series are chamise and ceanothus. Approximately 15 percent of the proposed project area consists of rock outcrops. These rock outcrops are not capable of supporting plants and generally have a slope of 50 to 85 percent (U.S. Department of Agriculture 1990b).

3.3.2 Criteria for Significance of Impact Determination

Impacts on soils will be considered significant if:

- Program-induced erosion results in a permanent loss of top soil.
- Soil erosion from all causes related to the project cannot be reduced to near pre-construction and operations levels within 1 year following the application of

rehabilitation techniques and compliance with federal stipulations for erosion control and revegetation.

- There is a significant loss in on-site soil productivity in the disturbed areas.

3.3.3 Environmental Consequences

3.3.3.1 Alternative 1 - Proposed Action

Road construction, upgrading, and maintenance, as well as the actual mining operations, have the potential to affect soil resources.

Primary and secondary road construction, upgrading, and maintenance will directly disturb 175 acres of land in the project area. Increased compaction from the passage of construction equipment will cause erosion in the form of gullies and channels adjacent to the road. The passage of vehicles will generate fugitive dust to be deposited into streams and water bodies in the project vicinity.

Impacts to soil resources at the mining sites will be primarily a result of the removal of the vegetative cover and subsequent scraping of the topsoil from 93 acres within the project boundaries. The topsoil will be stockpiled onsite for future revegetation efforts. The amount of soil that may be potentially lost is based on the mining area with an average soil depth of 17 inches to bedrock. Based on 1 acre-foot of topsoil weighing 2,000 tons, the amount of soil removed for mining activities is estimated to be about 2,840 tons per acre or a total of 264,120 tons in the project area. The topsoil will be placed as mounds with a surface area of 4.6 acres exposed to erosional forces. The tolerable soil loss rate is one ton per acre per year for undisturbed soils (U.S. Department of Agriculture 1978a). The stockpiled soil will be managed through revegetation to reduce soil loss. Therefore, it may be reasonable to assume that very little soil will be lost during the 10 years of mining operation. Even if the soil loss from the stockpiled area is 10 times greater than the maximum tolerable soil loss of one ton per acre per year from undisturbed areas, the soil loss from 4.6 acres of stockpiled area would be about 460 tons over the 10-year life of the project, compared to about 930 tons of tolerable soil loss from 93 acres of the project area, if left undisturbed. Impacts on soil resources are, therefore, not considered to be significant. The natural sedimentation rate in the steep canyons of the San Gabriel Mountains is much higher than the top soil erosion rates discussed here. See Section 3.4 for a discussion of sedimentation and debris flow.

Low-grade ore and spoil will also be stockpiled during mining operations. The low-grade ore will eventually be removed and processed at the facility and the spoil will be used to fill the mined-out quarries as part of reclamation activities. These materials will be managed in such a manner that will minimize the sediments leaving the mining site.

Once exposed, the mined bedrock could be a source of erosional materials. Within the quarry, erosion could cause an impact if materials could be moved from the mining area. With a pit-shaped quarry design, it may be anticipated that material may erode down into the bottom of the pit where it can be removed in the normal process of mining out further mineral resources. If the shape of the quarry allows materials to be moved away from the mining area, sediments could be carried downstream during the rainy season. It is recognized that the stream channels downstream from the project area can be adversely affected both by the increase or decrease in sedimentation transport. Just as additional sedimentation can change the channel flow, decreased sedimentation can result in scouring and channel deepening from storms. In either case, additional channel maintenance work will be required by the County of Los Angeles unless debris basins allow the debris flow to remain at normal levels.

In summary, road construction, upgrading, and maintenance, plus the actual mining operation, will result in increased soil erosion from exposed surfaces. Impacts to soil resources at the mining sites will result primarily from the removal of the vegetative cover and subsequent scraping of the topsoil. The topsoil, as well as low-grade ore and spoil, will be stockpiled during mining operations. These materials have the potential to erode during rainy seasons. Once exposed, the mined bedrock could be a source of erosional materials but the design of the pit will determine the amount of sediments that would flow downstream. A pit with no outlet can trap all sediments while another with an opening to the canyon can allow large amounts of sediment to be carried downstream, resulting in potentially significant impacts to stream channels and properties within the flood zones.

3.3.3.2 Alternative 2 - Conveyor Transport - Claim Group II to Plant Site

This alternative is the same as the proposed action except that a conveyor belt would be used to transport ore from Claim Group II to the plant. The impacts of road construction on soil erosion would be less as the proposed Road Section B would not be built. However, this alternative would necessitate the construction of a maintenance road for the conveyor belt plus the construction associated with the conveyor belt. Impacts to soil resources from this construction would be essentially the same as those for road construction, maintenance, and upgrading described for the proposed action.

3.3.3.3 Alternative 3 - Road Section D to Claim Group II

This alternative would require construction of Road Section D to reach claim Group II. Impacts as a result of construction of Road Section D, such as an increase in flooding potential and sedimentation downstream, would be slightly increased as the length of the road constructed will be greater than that in the proposed action.

3.3.3.4 Alternative 4 - No Action

The no action alternative would have no additional impact on soil resources within the proposed mining areas. Natural soil erosion and sediment transport would continue to occur at the current rates.

3.3.3.5 Mitigation Measures

The Soledad Canyon preliminary *Plan of Operations* presents an *Erosion Control Plan* and commits the Proponent to compliance with the R-5 Engineering Standards and Specifications and the Best Management Practices designed for watershed protection. These will be followed to assure that the potential effects of soil erosion associated with the proposed mining activities do not adversely affect the local environment. A short summary of these measures is given below.

S-1 Construct sedimentation traps such as the existing sand and gravel pits within normal channels to trap any additional materials over the natural erosion that occurs from soils and bedrock associated with the forest. In accordance with the policies of the Los Angeles County, allow sufficient overflow to maintain the stream channels in their present shape.

S-2 Use control measures, such as wattling, erosion nets, terraces, side drains, blankets, mats, riprapping, mulch, tackifiers, pavement, soil sealers, and gunite, where necessary. Size riprap and install in such a way that it effectively resists erosive water velocities.

S-3 Locate and design roads with minimal resource damage. Construct all roads to comply with the Angeles National Forest Minimum Standards for Road Construction.

S-4 Minimize sediments originating from outer shoulders of the road during road construction or upgrading by the application of the Best Management Practices currently in force.

S-5 Reduce airborne dust by employing road surface treatments listed in Best Management Practices, such as watering and chemical dust suppressants.

S-6 Reshape excavated pits generally with a final cut slope at a 1:1 ratio and smooth and stabilize general pit area. Make terrace benches wide enough to allow small machinery or tractors to scarify the ground to prepare a seed bed for revegetation species. Use the spoil to fill in the mined-out quarries. Break the pit slopes with rock sculpting with variable size benches and slope angles of up to 3:1 in selected areas recommended by the Forest Service.

S-7 Spread the stockpiled topsoil over contoured terraces in patches thick enough to provide for a good root system during reclamation and revegetation processes.

S-8 Revegetate disturbed areas to prevent accelerated sheet erosion or gullying in accordance with the *Angeles National Forest Erosion Control and Revegetation Plan* reproduced in the Final Mining and Reclamation Plan (Appendix C).

S-9 Fertilize the soil by applying a 16-20-0 commercial mix at the rate of 500 pounds per acre. A light topping of straw mulch (2.0 tons per acre) can be hand spread to furnish organic matter and retain soil moisture. Consider fertilization with a granular, slow-release, complete fertilizer and incorporate appropriate biological growth enhancers, such as mycorrhizal fungi, to promote native vegetation establishment. Seed and mulch freshly disturbed sites annually by November 15. Avoid seeding and planting between April 1 and August 31 to reduce need for supplemental watering.

3.3.3.6 Effectiveness of Mitigation Measures

With the stockpiling and stabilization of topsoil removed from the mining areas, there will be no permanent loss of topsoil. Suggested rehabilitation and reclamation measures have proven effective in restoring vegetative cover in other mining areas, sufficient to prevent unacceptable soil resource impacts. Stockpiling and respreading the topsoil and fertilization proposed in the reclamation phase should be sufficient to mitigate the potential reduction in soil productivity.

3.3.3.7 Significant Impact Summary

Soil erosion impacts would not be significant. Mitigation measures suggested in the proponent's *Erosion Control Plan* and compliance with the Best Management Practices of the Forest Service, will further minimize impacts on soil resources.

3.4 WATER RESOURCES (ISSUE CATEGORY #3)

The proposed mining operations have the potential to adversely affect the surface and groundwater resources in the project vicinity. Increased sedimentation and flooding are potential problems associated with surface mining as a result of vegetation removal and land disturbance. Nearly all major flood events in the Angeles National Forest have followed catastrophic fires which completely denuded vegetation in the affected watershed. Most mountain stream channels of the area are normally dry, and streamflow occurs after winter rains begin and is sustained for only as long as rains continue to furnish an adequate water supply. The stream channels receive the products of erosion from steep mountain slopes. When rain comes and flow begins, these channels are scoured as sediment is mobilized and carried downstream. Mining in the upper portions of streams in the project area may change the duration and intensity of peak flood flows in the various canyons, particularly Oak Spring and Iron canyons, but additional floodwater burden from them will affect the Santa Clara River only downstream from the mouths of the individual canyons. Road construction as well as mining operations may cause minor changes in the drainage patterns as well as an increase or decrease in debris flow during the rainy season. Water used by the project for road construction and maintenance, dust suppression, and plant operations could affect groundwater resources once pumping of water increases to full usage. Surface and groundwater quality may be adversely affected from spills of contaminants used for project purposes. All these issues are explored and evaluated in the following sections.

3.4.1 Affected Environment

3.4.1.1 Geography

The site of the proposed mining project is in the San Gabriel Mountains within the drainage basin of the Santa Clara River, which flows generally westward just north of the project area. In the vicinity of the site, the Santa Clara River occupies Soledad Canyon, which may have formed partly as the topographic expression of the Soledad and Pole Canyon faults, which nearly intersect just east of the mouth of Pole Canyon. The Santa Clara divide trends east-west through Magic Mountain, in

the southeastern part of the Gillibrand claims area. Drainages from this divide are to the south into Pacoima Canyon and north and northwest into Soledad Canyon. The project involves only the Soledad Canyon drainages. These include, from east to west, Bear Canyon, Pole Canyon, Lost Canyon, Oak Spring Canyon, Rabbit Canyon, Iron Canyon, Sand Canyon, and another, smaller Bear Canyon.

3.4.1.2 Precipitation

Ninety percent of the annual precipitation occurs from November to April, with the remainder falling during infrequent summer thunderstorms. Snow may fall at the higher elevations but in generally minor amounts. The average annual precipitation over the area ranges from about 14 inches per year at the Santa Clara River to about 20 inches at the highest elevations. The amount of rainfall received in any given year may vary greatly from average, with less than 4 inches received in some years and over 40 received in others. In addition, there have been storm events in which 6 to 8 inches of rain have fallen within a 24-hour period.

3.4.1.3 Streamflow

Flow in the Santa Clara River is largely intermittent. The channel and valley floor are composed of sand, silt, and gravel and constitute an alluvial aquifer. A gauging station on the river is maintained by the U.S. Geological Survey about 25 miles downstream from the project area. Another gauging station is maintained by the Los Angeles County Flood Control District near the project entrance at Lang.

All of the tributaries to the Santa Clara River in the area are intermittent or ephemeral, flowing only after medium to heavy rains, although some permanent pools of water are found along many stream segments, mainly in the lower and middle portions of their courses. Although each canyon supports some riparian vegetation, moisture in Oak Spring and Pole canyons is sufficient to support riparian vegetation along much of their lengths.

Elevations at the headwaters of the various streams average about 3,800 feet and at the lower ends where the streams reach the Santa Clara River, about 1,600 feet. The canyons are mostly about 4 to 5 miles long. Therefore, stream gradients are steep, averaging around 500 feet per mile. When water is flowing in the streams, the velocity is rapid and erosional capacity is fairly high. Sediment carried down the canyons from the higher elevations of the San Gabriel Mountains is moved almost entirely during periods of high stream flow.

Runoff has been estimated at about 1.5 inches per year (Hardt 1986), or about 81 acre-feet per square mile. Discharges have been measured only on the stream in Oak Spring Canyon among the streams of the area. The nearest gauging station on the Santa Clara River is upstream of some of the canyons and its hydrograph does not separate out flow from other tributary canyons from the flow from upstream. Flow at the Lang gauging station has ranged from zero to a few thousand cubic feet per second at flood times.

3.4.1.4 Groundwater

Groundwater in the claim areas is considered to be limited both in quantity and availability to the alluvial reservoirs along the Santa Clara River and the lowermost reaches of the streams coming out of the canyons. The granitic and anorthositic rocks of the claim areas located on the hillsides do not have a sufficiently thick veneer of suitably porous and permeable soil or loose, weathered material for containing significant amounts of groundwater. Groundwater in these rocks is limited to fractures, and the occurrence of groundwater under such conditions tends to be erratic in depth and quantity and unreliable as a source of supply. There is no evidence of fracture-fed large springs in the area. Some intermittent seepage may occur. The intermittent streams of the area receive their flow from direct runoff during the rainy season. For the rest of the year, the streams and canyons are generally dry.

The Los Angeles County Department of Public Works keeps groundwater records from two wells in the vicinity of the project area (Figure 3.4-1). Well No. 7226, owned by the Southern Pacific Railroad Company, is located at the Lang Station site, 80 feet south of the main track. Drilled in 1948, the well was used until 1980 when it was capped; no records have been kept since 1980. The water level in 1980 was at a depth of 29.9 feet, although it ranged from 19 to 80 feet during the 1973 to 1977 period. No water quality data are available from the logs. The second well (well No. 7197 G) is a municipal well owned by the Newhall County Water District. It is in the center of the Santa Clara River bed, 0.65 mile east of the intersection of Oak Spring Canyon Road and Lost Canyon Road, and is used for public water supply. The depth to water has varied between 18 and 53 feet during the 1986 to 1988 periods, for which records are readily available. A number of other wells are in the Sand Canyon area farther to the west of the project area.

3.4.1.5 Water Quality

Groundwater withdrawn from municipal wells is of fairly good quality. No problems with contamination from hazardous materials have been identified in the past. The quality of the

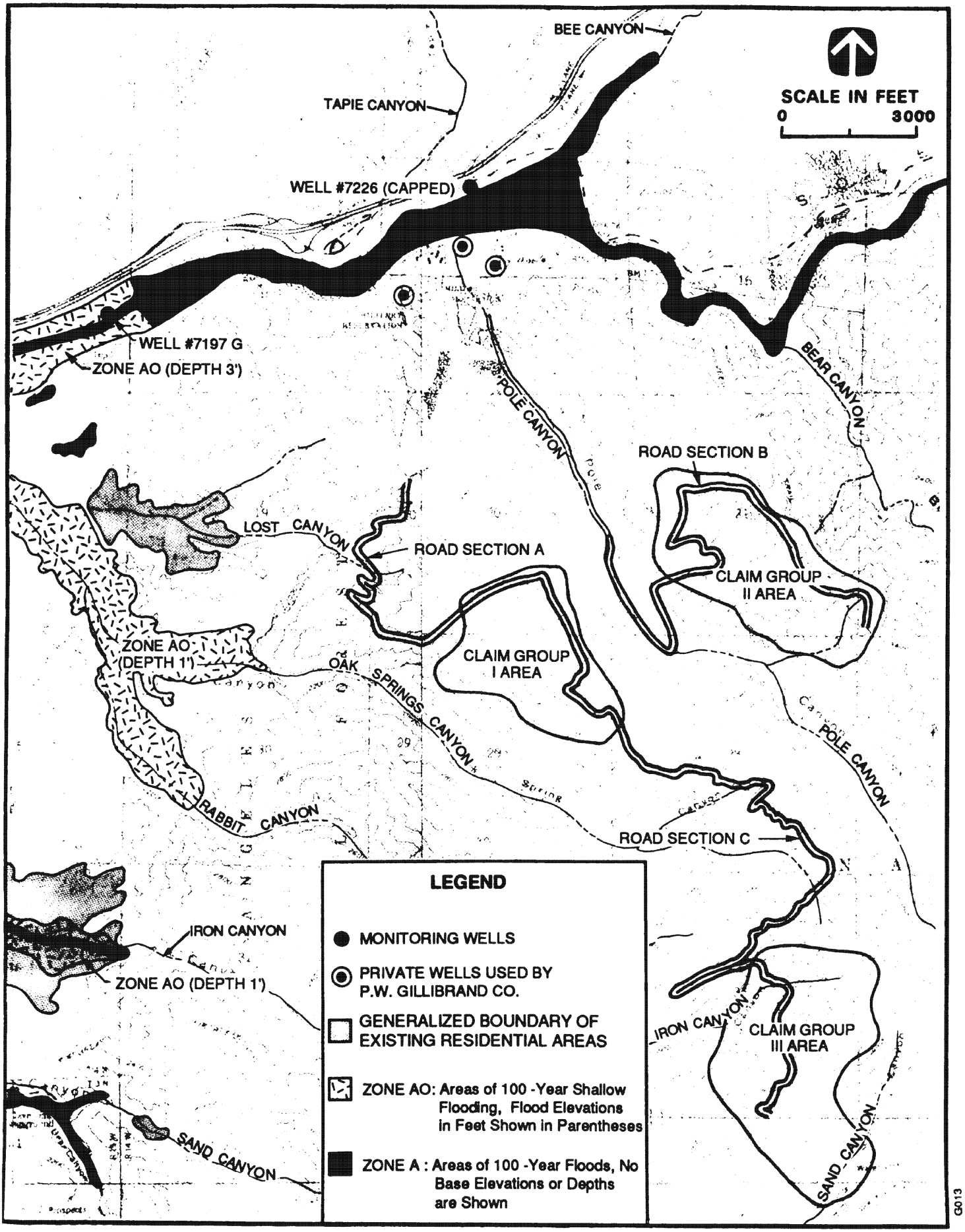

Figure 3.4-1 100-Year Flood Zones in the Vicinity of the Project Area, Angeles National Forest, California

surface waters, which normally flow only during the rainy season, is generally poor because of high levels of total dissolved solids (from debris flow with high mineral content). These waters are not a reliable source of water supply because of the intermittent nature of the flow. Groundwater withdrawn from private wells on the Gillibrand property in the Santa Clara River alluvium is not used for drinking purposes. Hence, no testing for drinking water quality is performed. Water discharged from the plant into the ponds irregularly tested for pH, total dissolved solids (TDS), chloride, and sulfates, according to EPA methods, and results are submitted to the Los Angeles County Department of Public Works. No levels beyond the maximum allowable limits have been reported over the past 5 years. Results of the well tests conducted by the Newhall County Water District also show no unacceptable levels of contaminants.

3.4.1.6 Project Water Supply

The P.W. Gillibrand Company has developed three wells, including one recently completed, near the plant in the west half of Section 17, T4N, R14W. These wells are on company property and serve as the water supply for the operation, including plant activities and dust abatement. Bottled water is purchased for domestic use. Two of the wells yield 300 gallons per minute; the third one, 1,200 gallons per minute. Water yield from the existing wells is sufficient to supply the various needs of the operation. No wells are projected to be drilled on National Forest land.

3.4.1.7 Floods and Sedimentation

Very little water is present in the project area except during peak storms. Runoff quickly drains downward to groundwater or flows downstream to enter the alluvial areas as baseflow. Storm input causes the groundwater level to rise, and if the excess input continues, surface flow lasts until the storm abates. Storms in the area that have been strong enough to produce large and sustained amounts of surface flow are comparatively rare, being noted in 1961, 1969, 1978, 1982, and 1983. Figure 3.4-1 shows the 100-year flood zones in the project vicinity. In addition to the Santa Clara River, flood-prone areas where inundation depths of about 1 foot are identified include the lower parts of Oak Spring, Iron, and Sand canyons.

According to the Los Angeles County Public Works Department, Oak Spring Canyon is an area of major concern, as a 100-year flood in this canyon has the potential for inundating large areas downstream from the proposed project (Los Angeles County 1990). The outlet of Oak Spring Canyon has graded pits where the P.W. Gillibrand Company mining operations are currently conducted.

Water and sediment are contained by these pits, so that little sediment is transported downstream beyond the pits.

Two hydrological studies were conducted by W.F. Hardt and Associates of the Oak Springs Canyon area for the P.W. Gillibrand Company in 1986 (Hardt 1986a and 1986b). According to these studies, the total drainage area of Oak Springs Canyon, including upstream tributaries of Rabbit Canyon and an unnamed canyon north of the main stem, is approximately 5.8 square miles. The elevation ranges from 1,570 to 4,300 feet. The yearly precipitation ranges from 14 inches at the Santa Clara River to about 20 inches at the upper reaches of Rabbit and Oak Spring canyons. Historical records indicate that as much as 47 inches of rain fell in the 1977 and 1978 and 32.5 inches in the 1982 and 1983 rainy seasons. These abnormal high amounts caused floods and large debris flows in the lower reaches of the canyon. The annual runoff for the total drainage area of Oak Spring Canyon is estimated by Hardt to be 470 acre-feet/year (acre-ft/yr); for the unnamed canyon, 100 acre-ft/yr; for Oak Spring Canyon (stem) 225 acre-ft/yr; and for Rabbit Canyon, 145 acre-ft/yr.

The Los Angeles County Department of Public Works does not collect sediment data for the Oak Spring Canyon area. It has, however, developed a series of curves to determine potential debris production rates in the Santa Clara Watershed. Based on these curves, the debris potential (in cubic yards per square mile) for Oak Spring Canyon was estimated at 26,000, for the unnamed canyon at 34,400, for Oak Spring Canyon (stem) at 29,000, and for Rabbit Canyon at 31,500. The average annual sediment rates (in cubic yards per square mile per year) have been estimated at 2,100 for Oak Spring Canyon (total drainage), 3,600 for the unnamed canyon, 2,500 for Oak Spring Canyon (stem), and 3,000 for Rabbit Canyon. The 1969 flood yielded 8,100 cubic yards (cu yd) of debris, the 1978 flood, 14,950 cu yd; the 1980 flood, 7,700 cu yd; and the 1982 flood, 5,130 cu yd. The calculated values presented here are subject to a high degree of variability but present a general picture of potential debris flow in normal years and in extremely wet years.

3.4.2 Criteria for Significance of Impact Determination

Impacts on water resources will be considered significant if the following conditions occur:

- Changes in the drainage and/or flood characteristics of a stream which would result in substantial increases in downstream damage.

- Stream water quality degradation resulting from the project implementation would impair state-designated uses, reducing the value of the stream for aquatic habitat maintenance or other downstream uses.

- Dewatering of perennial streams is of a magnitude that aesthetic and recreational values of the affected streams would be severely reduced.

- Decline in groundwater levels are of a magnitude that it results in a substantial reduction in the capacity of major production wells, forcing their deepening or abandonment at substantial cost to existing users.

- Program threatens degradation of groundwater quality to the point that federal and state drinking water criteria are not met.

3.4.3 Environmental Consequences

3.4.3.1 Alternative 1 - Proposed Action

Disturbed surfaces from road construction will drain water more rapidly than natural and vegetated slopes. Increased debris flow would occur temporarily if road construction occurred during the rainy season or if slope stabilization and revegetation are not conducted before the rains start. In any case, these impacts will be of short duration. Disturbed surfaces in the mining areas would also allow water to drain more rapidly in the early stages of mining until the mining pits are deep enough to hold the debris and sediments. In other words, debris flow will depend on the location and shape of the mining areas. Increased debris flow to the canyon bottoms would occur if mining areas are shallow or open-ended to allow sediments to flow downstream. Alternately, debris flow may actually decrease if the pits are deep and close on all sides so that the natural mountainside debris is able to collect in the pits. All tributaries to the Santa Clara River in the project area have active channels and natural debris flow occurs annually with the rains. However, Oak Spring Canyon has the highest potential for shallow flooding and increased debris flow from mining activities in Claim Group I. This claim group is also the closest (only 1 mile) to the nearest residential areas in Oak Spring/Lost Canyon area. Both the mining activities in Claim Group I and the Road Section A leading to it could increase the flooding and sedimentation potential with possible damage to residential properties.

Debris from mining activities in Claim Group II and from construction of Road Section B would flow down Pole Canyon to the existing sand and gravel operations area of the proponent. No residential properties occur along this canyon and no impacts due to flooding or erosion are expected.

Portions of Claim Group III drain into Iron Canyon and project activities could cause increased debris flow down this canyon. However, the activity areas are more than 3 miles from the residential properties outside the Angeles National Forest boundary to the west, and debris must flow a long distance to cause any property damage in the event of severe storm conditions.

A total of 93 acres of the 1,900-acre Oak Spring Canyon, 44 acres of the 1,800-acre Iron Canyon, and 24 acres of the 6,000-acre Sand Canyon watershed will be disturbed by the proposed action. Most of this disturbance (64 acres or 67 percent of the total disturbed area in Oak Spring Canyon, 25 acres or 57 percent in Iron Canyon, and 5 acres or 21 percent in Sand Canyon) would occur during a short (less than one year) period of road construction generally in the upper reaches of the canyons. The roads will be drained and the fills stabilized as road construction is completed. Probably only one-third of the total affected acreage in the mining areas (67 acres in three above-mentioned canyons) would be subject to current activities during any winter rainfall period. The effects of the disturbance from mining operations on water surface elevations and velocity in the canyons would be negligible compared to the total acreage in the steep watersheds that are great silt producers under natural conditions.

It should also be noted that the disturbance from mining activities (a total of 67 acres in three canyons) would occur over a 10-year period and reclamation will be carried out in stages as mining progresses from one area to another even within a single claim group or watershed. Of the total mining areas, in any one year, some acres will be in natural condition prior to mining, some will be disturbed and some will be reclaimed.

In summary, the disturbance caused by proposed mining operations would not measurable deplete the sediment supply to the canyons. Stream water quality will not be degraded to a level that will reduce the value of the streams for other uses. Therefore, water resource impacts are not considered significant. There are no perennial streams in the project area and no impacts on aesthetic and recreational values of the intermittent streams are expected.

The proposed operations would not result in contamination of water from leaching. The soils and low-grade stockpiles would not contain any substances that are not already present in the rock and

the sediments derived from the rock. An analysis of ore samples showed concentrations of all constituents including radioactive elements to be in the normal range (Table 3.4-1).

The amount of water needed for plant activities and dust abatement on roads is estimated at 415,000 to 640,000 gallons per day (225,000 gpd for a single shift and 450,000 gpd for a double shift of plant activities and 190,000 gallons for dust abatement). Double-shifting has been practiced by the proponent on a regular basis when sand and gravel sales are up, usually in the summer months. This historic level of water consumption (415,000 to 640,000 gpd) will not increase as a result of the proposed project. There will be no additional drawdown of the water table in the mining area as no new wells are being planned at the mine sites. The existing wells used by the P.W. Gillibrand Company are located in the upstream portion of the Santa Clara River alluvium which is not fed by the water courses in the project area. Existing private wells on the proponent's property have sufficient capacity to supply project-related water. Decline in groundwater levels is not expected to be of a magnitude that will force the abandonment or deepening of wells by other users downstream in the Santa Clara basin except during a long drought period. Water levels in the proponent's private and leased wells have shown no measurable decline over the past 10 years.

There are several aboveground and underground tanks on the proponent's property and National Forest land under permit. These hold fuel, oil, and other hazardous materials. Leaks from these tanks and spills from equipment can contaminate groundwater if prompt action is not taken to contain and clean up the spills. No new tanks are required to meet the needs of the proposed project.

3.4.3.2 Alternative 2 - Conveyor Transport - Claim Group II to Plant Site

Water resources impacts of Alternative 1 would be similar to those described for the proposed action except for the impacts resulting from the use of conveyor transport for a portion of the project. Alternative 1 will reduce the haul road length by 2.8 miles. Potential for debris flow during road construction, water use for dust abatement on haul roads, and contamination from accidental spills from haul trucks will be reduced correspondingly.

3.4.3.3 Alternative 3 - Road Section D to Claim Group II

With this alternative, the length of haul road will increase by 0.5 miles. However, the water resource impacts will not be materially different from the impacts of the proposed action. These impacts would not be significant.

Table 3.4-1

X-Ray Fluorescence Results of Mineral Samples
From Gillibrand Mining Claims
(-30M Ground Ore Whole)
8-9-86

	Claim Group I	Claim Group II	Claim Group III
Constituent	**Claim #11**	**Iron Blossom**	**Claim 8 Ore**
NA_2O. %	0.34	0.70	0.33
MgO, %	11.0	6.02	6.49
Al_2O_3, %	2.48	8.21	40.2
SiO_2, %	43.6	14.2	19.2
P_2O_5, %	0.198	0.201	3.30
S, %	0.025	0.032	0.022
Cl, %	0.019	0.022	0.031
K_2O, %	0.12	0.33	0.12
CaO, %	5.82	0.73	7.41
TiO_2, %	2.25	16.5	16.6
MnO, %	0.674	0.237	0.430
Fe as Fe_2O_3, %	30.2	53.7	42.5
BaO, %	0.06	0.19	0.17
V, ppm	97	2,151	303
Cr, ppm	17	340	93
Co, ppm	58	143	94
Ni, ppm	< 10	46	< 10
W, ppm	< 10	< 10	< 10
Cu, ppm	33	20	< 5
Zn, ppm	356	350	429
As, ppm	< 20	< 20	< 20
Se, ppm	21	< 15	< 15
Pb, ppm	< 10	< 10	< 10
Mo, ppm	5	< 5	< 5
Sr, ppm	56	73	130
U, ppm	39	< 10	< 10
Th, ppm	22	< 10	< 10
Nb, ppm	27	< 10	40
Zr, ppm	41	< 10	151
Rb, ppm	21	< 10	37
Y, ppm	32	< 10	32

Source: Colorado School of Mines Research Institute.

3.4.3.4 Alternative 4 - No Action

The no action alternative is defined as not approving the proponent's *Plan of Operations* for the proposed project. Therefore, the activity levels will not increase beyond the existing operations. Additional impacts resulting from the proposed action or its alternatives would not occur.

3.4.3.5 Mitigation Measures

W-1 Apply appropriate mitigation measures for water quality protection from mining activities. These include Best Management Practices (Appendix B), erosion control and prevention techniques, streamside management requirements, and watershed restoration.

W-2 Protect water quality by complying with the Regional Water Quality Control Board standards, as well as federal, state, and county laws and regulations.

W-3 Notify the California Department of Fish and Game of any diversion, obstruction of the natural flow, or changes in the bed, channel, or bank of any river, stream, or lake as called for in the Fish and Game Code. This notification (with fee) and the subsequent agreement must be completed prior to initiating any such changes. Notification shall be made after the project is approved by the Lead Agency. Similar notification shall be made to the U.S. Army Corps of Engineers, if needed.

W-4 Reduce impacts on flooding and debris flow by employing soil erosion control measures described above.

W-5 Reduce impacts on groundwater from contamination by complying with the health and safety procedures described in Section 3.13.

W-6 Reduce impacts on water use by using Forest Service approved chemical dust suppressant.

W-7 Continue surface water quality sampling to monitor the effects of runoff from the mining operations.

3.4.3.6 Effectiveness of Mitigation Measures

Mitigation measures such as construction of debris basins to control debris flow will allow the flow to remain at levels naturally occurring in the project area. This will minimize downstream damage. Roads built for the project would provide access for ground attack forces to control forest fires, further reducing the impact of floods occurring after major fires. Compliance with Regional Water Quality Board Standards and application of Best Management Practices will minimize stream water quality degradation. The Best Management Practices have been effective on other programs in the Angeles National Forest in the past.

3.4.3.7 Significant Impact Summary

Impacts on water resources would not be significant. Implementation of mitigation measures will further reduce the adverse impacts.

3.5 BIOLOGICAL RESOURCES (ISSUE CATEGORY #4)

Biological resources discussed include the major components of the terrestrial and aquatic ecosystems potentially affected by the proposed project. Qualitative baseline data for biological resources of the site were obtained from information compiled through field reconnaissance, supplemented by existing documentation of biological resources within the project vicinity. The site was systematically surveyed by four-wheel drive vehicle and on foot by Tetra Tech biologists during late spring and summer of 1990. All plant and animal species were recorded in field notes. Steep, inaccessible areas were assessed with binoculars. A small telescope was used to map vegetation on the steep, east slope of Pole Canyon in the vicinity of the proposed access route to Claim Group II. Herbarium specimens of sensitive plant species with the potential for occurrence in the area were examined at Rancho Santa Ana Botanical Garden, and notes were taken on habitats associated with collected species. Collection dates were also noted. Plant species of uncertain taxonomic identity were collected and subsequently identified by Andrew C. Sanders, herbarium curator at the University of California, Riverside campus. A collection was also made of the sensitive species observed in the study area. Onsite wildlife was detected visually by direct observation and by the presence of sign, as well as auditorially (mainly birds). Additionally, predator scent stations were placed on each of the Claim Group areas.

3.5.1 Affected Environment

3.5.1.1 Vegetation

Chaparral, dominated by chamise (*Adenostema fasciculatum*), hoary-leaved wild lilac (*Ceanothus crassifolius*) and Yerba Santa (*Eriodictyon crassifolium*), predominates throughout the study area. Riparian vegetation is present in Pole Canyon and Oak Spring Canyon, and in some associated tributaries. Species observed in these areas include California sycamore (*Platanus racemosa*), Fremont's cottonwood (*Populus fremontii*), arroyo willow (*Salix lasiolepis*), and slender willow (*Salix exigua*). Greta's aster (*Astor greatai*), a California Native Plant Society (CNPS) List 4 species, was observed in Pole Canyon. A total of 178 species were observed. Of these, 22, or approximately 12 percent, are non-native.

The vegetation and sensitive species present at each Claim Group and in the vicinity of the existing and proposed access roads are discussed separately below.

Claim Group I. Undisturbed chaparral covers most of the site. Chamise, hoary-leaved wild lilac, and Yerba Santa are the most abundant species within this vegetation type. Black sage (*Salvia mellifera*), Spanish bayonet (*Yucca whipplei*), and scrub oak (*Quercus dumosa*) occur somewhat less frequently.

Species present along road edges, and in sandy openings within the chaparral include golden ear-drops (*Dicentra chrysantha*), prickly poppy (*Argemone munita*), prickly cryptantha (*Cryptantha muricata*), Artemisia pincushion (*Chaenactis artemisiaefolia*), whispering bells (*Emmenanthe penduliflora*), and splendid gilia (*Gilia splendens*).

Understory species occurring in more moist sites of open chaparral include eucrypta (*Eucrypta chrysanthemifolia*), miner's lettuce (*Claytonia perfoliata*), and hairnet (*Pterostegia drymarioides*). Species occurring in the open chaparral near drainages include wild hyacinth (*Dichelostemma pulchella*), Douglas sandwort (*Arenaria douglasii*), Parry's Chinese houses (*Collinsia parryi*), and Tejon cryptantha (*Cryptantha microstachys*).

Two native grasses, giant needle grass (*Stipa coronata*) and desert needle grass (*Stipa speciosa*), were noted on windswept ridges in low, open scrub in association with species such as California buckwheat (*Eriogonum fasciculatum*) and wooly blue curls (*Trichostemma lanatum*).

Two east-west tributaries associated with Oak Spring Canyon traverse Claim Group I. The southern tributary is deeper than the northern, and supports riparian vegetation including well-developed California sycamore, Fremont's cottonwood, and arroyo willow.

The northern drainage is shallower and drier. Typical vegetation includes chamise, hoary-leaved wild lilac, scrub oak, California fremontia (*Fremontia californica*), holly-leaved redberry (*Rhamnus ilicifolia*), and heart-leaved penstemon (*Keckiella cordifolia*).

Claim Group II. Undisturbed chaparral, dominated by chamise and hoary-leaved wild lilac, predominates throughout the site. Scrub oak and big-berry manzanita (*Arctostaphylos glauca*) occur somewhat less frequently. Areas of low, open scrub dominated by California buckwheat are also present. Understory species in these areas include chia (*Salvia columbariae*), Turkish rugging (*Chorizanthe staticoides*), false mustard (*Camissonia californica*), Coulter's snapdragon (*Antirrhinum coulterianum*), golden yarrow (*Eriophyllum confertiflorum*), silver puffs (*Microseris linearifolia*), and prickly cryptantha.

Giant needle grass occurs on rocky ridges and knolls in open scrub vegetation. Small stands of other native grasses occurring in scrub vegetation were also noted, primarily on north slopes, and include coast range melic (*Melica imperfecta*), Malpais bluegrass (*Poa secunda*), desert needle grass (*Stipa speciosa*), and bottle brush squirrel-tail (*Sitanion hystrix*).

Claim Group II is traversed by three tributaries associated with Pole Canyon. Well-developed riparian vegetation is present in the middle drainage northwest of mining site 199 within the boundaries of Claim Group II. The riparian vegetation is dominated by somewhat clumped California sycamore, with the highest clump consisting of four to five sycamores surrounded by chaparral, predominantly chamise and scrub oak.

Claim Group III. Tall, dense, undisturbed chaparral predominates throughout the area. Chamise, hoary-leaved wild lilac, Yerba Santa, scrub oak, and big-berry manzanita are the most common species. Species such as Spanish bayonet, holly-leaved cherry (*Prunus ilicifolia*), and mountain mahogany (*Cercocarpus betuloides*) were noted in more open, sandy areas near drainages.

Species occurring in openings, disturbed areas, and near roads include deer weed (*Lotus scoparius*), California buckwheat (*Eriogonum fasciculatum*), cudweed aster (*Corethrogyne filaginifolia*), cheat grass (*Bromus tectorum*), red brome (*Bromus rubens*), and tumble mustard (*Sisymbrium altissimum*).

Other, more showy species noted in these areas include showy penstemon (*Penstemon spectabilis*), scarlet bugler (*Penstemon centranthifolius*), prickly phlox (*Leptodactylon californicum*), wallflower (*Erysimum capitatum*), and grand lotus (*Lotus grandiflorus*).

A shrubby form of canyon oak (*Quercus chrysolepis*) is present in chaparral on north-facing slopes where it occurs in association with scrub oak. Canyon oak, California sycamore, and snags of big-cone spruce (*Pseudotsuga macrocarpa*) occur occasionally on the steep chaparral-covered east slope of Sand Canyon at the southeastern edge of Claim Group III.

Riparian vegetation is present on the floor of Sand Canyon within the Claim Group III area. Extremely steep slopes prevented direct observation of this area. However, observation with binoculars indicated that a rocky streambed is present, which is associated with rocky pools and flat grassy banks. California sycamore, big-cone spruce, canyon oak, and slender willow occur occasionally along its banks.

Road Section A. Road Section A will be widened to accommodate haul trucks. This area is dominated by chamise chaparral. Other species present along road edges include golden ear-drops, prickly poppy, prickly cryptantha, artemisia pincushion, whispering bells, and splendid gilia. Although the road crosses several steep drainages, no riparian vegetation occurs in them.

Road Section B. Road Section B has been proposed to provide access to Claim Group II. The proposed route runs east through Pole Canyon and climbs the eastern side of the canyon to reach this Claim Group.

A dense stand of arroyo willow and slender willow is present along the southern and wetter third of Pole Canyon within the present study area. Greta's aster also occurs in this area, and 500 to 1,000 plants are probably present. In this area, the plant occurs in cool, shaded, wet areas in association with arroyo willow, slender willow, durango root (*Datisca glomerata*), deer grass (*Muhlenbergia rigens*), and California sycamore.

On the eastern slope of Pole Canyon, proposed Road Section B will cross or approach three tributaries of Pole Creek which support riparian vegetation. The proposed route will cross the northern and middle tributaries near their intersection with the creek, and continue south to the mouth of the southern tributary. It will then turn north following the edge of the middle tributary up the east slope of Pole Canyon, and crossing this tributary two-thirds of the distance upslope in an area where

riparian vegetation is present. Each tributary is discussed separately and associated riparian vegetation is shown on Figure 3.5-1.

1. Northern Tributary. A cluster of six or seven Fremont cottonwoods is present in the middle section of this drainage. Riparian vegetation dominated by California sycamores is present in the lower portion.

2. Middle Tributary. Scattered sycamores are present along the lower half of this drainage. Well-developed riparian vegetation, predominantly sycamores, is present in the upper half, beginning near a fork in the channel at the proposed road crossing, and continuing upslope for some distance. The distribution of riparian vegetation in this area is somewhat uneven. The highest clump consists of four to five sycamores surrounded by chaparral, predominantly chamise and scrub oak.

3. Southern Drainage. A stand of well-developed sycamores, arroyo willows, and Fremont cottonwoods is present at the mouth of this drainage near the area where proposed Road Section B turns upslope.

Road Section C. Road Section C, which provide access to Claim Group III, has been proposed for widening. Chaparral dominated by chamise, hoary-leaved wild lilac, and Yerba Santa occurs along the edges of the existing road. Other chaparral species that occur somewhat less frequently include scrub oak, black sage, big-berry manzanita, and Spanish bayonet. Species occurring occasionally in damp, rocky drainages at the edge of the present road include lance-leaved dudleya (*Dudleya lanceolata*), liver-leaf larkspur (*Delphinium patens*), woodland star (*Lithophragma affinis*), and bead fern (*Cheilanthes covillei*). Stands of native grasses, including coast range melic and Malpais bluegrass, occur infrequently at the edge of the road as an understory element in open chaparral.

Riparian vegetation is present in Oak Spring Canyon west of the road. Canyon oak, big-cone spruce, and California sycamore were observed near the headwaters. California sycamore, Fremont's cottonwood, and arroyo willow occur lower in the drainage. A few fingers of riparian vegetation associated with tributaries of this canyon extend up to the currently existing Road Section C. These are indicated by numbers on Figure 3.5-1 and discussed separately below.

1. Five sycamores are present above the road. About 10 are present in a draw below the road.

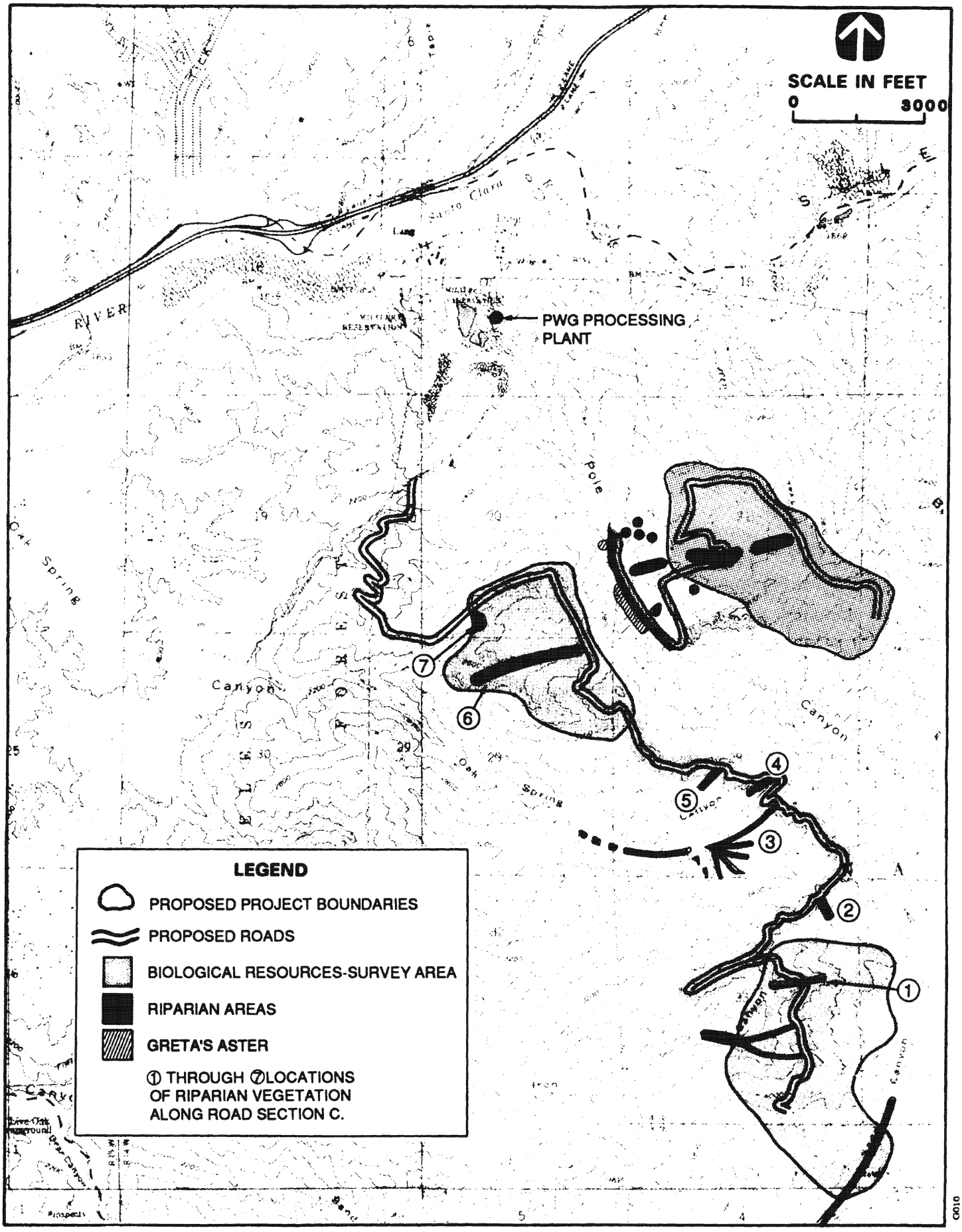

Figure 3.5-1 Sensitive Plants and Riparian Areas in the Gillibrand Soledad Canyon Mining Project, Angeles National Forest, California

2. A rocky canyon is present above the road. In addition to herbaceous species associated with damp drainages, a few canyon oaks are also present in this tributary.

3. A drainage with riparian vegetation crosses the road. Scattered sycamores occur near the road. Lower in the drainage, near the main tributary, a stand of riparian vegetation is present which includes canyon oak, sycamore, arroyo willow, big-cone spruce snags, and one coast live oak.

4. One willow is present in a drainage near the road.

5. Two willows are present in a drainage near the road.

6. Well-developed arroyo willow, California sycamore, and Fremont's cottonwood are present in this drainage (southern drainage in Claim Group I).

7. One Fremont's cottonwood is present in this drainage a few hundred feet inside the western boundary of Claim Group I.

3.5.1.2 Wildlife Resources

The diversity of shrubs and varied structure of chaparral provides suitable habitat for a variety of native wildlife species. Most of the species are common and widespread, though some exhibit narrower habitat preferences. The chaparral-covered hillsides provide cover, foraging, and nesting habitat for an abundance of species common to upland communities. Ground-dwelling mammals and granivorous bird species feed on the vast quantities of seeds produced by the shrubs and grasses. Extensive areas of edge habitat occur at the interface of chaparral and access roads and fuel breaks. Wildlife species, particularly large mammals, which depend on habitat resources from two or more communities readily occur at these interfaces. The fuel breaks and dirt access roads also provide movement corridors for large mammals. The variability of habitat resources and presence of surface water in Pole Creek contribute to the support of a healthy wildlife population in the region.

Wildlife and sensitive species present at each Claim Group and in the vicinity of the existing and proposed access roads are discussed separately below.

Claim Group I. Wildlife habitat at this location consists predominantly of chaparral. Several tributaries leading into the upper reaches of Oak Spring Canyon contain some sycamore and cottonwood saplings. Habitat structure variability within the chaparral is attributed primarily to slope aspect. The south-facing slopes are dominated by chamise, and generally less dense than north-aspect slopes. Ceanothus, and to a lesser degree, chamise, prevail on the more mesic north-facing slopes. Field surveys in Claim Group I indicate the chaparral habitat provides a rich diversity of wildlife commonly associated with this shrub community. Most of the wildlife species encountered or expected in this area are common and widespread. As expected, birds were the most conspicuous vertebrates observed on the site. Forty-one species of birds were observed within the project boundary. Most of these species are either permanent residents in the chaparral habitat or would be expected to periodically utilize the chaparral habitat. Resident bird species commonly observed in the chaparral include California towhee (*Pipilo crissalis*), rufous-sided towhee (*Pipilo erythrophthalmus*), wrentit (*Chamaea fasciata*), Bewick's wren (*Thryomanes bewickii*), California thrasher (*Toxostoma redivivum*), bushtit (*Psaltriparus minimus*), house finch (*Carpodacus mexicanus*), lesser goldfinch (*Carduelis psaltria*), California quail (*Callipepla californica*), and mourning dove (*Zenaida macroura*). Birds frequently observed foraging overhead include red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), common raven (*Corvus corax*), and four species of swallows. A greater roadrunner (*Geococcyx californianus*) was also observed in the Claim Group I area.

Herpetofauna detected during the field survey included the side-blotched lizard (*Uta stansburiana*) and western whiptail (*Cnemidophorus tigris*). Although undetected, suitable habitat occurs throughout the chaparral for the San Diego horned lizard (*Phrynosoma coronatum blainvillei*), a sensitive species (see Section 3.5.1.3). No snakes were found during the field survey. However, an intensive reptile survey would likely reveal the presence of gopher snake (*Pituophis melanoleucus*), common kingsnake (*Lampropeltis getulus*), striped racer (*Masticophis lateralis*), coachwhip (*Masticophis flagellum*), Pacific rattlesnake (*Crotalus viridis*), and long-nosed snake (*Rhinocheilus lecontei*). The lack of surface water within Claim Group I, and overall xeric habitat conditions, preclude the presence of most amphibian species.

The only mammalian species observed on Claim Group I included black-tailed hare (*Lepus californicus*) and Audubon's cottontail (*Sylvilagus audubonii*). Additional mammals detected by tracks around the scent stations included mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), woodrat (*Neotoma fuscipes* or *N. lepida*), and Pacific kangaroo rat (*Dipodomys agilis*). Although undetected, bobcats (*Lynx rufus*) would also be expected in this area. Small mammals expected in the chaparral on Claim Group I include Beechey ground squirrel

(*Spermophilus beecheyi*), Botta pocket gopher (*Thomomys bottae*), and several species of mice (*Peromyscus* spp., *Perognathus penicillatus* and *P. californicus*).

A large mammal movement corridor was identified paralleling the electrical distribution line, on the east side of the Magic Mountain access road. The existing fuel break beneath the lines, which traverses through the chaparral, is frequently traveled by mule deer and other large mammals. No wildlife movement corridor was identified extending from Claim Group I to the bottom of the Pole Creek drainage.

Claim Group II. Habitat components in Claim Group II were identified as being similar to Claim Group I. Chaparral comprises the vast majority of habitat within this area. Several dry drainages leading down into Pole Creek support some riparian growth, but similar to Claim Group I, the willow, sycamore, and cottonwood saplings are scattered and of insufficient quantity to support additional or unique wildlife. All wildlife observed, detected by sign, or otherwise expected on Claim Group I are also expected to inhabit or periodically utilize the natural resources of Claim Group II. The only notable difference was the presence of a badger (*Taxidea taxus*) digging on Claim Group II.

Claim Group III. Wildlife species richness and abundance of individuals was greatest on Claim Group III. Although chaparral is still the major plant community at this location, plant species composition and overall habitat structure was notably different (see Section 3.5.1.1). Climatic changes in the approximately 1,000 feet of elevation gain from the other Claim Groups has created more mesic conditions suitable for dense shrub growth of manzanita, and several shrubs less frequently encountered at the lower Claim Groups. The chaparral habitat occurring in this area may be an intergrade between chamise chaparral and a higher elevation mixed montane chaparral (Holland 1986). The proximity to the extensive stand of bigcone spruce forest on the north slope of Magic Mountain also adds to the overall diversity of wildlife inhabiting the area.

Several bird species undetected or infrequently encountered at the lower Claim Groups which were commonly observed at Claim Group III include northern flicker (*Colaptes auratus*), lark sparrow (*Chondestes grammacus*), common poorwill (*Phalaenoptilus nuttallii*), Lawrence's goldfinch (*Carduelis lawrencei*), and an abundance of sage sparrows (*Amphispiza belli*). Although undetected, mountain quail would be expected to be a common resident. A Cooper's hawk (*Accipiter cooperii*), a California Department of Fish and Game (CDFG) "Species of Special Concern" was also observed (see Section 3.5.1.3). Several dead bigcone spruce trees, approximately 20 to 25 feet high, were identified

in the proposed impact area, and provide snags utilized by great horned owls and red-tailed hawks for foraging perches.

Most mammalian species detected on the lower Claim Groups would be expected on Claim Group III. Results of three predator scent stations revealed the presence of gray fox and Pacific kangaroo rat. A large mammal movement corridor was identified connecting the bigcone spruce forest with Claim Group III. The trail follows chaparral edge habitat within the existing fuel break, and crosses the Magic Mountain dirt access road at a low saddle. A large buck deer was observed browsing along the trail. The abundance of deer sign (tracks, scat, shrub cropping) was considerably greater at Claim Group III than at the lower Claim Groups.

Road Section A. The existing road alignment of Road Section A almost exclusively traverses chaparral wildlife habitat. The abundance and species composition of wildlife inhabiting or otherwise utilizing this habitat would be expected to be similar to that described for Claim Groups I and II.

Road Section B. The proposed Road Section B haul road would continue from the Upper Pole Canyon project area and parallel the eastern side of Pole Creek for approximately 1/2 to 3/4 miles before ascending up the eastern hillside to Claim Group II. Based on field surveys, it is believed that Pole Creek probably retains year-round surface water during years of normal rainfall. However, because of drought conditions over the last 3 years, almost all available surface water for wildlife has evaporated by late summer. Field surveys during May and July revealed several pools of standing water. However, by August, only a trickle of water remained in close proximity to the proposed haul road. The scattering of riparian vegetation and ephemeral ponds is especially important to local wildlife populations and is often the focal point of an animal's home range. Additional wildlife species encountered within the Pole Creek drainage, which were undetected elsewhere on the project site, included Nuttall's woodpecker (*Picoides nuttallii*), white-throated swift (*Aeronautes saxatalis*), raccoon (*Procyon lotor*), two-striped garter snake (*Thamnophis hammondii*), and western fence lizard (*Sceloporus occidentalis*). No fish species were observed in the ephemeral pools of water. Although undetected, additional common wildlife species expected because of the riparian habitat and adjacent canyon walls include black phoebe (*Sayornis nigricans*), canyon wren (*Catherpes mexicanus*), great horned owl (*Bubo virginianus*), striped skunk (*Mephitis mephitis*), and Pacific treefrog (*Hyla regilla*).

The Road Section B alignment rising out of the Pole Creek drainage ascends through chaparral and crosses several minor tributaries with some riparian habitat. Wildlife densities and composition of

species inhabiting or otherwise utilizing these habitats would be expected to be similar to that described for Claim Group II.

Road Section C. Similar to Road Section A, most of the proposed haul road would traverse xeric chamise-dominated chaparral habitat. However, near the upper reaches of Oak Springs Canyon, the road ascends up a slightly steeper gradient and enters chaparral habitat which has a structural component similar to vegetation characteristics of Claim Group III. The majority of deer sign observed on the project site was from the vicinity of the upper reaches of the Oak Springs watershed, and near edge habitat consisting of manzanita/ceanothus plant associations. Road Section C bisects several dry drainages with a scattering of sycamore, canyon oak, and willow shrubs. None of these drainages contain sufficient riparian habitat to support unique or otherwise sensitive wildlife species commonly associated with riparian habitats.

3.5.1.3 Sensitive Biological Resources

This section focuses on species present or which could potentially occur in the project vicinity that are: (1) federally listed as threatened or endangered species; (2) proposed for listing; (3) candidates for federal listing; (4) state-listed species; (5) species afforded special recognition by local resource conservation agencies and organizations due principally to declining or limited population size; and (6) habitat areas on the site that are unique, or of particular value to wildlife. A literature review and consultation was conducted to identify any sensitive elements which are known to occur in the vicinity of the property. Sources included the U.S. Fish and Wildlife Service (USFWS 1989, 1990), CDFG (1990), California Natural Diversity Data Base (CNDDB 1990), and review of the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (1988).

No species of plant or animal designated threatened, rare, or endangered by the USFWS, CDFG, or CNDDB was located during the field survey. However, two sensitive elements, Greta's aster (*Aster greatai*) a plant species on the CNPS List 4 "Watch List," and one bird species, Cooper's hawk (*Accipiter cooperii*), designated as a "Species of Special Concern" by CDFG, were found.

Aster greatai or Greta's aster
CNPS Rating: List 4, 1-1-3

A relatively large population of 550 to 1,000 plants occurs along Pole Canyon within the study area. Here, the plant occurs in wet, shaded areas in association with arroyo willow, slender willow, durango

root, deer grass, and California sycamore. A small colony of approximately 10 plants was observed in a damp crevice in a rocky bank somewhat farther to the north in a more open section of the woodland characterized by California sycamore, golden rod, mugwort, and mule fat.

Greta's aster occurs elsewhere along Pole Canyon outside the study area in similar habitats, and in rocky floodplains at the edge of the creek. Examination of collection notes on herbarium sheets at the Rancho Santa Ana Botanic Garden indicates that Greta's aster also occurs in the following habitats: (1) on a shaded bank near springs in a mixed evergreen forest, (2) along streamsides with alders and maples, (3) in the drier edges of a grassy meadow, and (4) along an intermittent stream, and on adjacent steep, rocky canyon slopes.

Munz (1974) indicates that the plant occurs in moist or dry places in canyons from 2,000 to 4,000 feet in chaparral and southern oak woodland and on the south face of the San Gabriel Mountains and in the Verdugo Mountains. Flowering time is from August to October.

The CNPS rating, List 4, 1-1-3, indicates that the plant is of limited distribution; it is rare but found in sufficient numbers and distributed widely enough that the potential for extinction or extirpation is low at this time; it is not endangered and it is endemic to California. It is not included on the Angeles National Forest sensitive plant list at this time. The location of Greta's aster in Pole Canyon represents a new locality that extends the known range of the species to the northwest slope of the San Gabriel Mountains (Krantz 1988).

At the present time, populations of Greta's aster in the vicinity of proposed Section B occur primarily in association with clumps of well-developed, undisturbed willows in the wettest portions of the streambed, possibly where small springs are present. Other sensitive plant species with potential for occurrence in the study area are listed in Table 3.5-1.

Subsequent field surveys indicated that little suitable habitat is available for some of the species on the preliminary list. They occur at somewhat higher altitudes, primarily in association with coniferous forest, and include mountain onion, Mt. Gleason Indian paintbrush, San Antonio Canyon bedstraw, San Gabriel linanthus, San Gabriel orobanche, and chickweed oxytheca. Searches were conducted in Pole Canyon for round-leaved boykinia, but non were observed. Searches were also conducted for Mojave Indian paintbrush, Lemmon's syntrichopappus, Pearson's lupine, and short-joint beaver-tail in areas of low shrubs interspersed with sandy, open areas. Pearson's morning glory, which is known from collection sites in Mint Canyon and Bouquet Canyon in the Saugus Ranger District, also has potential for occurrence within the study area. However, it is an early fire-

Table 3.5-1

Sensitive Plant Species With the Potential for Occurrence in the Study Area

Species	Ratings CNPS State/Federal Forest Service	Habitat	Flowering Time
Allium monticola var. *kecktii* or mountain onion	List 4, 1-1-3	Occurs on summits at 4,000 to 5,000 feet in chaparral and yellow pine forest in the Santa Ana and Topatopa mountains.	June
Aster greatai or Greta's aster	List 4, 1-1-3	Moist or dry sites in canyons, 2,000 to 4,000 feet, chaparral and scrub oak woodland, south face San Gabriel Mountains.	August-October
Boykinia rotundifolia or round-leaved boykinia[1]	List 4, 1-1-3	Occurs in wet places in canyons below 6,000 feet.	June-July
Calystegia pearsonii or Pearson's morning glory	List 4, 1-1-3 C2 FS Sensitive	Dry slopes at 3,000 to 4,000 feet at the north base of the San Gabriel Mountains. Detectable primarily after fire.	May-June
Castilleja gleasonii or Mt. Gleason Indian paintbrush[2]	List 1B, 3-2-3 CR/C2 FS Sensitive	Occurs in rocky places at 5,000 to 7,100 feet in yellow pine forest about Mt. Gleason in the San Gabriel Mountains.	May-June
Castilleja plagiotoma or Mojave Indian paintbrush	List 4, 1-1-3	Stems growing up through low shrubs. Occurs on dry ridges and flats at 2,500 to 7,500 feet in sagebrush scrub and Joshua tree woodland at the north base of the San Bernardino and San Gabriel mountains.	
Linanthus concinnus or San Gabriel linanthus	List 3, ?-2-3	Dry, rocky slopes, 5,000 to 8,500 feet, montane coniferous forest, San Gabriel Mountains.	May-July
Lupinus pearsonii or Pearson's lupine	List 4, 1-1-3	Loose gravelly or rocky slopes at 4,000 to 5,000 feet on the desert slopes of the San Gabriel and Tehachapi mountains.	April-May
Opuntia basilaris var. *brachyclada* or short-joint beavertail	List 1B, 3-1-3 C2 FS Sensitive	Dry slopes, 4,000 to 7,000 feet on the desert slopes of the San Gabriel and San Bernardino mountains.	May-June
Orobanche valida ssp. *valida*[3]	3-2-3 C2 FS Sensitive	On *Eriodictyon* in yellow pine forest at 4,000 to 7,000 feet in yellow pine forest in the San Gabriel Mountains.	June-July

Table 3.5-1, Continued

Species	Ratings CNPS State/Federal Forest Service	Habitat	Flowering Time
Oxytheca caryophylloides or chickweed oxytheca	List 4, 1-1-3	Occasional, 4,000 to 7,000 feet, mostly yellow pine forest, San Gabriel Mountains to San Jacinto Mountains.	July-September
Syntrichopapus lemmonii or Lemmon's syntrichopappus	List 4, 1-1-3	Sandy places, 3,000 to 5,000 feet, border of Mojave Desert and adjoining slopes of San Gabriel and San Bernardino mountains.	April-May

Collection Notes (RSA):

[1] Occurs in deep shade, growing in crevices in steep rock face sides of the narrow draw very near the stream, in riparian oak woodland with *Quercus agrifolia, Toxicodendron, Lilium humboltii, Amorpha californica,* and *Ceanothus oliganthus.* 24 June 1975.

[2] (1) Common understory element locally on Mt. Gleason in open yellow pine woodland. 25 June 1987, (2) On sandy bottom and margins of dry streambed of south fork of Little Rock Creek, 0.3 mile below Alder Saddle at 5,300 feet in the San Gabriel Mountains. 30 June 1971.

[3] Collected on loose, decomposed granite on a 45-degree slope in chaparral at 5,394 feet. 1 August 1979.

successional species which probably would not have been detectable during the present study, although dormant seeds of the species may be present.

Accipiter cooperii or Cooper's hawk

Status: CDFG "Species of Special Concern"

The Cooper's hawk is an uncommon permanent resident and common winter visitor to the region. This hawk prefers riparian habitats for breeding, but forages over a broad spectrum of habitat types. The Cooper's hawk feeds almost exclusively on small birds which it captures during low, swift flights. It is considered a declining species due to habitat loss and the effects of pesticides in the food chain resulting in egg shell thinning.

This hawk was observed foraging over ridgelines in the vicinity of Claim Group III. Although uncommon during most of the year, the abundance of Cooper's hawks, and its close relative, the sharp-shinned hawk (*Accipiter striatus*), foraging in the region will increase during winter as raptor densities in Southern California are augmented by raptors from northern latitudes. Several additional

sensitive animal species that have some potential for occurrence on the site are listed in Table 3.5-2 and discussed below.

The Santa Ana sucker is a fairly common small sucker (rarely exceeding 15 centimeters) that occurs only in the Santa Ana, Santa Clara, San Gabriel, and Los Angeles rivers. This species is designated a "Species of Special Concern" by CDFG because of its restricted distribution and population declines due to channelization and pollution of critical habitat. The Santa Ana sucker is known to occur in the Santa Clara River just upstream from Lang. This fish species was not observed in Pole Canyon and is not expected as no suitable habitat occurs on the site.

The unarmored three-spine stickleback is a subspecies of the widespread three-spine stickleback. The unarmored subspecies (*Gasterosteus aculeatus williamsoni*) is distinguished from other subspecies by the absence of bony plates on the lateral body wall. Currently, the only known populations of the unarmored three-spine stickleback occur in the Santa Clara River and its tributaries, San Antonio Creek, and possibly Honda Creek in Santa Barbara County. The type locality for this subspecies is

Table 3.5-2

Sensitive Wildlife Species With the Potential for Occurrence in the Study Area

Species	Status	Habitat	Occurrence Probability
Catostomus santaanaae Santa Ana sucker	CSC	Coastal slope	Low
Gasterosteus aculeatus williamsoni Unarmored three-spine stickleback	FE, CE FS Sensitive	Coastal streams and rivers	Low
Phrynosoma coronatum San Diego horned lizard	C2, CSC FS Sensitive	Sandy and rocky areas and shrubs	High
Aquila chrysaetos Golden eagle	CSC	Mountains, grasslands, hilly areas	High
Polioptila californica California gnatcatcher	C2, CSC FS Sensitive	Coastal sage scrub	Low
Vireo bellii pusillus Least Bell's vireo	FE, CE FS Sensitive	Willow-inulefat riparian thickets	Low

apparently from the upper Santa Clara River, between Arrastre Canyon and Lang. Another population of unarmored three-spine stickleback occurs in the Santa Clara River approximately 12 miles downstream of Lang. The long reach of riverbed between these two populations is normally dry, receiving water only during major flood events. This fish was listed by USFWS as endangered in 1970. It is also designated as endangered by CDFG. Threats to this species include introgression with other subspecies of three-spine stickleback, destruction or alteration of habitat, and introduction of predators or competitors. The population upstream of Lang is believed to have the least introgression of all known populations. No unarmored three-spine sticklebacks were found during the current studies. Although Pole Canyon may contain some permanent water during years of normal rainfall, drought conditions over the past 4 years have precluded this drainage from having suitable aquatic conditions to sustain populations of this species. The steep gradient and bedrock conditions of the drainage further inhibit this species from occurring in the Pole Canyon drainage. The San Diego horned lizard frequents a variety of habitat types including coastal sage scrub and chaparral. This species occurs in areas where there is loose, sandy soil and rocks with low-growing brush nearby, particularly within or along drainage courses. Ants are the primary food of this species, although it also takes beetles and other insects. Distinctive fecal pellets containing mostly ant parts are often visible as a sign of its presence. The San Diego horned lizard is a Category 2 candidate for federal listing, and designated a "Species of Special Concern" by CDFG. Populations of this lizard are declining due to collecting, habitat loss, and fragmentation. Although this species was not encountered during the field survey, there is a moderate to high probability that it could inhabit 296 acres of chaparral habitat which would be disturbed by the proposed mining operations.

The golden eagle is also a CDFG "Species of Special Concern." This large raptor nests in rugged, mountainous areas adjacent to open grasslands or scrubland where prey occurs. It feeds mainly on ground squirrels, rabbits, and other small to medium-sized mammals. Home range area covers from 20 to 60 square miles, or an average of one pair for each township of suitable habitat. Threats to this species are numerous, including eggshell thinning from pesticide ingestion, shooting, electrocution, poisoning during predator control programs, and loss of habitat. No golden eagles were observed during the field studies; however, an adult has been reported in the vicinity (Tierra Madre Consultants 1989). Because this eagle is a resident in the region, and because suitable foraging habitat occurs on the site, this species would be expected to utilize the site periodically.

The California gnatcatcher is a Category 2 candidate species for federal listing and designated a "Species of Special Concern" by CDFG. This species is restricted to coastal sage scrub habitats in Southern and Baja California. Field studies have revealed severely reduced population levels and a major loss of coastal sage scrub in recent years (Atwood 1980). An historic record (specimen at

Western Foundation of Vertebrate Zoology) exists from Mint Canyon, approximately 2 miles west of the project site, but some authorities feel the species may be extirpated from this region (Garrett and Dunn 1981). Coastal sage scrub habitat on the site is limited to the lower slopes, well below the Claim Group areas, and habitat suitability is questionable. Therefore, there is a very low probability that this species could occur on the site.

The least Bell's vireo is a small, migratory, insectivorous bird which occurs in riparian habitats. It has been listed as endangered by the State of California since 1980, and by the USFWS since 1986. Franzreb (1987) states that nesting of the least Bell's vireo is currently restricted to willow-dominated riparian habitats. Territory sizes of this species have been shown to be from 1 to 4 acres (Gray and Greaves 1981). The least Bell's vireo was formerly widespread and common throughout the low-lying areas of central and Southern California, but is now restricted in range to a limited number of locations in Southern California. Recent surveys conducted during preparation of the Habitat Conservation Plans and Comprehensive Species' Management Plan have located least Bell's vireo nesting on the Santa Clara River at the Los Angeles-Ventura County line, as well as in San Francisquito Canyon. This species was not detected in Pole Canyon during the field survey and, because only a scattering of willow and mulefat thickets occur, there is only a very low probability that the least Bell's vireo could nest on the site. However, as some suitable foraging habitat does exist within the Pole Creek drainage, there is a small possibility that this species could have a brief stop-over for foraging purposes.

Additional sensitive species detected on site include the American badger. This species is not currently a federal or state listed threatened or endangered wildlife species, nor is it proposed as a candidate species for listing, which would indicate that it is biologically rare, restricted in distribution, or declining throughout its range. However, it is considered a species of Special Concern by the California Department of Fish and Game and the U.S. Forest Service. Other sensitive wildlife species which could potentially occur in the vicinity of the project area, but unrecorded in the area, include spotted owl and California condor. Potential suitable spotted owl habitat occurs within the Big Cone Spruce grove just below the Magic Mountain summit, at the top of the Pole Canyon watershed. Although this area is outside of the proposed project boundary, because suitable foraging habitat and prey (i.e., dusky-footed woodrat) occur within the watershed and habitats associated with the claim groups, there is a possibility that this species could forage within the project boundary. The California condor is a state and federal listed endangered species which no longer occurs in the wild. All individuals currently remain in captivity at the Los Angeles and San Diego Zoos. Offspring of captive breed condors are proposed for reintroduction in the future. The project site would be within the extensive foraging range of this raptorial species. However, as the dense upland habitats on site

are generally unsuitable foraging habitat for this species, there is very low probability that this species would utilize the natural resources on site.

3.5.2 Criteria for Significance of Impact Determination

Impacts to biological resources will be considered significant if one or more of the following conditions occur:

- Project would adversely affect wetlands, wild and scenic rivers, wilderness areas, research natural areas, designated natural areas, or ecologically critical areas.

- Project would adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973 or habitat considered to be essential.

- Project impacts are of such magnitude that recovery of biological resources through natural processes can not reasonably be assured.

- Project would result in a net loss of riparian zone acreage or adversely affect oak woodlands or other plant communities considered to be rare, unique, or sensitive by federal, state, or local agencies.

3.5.3 Environmental Consequences

3.5.3.1 Alternative 1 - Proposed Action

Implementation of the proposed action will result primarily in the loss of chaparral habitat (Tables 3.5-3 and 3.5-4). In Claim Group I, development of the south mining site and spoil disposal will result in the loss of 29 acres of chaparral. Development of topsoil stockpiles will result in further temporary loss of chaparral. Development of mining operations and associated stockpiled materials in Claim Group II will result in the disturbance of 54 acres of chaparral; development in Claim Group III may result in the loss of 38 acres of chaparral. An additional 175 acres of chaparral will be disturbed during widening of Road Sections A and C, and construction of Road Section B.

Basic management direction for this forest zone comes from the Forest Plan. The entire project area is covered by Management Prescription #2, which emphasizes age-class diversity in chaparral

Table 3.5-3

Potential Impacts to Chaparral Vegetation and Wildlife Habitat (acres)

	Claim Group I	Claim Group II	Claim Group III	Alternative 1 (Proposed Action)	Alternative 2	Alternative 3	Alternative 4 (No Action)
Primary Roads	NA	NA	NA	150.0	130.0	160.0	None
Secondary Roads	NA	NA	NA	25.0	25.0	25.0	None
Mining Sites	18.3	42.0	32.2	92.5	92.5	92.5	None
Topsoil Stockpiles	1.6	2.0	1.0	4.6	4.6	4.6	None
Low-grade Ore	3.7	1.7	1.1	6.5	6.5	6.5	None
Spoil Disposal Areas	4.9	8.5	3.7	17.1	17.1	17.1	None
	28.5	54.2	38.0	295.7	275.7	305.7	None

Table 3.5-4

Potential Impacts to Vegetation and Wildlife Habitat by Watersheds (acres)

	Alternative 1			Alternative 2			Alternative 3			Alternative 4
	Mining Area	Roads	Total	Mining Area	Roads	Total	Mining Area	Roads	Total	
Bear Canyon	0	27.0	27.0	0	0	0	0	0	0	None
Pole Canyon	54.2	30.0	84.2	54.2	37.0	91.2	54.2	67.0	121.2	None
Lost Canyon	0	15.0	15.0	0	15.0	15.0	0	15.0	15.0	None
Oak Spring Canyon	28.5	64.0	92.5	28.5	64.0	92.5	28.5	64.0	92.5	None
Rabbit Canyon	0	9.0	9.0	0	9.0	9.0	0	9.0	9.0	None
Iron Canyon	19.0	25.0	44.0	19.0	25.0	44.0	19.0	25.0	44.0	None
Sand Canyon	19.0	5.0	24.0	19.0	5.0	24.0	19.0	5.0	24.0	None
TOTAL	120.7	175.0	295.7	120.7	155.0	275.7	120.7	185.0	305.7	None

vegetation. The objective of this prescription is to establish a 0-25 year age-class mosaic in at least 40 percent of the chamise chaparral, resulting in a randomly distributed pattern throughout the type and mixed as follows:

- 10% early seral stage of 0-5 years age-class
- 20% intermediate seral stage of 6-15 years age-class
- 10% late seral stage of 16-25 years age-class

The project area contains an overmature stand (25 years plus) of chamise chaparral that is part of a vegetative community that last burned in the 1960 Magic Fire. That burn covered 55,000 acres of predominantly chamise chaparral, so there is currently no age-class diversity in the vicinity of the project.

Stripping the vegetation for mining and subsequent reclamation of this area will assist in creating age-class diversity in the chaparral community. Revegetation as described in the Final Mining and Reclamation Plan will produce an early seral stage of plant succession. This will create new growth in the vast expanse of over-mature chaparral surrounding the mining operation.

The vegetation loss is not considered a significant adverse impact because chaparral is a relatively common and abundant habitat in the region and the area affected is relatively small. The loss does not affect the overall threshold levels of vegetation types and seral stages required to be maintained by the forest plan (see Section 3.1.1). The project is, therefore, considered to be consistent with the Forest Plan.

Riparian Habitat. Riparian habitat occurs in all three claim groups and along the proposed haul roads in the project area. In Claim Group I, development of the south mining site and spoil disposal area may result in indirect impacts to riparian vegetation in the drainage below and west of these areas. Development of spoil disposal area could also result in the loss of one Fremont's cottonwood. However, this loss can be avoided by creating a buffer between the tree and the toe of the spoil area. Development of the topsoil stockpile and lowgrade ore stockpiles at the proposed locations may result in some loss of floral diversity in the northern drainage where some less frequent species, such as, California fremontii are present. Impacts are not considered to be significant.

In Claim Group II, the topsoil stockpile could potentially impact riparian vegetation in the drainage below it. The spoil disposal area will displace riparian vegetation, predominantly sycamores and could

potentially impact riparian vegetation in the drainage below this area. If no mitigation measures are taken, impacts would be considered significant.

In Claim Group III the proposed locations of spoils and topsoil stockpiles will result in the loss of a few small Canyon Oaks, two or three small sycamores, and less than 10 big-cone spruce. Both spoil and topsoil stockpiles represent alterations to the drainage systems and could also affect riparian areas downstream, if no mitigation measures are taken.

Along the proposed primary haul roads, impacts to riparian habitat would occur in selected areas from the construction of road Section B and from the widening of road Section C. Construction of road Section B may impact riparian vegetation and Greta's aster, a sensitive plant species, in the Pole Canyon. It would also impact riparian vegetation at the mouth of the northern tributary which consists of well-developed sycamores, and in the southern tributary where several tall cottonwoods and willows exist. Road Section B follows the middle tributary up the eastern slope of Pole Canyon and crosses it about two-thirds of the distance upslope. It may, therefore, impact riparian vegetation, primarily sycamores, in the lower two-thirds of the tributary. Impacts are generally avoidable except at the road crossing which would result in unavoidable loss of small riparian acreage.

Widening road Section C may result in some loss of floral diversity near rocky canyons and on damp slopes near drainages. Three willows located close to the existing road in Section 28 may be lost as a result of road widening. Five canyon oaks are located within 100 feet of the road in Section 33, but impacts to these trees are avoidable. Further south, within the boundaries of Claim Group III, road improvement may impact 15 sycamore standing at the edge of the road. Impacts to these sycamores can be minimized by careful planning of road improvements in this area.

In summary, as much as 1.3 miles (encompassing approximately 3 acres) of riparian habitat could be adversely affected by the project (Table 3.5-5). Approximately 0.2 mile of "Secondary riparian habitat" (intermittent stream courses delineated by the Forest Service, 1987) may be affected in Claim Group II and along roads in the Pole Canyon Watershed (Figure 3.5-2).

Forest Service standards and guidelines allow construction in riparian zones only when an activity is compatible with riparian-dependent resources, and unacceptable impacts can be mitigated. In addition, the Forest Service will uphold the Presidential policy requiring no net loss of wetlands. Avoiding impacts in riparian habitats, requiring 100-foot buffer zones (as was required by the Forest Service in approving the Upper Pole Canyon Road which connects to Section B of this proposal) between riparian zones and work areas, and monitoring during construction can largely eliminate

Table 3.5-5

Riparian Habitat Potentially Affected by Project Implementation

Watershed	Identified Riparian Habitat Affected Before Mitigation (miles)	Secondary Riparian Inventory (Intermittent Stream) (miles)		Riparian Habitat Affected After Mitigation Applied
		Affected (Roads and Claim Group)	Not Affected	
Iron Canyon	0.6 (Claim Group III)		1.0	Trace
Rabbit Canyon	0.0		1.0	0
Bear Canyon	0.0		5.0	0
Oak Spring Canyon	0.05 (roads) + 0.3 (Claim Group I)		1.2	Trace
Sand Canyon	0.2 (Claim Group III)	None in study area		Trace
Pole Canyon	0.05 (roads) + 0.1 (Claim Group II)	0.2 (Claim Group II)	3.4	Trace
Total	1.3	0.2	11.6	Trace

Note: Habitat delineated during field surveys by Tetra Tech. Inc. Acreage estimates (3.0 acres) based on the assumption that riparian areas have an average width of 20 feet.

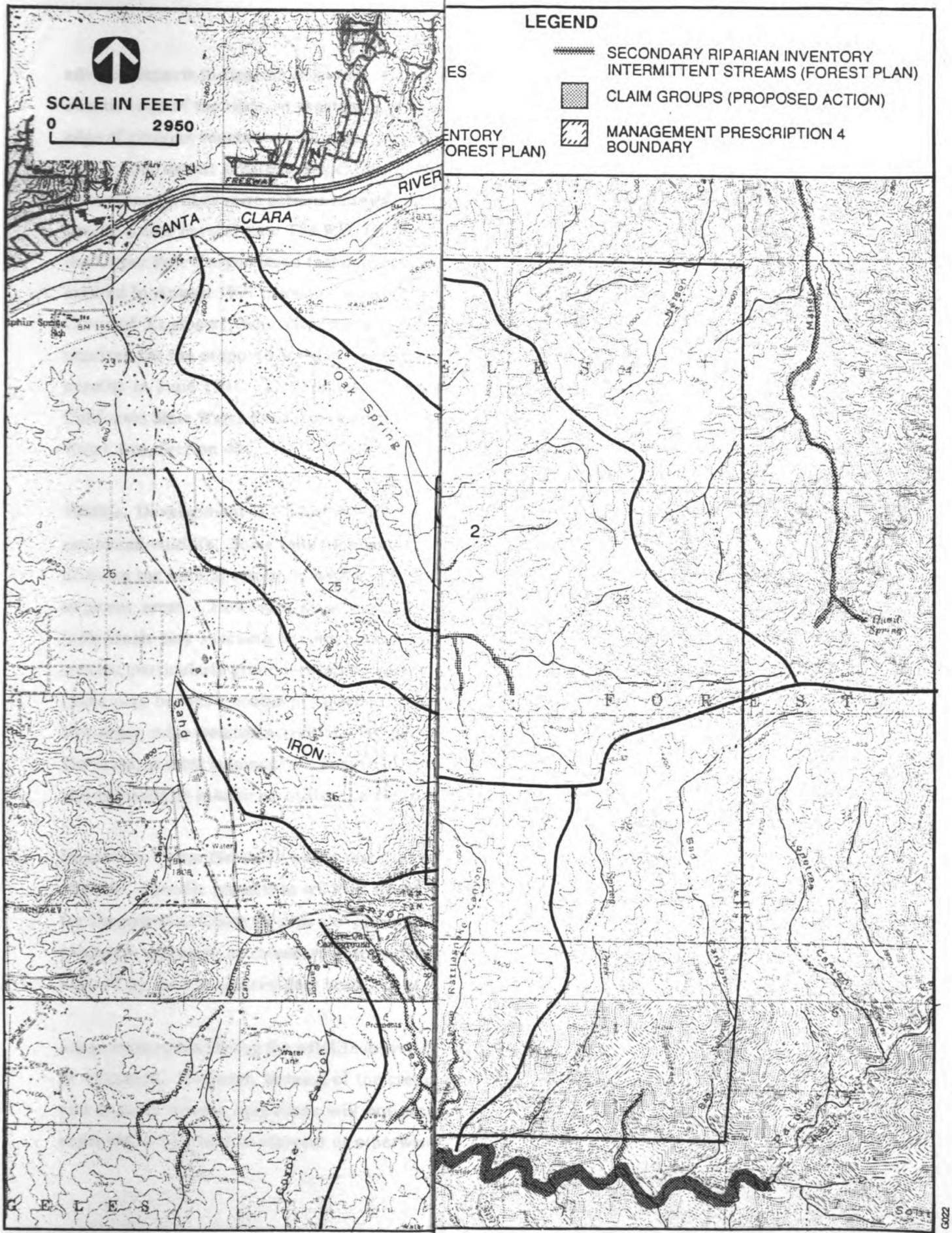

Figure 3.5-2 Management Prescriptions, V

adverse impacts to riparian resources related to this project. The buffer zone should begin along the outside edge of the riparian vegetation, with no disturbances inside of or with 100 feet of the outside edge of riparian vegetation. This may require the realignment or narrowing of some sections of roads, and to the extent possible, relocation of stockpile areas in the Claim Groups. Any temporary disturbance will require actions to reinforce or otherwise stabilize the disturbed area and return the land to a near natural state.The P.W. Gillibrand Co. obtained a Section 404 permit for the road fill on the Upper Pole Canyon Road that connects with Road Section B of the Proposed Project. This permit expired in August 1991 prior to the start of the road construction. Ms. Varnhagen of the U.S. Army Corps of Engineers, who visited the site in May 1991 indicated that a separate permit would be required for the proposed Soledad Canyon Minerals project. The Proponent applied for the required permits in June 1991. The applicant has also applied for a Water Quality Certification from the California State Water Resources Control Board as required under the authority of the Federal Clean Water Act, Section 401.

Wildlife. Development of Claim Group I would result in the loss of chaparral and riparian habitat and associated wildlife. Some reduction would be expected in localized wildlife inhabiting or otherwise utilizing the natural resources within the impact area. The more mobile species will be displaced to adjacent areas. However, as adjacent habitats are assumed to be at carrying capacity, some individuals may succumb to competition or environmental-induced stress. Some of the less mobile species, particularly ground-dwelling vertebrates, will perish. Although some reduction of localized fauna may be result, viable populations of native species would not be significantly reduced. Noise and other mine-related activities may displace some native wildlife over the life of the project. However, as most mammals are nocturnal, many species (i.e., coyote, gray fox, bobcat) may acclimate and continue to inhabit or utilize the natural resources on and surrounding the impact area.

Impacts to Claim Group II would result in the loss of chaparral and riparian habitat and associated wildlife. Specific impacts to wildlife would be similar to that for Claim Group I. Impacts discussed for the previous Claim Groups also apply to Claim Group III. The removal of manzanita/ceanothus chaparral will cause an incremental reduction in localized wildlife diversity and remove some habitat utilized by the San Gabriel deer herd, but at the same time, provide browseways and additional edge.

Large mammals utilizing the wildlife movement corridor which leads to the bigcone spruce forest may be displaced. However, because of the crepuscular and nocturnal behavior of most large mammals, and because mining operations will not occur at the mining claims during night time, wildlife is expected to continue to traverse or otherwise utilize this area. As mining practices have existed in

this area for several years and as large mammals (i.e., mule deer, coyote, fox) were readily detected onsite during the biological assessment, it can be concluded that mining activities in the area have little adverse impacts to large mammal populations.

Impacts to wildlife habitat discussed for Claim Group I also apply to the widening of Road Sections A and C. The upper half of Road Section C, however, would also affect some deer habitat.

Road Section B would adversely affect localized wildlife species inhabiting Pole Canyon and wildlife which travel to Pole Canyon to drink. Assuming haul road construction will not directly affect the riparian vegetation or cause siltation within the drainage, impacts to wildlife will be mostly in the form of disturbance displacement. Noise generated by dump trucks and other mining-related activities will temporarily displace wildlife utilizing the water resource. However, because of the crepuscular and nocturnal behavior of most mammals, many species may continue to utilize this resource. Impacts to wildlife habitat as Road Section B ascends up the hillside are similar to those discussed for Claim Group II.

The proposed action does not significantly affect any threatened, endangered, or sensitive wildlife. Although undetected during field surveys for the project, the coast horned lizard has been previously identified as potentially occurring in the area and there may be some incremental loss of habitat for this Category 2 species.

Although the mining operations will add to the cumulative reduction in chaparral habitat within the region, some wildlife habitat will be compensated by the creation of edge habitat, consequently providing greater habitat diversity for native birds and mammals. Large mammals with extensive home ranges will benefit by the increase in movement corridors. Ultimately, upon completion of mineral extraction at the three Claim Groups, reclamation of disturbed areas will create a mosaic of habitat types and an increase in wildlife diversity.

Sensitive Species. At the present time, populations of Greta's aster in the vicinity of proposed Road Section B occur primarily in association with clumps of well-developed, undisturbed willows in the wettest portions of the streambed, possibly where small springs are present. Construction of Road Section B in Pole Canyon could potentially result in the degradation of riparian habitat, the loss of populations of Greta's aster along its route, and possibly, the disturbance of small springs which support a variety of other herbaceous species in addition to Greta's aster. However, avoiding impacts to riparian zones along Pole Creek will also protect this population of Greta's aster. This is in keeping

with Forest Service standards and guidelines on preserving sensitive plant species. The project is not expected to have any adverse impacts on the federally listed unarmored three-spine stickleback because no suitable habitat occurs within, nearby, or downstream of the project area.

3.5.3.2 Alternative 2 - Conveyor Transport - Claim Group II to Plant Site

The total land disturbance resulting from conveyor and road rights-of-way would be approximately 20 acres of chaparral and wildlife habitat, or half the amount that would be disturbed from construction of Road Section B. A total of approximately 276 acres of chaparral would be lost with this alternative. The conveyor system would eliminate impacts to riparian vegetation on steep slopes on the east side of Pole Canyon possibly associated with Road Section B of the proposed action. However, the area in Pole Canyon at the base of riparian vegetation along the route of proposed Road Section B could be potentially affected. The attendant construction and maintenance road associated with the conveyor system would also affect this area as well as vegetation on the higher slopes of Pole Canyon.

The conveyor transport system would avoid the highly developed riparian area, most of the ephemeral ponds and springs and an extensive population of Greta's aster located in the Pole Canyon. However, it may result in some impacts to a narrow band of riparian vegetation dominated by sycamores in an adjacent drainage slightly to the north.

Impacts to other aspects of the proposed action would remain the same with this alternative.

3.5.3.3 Alternative 3 - Road Section D to Claim Group II

Development of Road Section D would result in more extensive adverse impacts to well-developed riparian vegetation, and presumably populations of Greta's aster, in the higher reaches of Pole Canyon than would be affected by Road Section B of the proposed action. Areas downstream from the proposed road crossing in Alternative 3 could also be affected by debris from this construction. However, the haul road would provide a movement corridor through the dense chaparral for large mammals. This would also provide easy access for many other wildlife species to the surface water within Pole Creek. Total area disturbed under this alternative is 306 acres.

Impacts to other aspects of the proposed action remain the same with this alternative.

3.5.3.4 Alternative 4 - No Action

With this alternative the proposed mining activities would not be approved. Impacts on biological resources from proposed activities would not occur.

3.5.3.5 Mitigation Measures

Mitigation measures proposed below are intended to eliminate or reduce adverse impacts to biological resources and to provide compensation for unavoidable adverse impacts which cannot otherwise be eliminated. They reflect standards and guidelines and prescriptions described in the Forest Plan (U.S. Forest Service 1987).

Vegetation.

B-1 Minimize soil disturbance to reduce impacts to the habitat and to reduce the impact of vegetative manipulation on small mammal communities.

B-2 Stabilize topsoil stockpiles with material that is oxygen permeable so seeds within the piles remain viable. Stabilize disposal piles.

B-3 Contour the final grade of reclaimed mining pits with disposable spoils to prevent erosion, resemble the surrounding natural habitat, or be suitable for revegetation with native plant species.

B-4 Restore disturbed areas to resemble the surrounding natural habitat. Maintain stated objectives of maximizing species and habitat diversity, as well as structural diversity. Create edges and openings in mosaic patterns.

B-5 Plant native species from local nursery stock in order to preserve the genetic integrity of the native plant populations and to ensure adaptability of planted materials to local conditions.

B-6 Control weeds, especially invasive weeds, through herbicide application or hand weeding, during construction, mining, and site reclamation to prevent these species from becoming established and invading the native communities.

B-7 Obtain seed or other propagules and plant materials used in all revegetation and some erosion control activities from native species and from local nursery sources. Create new species and habitat diversity in reclaimed areas.

Riparian Areas.

B-8 Monitor construction activities to ensure that no loss of riparian acreage will occur. Forest Service will conduct monitoring. Mitigate unavoidable disturbance by replacement or enhancement of existing riparian habitat in areas identified by the Forest Service at a ratio agreed upon by the responsible agencies (Forest Service, USACE, USFWS, and CDFG). Restore any riparian habitat disturbed during the project life after the activity in the disturbed area terminates. Inventory and replace mature trees and snags, if removed from the draws, at Sites selected by the Forest Service.

B-9 Design road crossings and alignments within riparian zones to minimize the area affected.

B-10 Relocate spoil disposal area in Claim Group I to minimize impacts to a cottonwood tree.

B-11 Relocate topsoil stockpile and spoil disposal areas in Claim Groups II and III to minimize impacts to riparian areas.

B-12 Protect oak riparian woodlands at the head of Oak Spring Canyon from potential indirect impacts resulting from road construction.

B-13 Notify U.S. Army Corps of Engineers of potential disturbance to riparian habitat and obtain Section 404 permit.

B-14 To offset disturbances to localized wildlife, place wildlife water catchment guzzlers at the mouth of Pole Canyon and near Claim Group III. As onsite mitigation for the loss of extensive areas of chaparral habitat and mining-related disturbances to local wildlife utilizing the watering sources are unquantifiable, the placement of additional watering sources at strategic locations will help reduce or minimize adverse impacts to localized wildlife. On-site reconnaissance and discussions with Forest Service biologists indicate the most feasible location for the guzzler in Pole Canyon is near a stand of sycamore trees on a bench just west of the approved Pole Creek haul road crossing. This area is just below the approved Upper

would minimize wildlife crossing the haul road. The water source in the vicinity of Claim Group III could either be in the form of a wildlife water catchment guzzler, or a water trough. Should the existing storage tanks at the summit of Magic Mountain be rejuvenated for use by Gillibrand's mining operations, a water line extending from the reservoir could feed the water trough.

B-15 Provide a year-round water source in the vicinity of the wildlife corridor extending from the big-cone spruce grove for deer and other large mammals whose home range extend into the project area. Design the water trough similar to a cattle trough, rather than a guzzler type design. Construct the trough of cement and rock (rather than metal) with a cement bottom. Make trough rectangular or circular in shape, with the top of the trough extending no more than one foot above the surrounding ground surface. The trough shall have a minimum capacity of 25 gallons. Supply a sufficient amount of water to the trough to offset evaporation and allow some water to overflow or drip out of the trough. Place a metal grate or rock steps in the trough to prevent small mammals and birds from drowning.

B-16 Do not remove vegetation from the project area during the migratory bird breeding season (approximately March to August) and apply for a permit form U.S. Fish and Wildlife Service if removal and relocation of migratory bird eggs and young to licensed rehabilitation care centers is required.

Sensitive Species.

B-17 Avoid or minimize disturbance of sensitive species by constructing the road or conveyor system in the Pole Canyon so as to minimize impacts to riparian vegetation, particularly the populations of Greata's aster.

3.5.3.6 Effectiveness of Mitigation Measures

Implementation of suggested mitigation measures will reduce the impacts to biological resources to acceptable levels. The suggested measures have been found to be effective on programs of a similar nature in the Angeles National Forest.

3.5.3.7 Significant Impact Summary

No significant adverse impacts to wildlife as defined by the Criteria for Significance of Impact Determination would be incurred by the proposed action of Gillibrand Soledad Canyon Mining Operations. There would be some incremental loss of deer habitat, and the removal of vegetation will add to the cumulative reduction of chaparral habitat in the region. There may be some incremental loss of habitat for the Coast horned lizard, but this loss is not considered significant.

3.6 CULTURAL AND PALEONTOLOGICAL RESOURCES (ISSUE CATEGORY #5)

3.6.1 Affected Environment

3.6.1.1 Prehistoric Resources

Prehistoric site types recorded in the region include villages, seasonal camps, production sites, ceremonial sites, and storage sites. The time period represented by these resources dates from the Early Period (2000 B.C.) to 1769 when the Spanish people arrived. A rare example of an Early Period village (LAn-618) was recorded approximately 6 miles northeast of the proposed project area. The Middle Period (1000 B.C. to A.D. 500) is more widely represented in the region. A village recorded at Vasquez Rocks in the vicinity of the early village site originally consisted of several single-family residences in separate locations but later combined to form one village unit. Seasonal special use sites for resource procurement and production have been recorded at Escondido Canyon (approximately 6 miles northeast of the proposed project area and south of the Vasquez Rocks village site). Major site complexes are also well-represented along the Piru and Castaic drainage systems (approximately 15 miles northwest of the proposed project area). By the Late Period (A.D. 1000 to A.D. 1769), sites increased in number and became more specialized. Evidence points to the upper Santa Clara Valley being utilized by the Tataviam native cultural group (Wlodarski 1989:10)

The proposed project area is subject to Forestwide Standards and Guidelines for cultural resources contained in the Forest Plan. An Archaeological Reconnaissance Report is required where impacts to cultural resources are anticipated. Additionally, cultural resources inventory work is to proceed in conjunction with development projects. Cultural resources investigations conducted for the proposed Gillibrand mine meet the standards for professional inventory work and exceed those for archaeological reconnaissance. An archaeological records search indicates that no prehistoric resources have been recorded within the boundaries of the proposed mining and access road area. Previous cultural surveys of the proposed mining area by Robert L. Wlodarski in 1986, 1988, and 1989

revealed no prehistoric sites. An expanded study area was intensively surveyed by Tetra Tech, Inc. in July 1990. This survey of approximately 250 additional acres revealed no prehistoric sites (Tetra Tech, Inc. 1990).

3.6.1.2 Historic Resources

Historic site types in the general region include ranching and farming habitation sites, mining sites, roads, telephone and electric lines, military complexes, and railroad sites. The time period represented by these resources dates from 1769, when the Portola expedition came through the area, to the present. Little material evidence is left to document early exploration and settlement of the area. The period most represented is from the 1850s, when prospecting and mining occurred along the Santa Clara River. The appearance of the Southern Pacific Railroad in Soledad Canyon in 1876 made an impression on the landscape with railroad stations, sidings, and communities appearing along its path.

Previous cultural surveys of the proposed mining area by Robert Wlodarski revealed two historic sites. The Iron Blossom Mine, LAn-1313H (F.S. #05-01-55-24) was recorded in 1986. The site contains remains of an ilmenite-magnetite mine in Claim Group II on a portion of Gillibrand Claim No. 10. The mine was utilized from 1927 to 1938. Remains consist of an old access road, a concrete piling, light-gauge railroad track, burned timber, ore tailings, and miscellaneous metal. Fires and manmade disturbances have compromised the integrity of the site. The site was recommended as not eligible for the National Register of Historic Places (NRHP) by the Forest Service with concurrence by the State Historic Preservation Office.

A gold mining site, CA-LAn-1416H (F.S. #05-01-55-10) was recorded in 1983. The remains located on Placer Claim #12 are only a few feet south of the permit area. Activity at the mine dates between 1920 and 1930. The site consists of a concrete foundation, granitic rock retaining walls, brick scatter, rock alignment, cable foundation, an adit, and mining debris. There is evidence that the mine was only used to attract investors and was never actually utilized for mining. The mine does not appear on maps of the time and lacks tailings and other evidence of active operation. The site was recommended as not eligible for the NRHP by the Forest Service with concurrence by the State Historic Preservation Office.

Archival research and an intensive cultural survey performed by Tetra Tech, Inc. in 1990 revealed no historic sites in the expanded sections of the proposed mining area and access road corridors (Tetra Tech, Inc. 1990).

3.6.1.3 Native American Resources

The following Native American groups and individuals were contacted to identify areas of religious or cultural importance for the *Angeles Forest Cultural Resources Overview* (McIntyre 1985): Native American Heritage Commission, Los Angeles City/County Indian Commission, Art Morales, Charles R. Cooke, and Beatrice Alva. No sensitive resources, such as burial sites, traditional ritual areas, or traditional use or procurement areas, were identified for the Angeles National Forest (McIntyre 1990).

3.6.1.4 Paleontological Resources

The region contains mostly Miocene sedimentary rocks of mudstone, sandstone, and conglomerate, with gabbroic and noritic rocks in the upper portions. Granulite gneisses; anorthosite-syenite; granodiorite; metamorphosed dikes of basalt, andesite, and rhyolite; and Mesozoic granitic rocks also occur in the area (Wlodarski 1986:4-5). Within the proposed operations area, geologic formations are primarily igneous and metamorphic, varying from Precambrian to Cenozoic in age. Fossilized remains are not expected in these rock formations. The nearest sedimentary deposits are to the west of Bear Divide, southeast of Claim Group III (Brandman 1988).

3.6.2 Criteria for Significance of Impact Determination

Impacts to cultural resources will be considered significant if one or more of the following conditions occur:

- Project would affect districts, sites, highways, structures, or objects listed in or eligible for listing in the NRHP, or may cause loss or destruction of significant scientific, cultural, or historic resources.

- Project would affect Native American sites important to their physical universe or belief system.

- Project would result in major reduction of access to traditional Native American use areas or sacred sites.

- Project would result in exposure of important paleontological specimens or fossiliferous sediments to weathering or unauthorized collection.

3.6.3 Environmental Consequences

3.6.3.1 Alternative 1 - Proposed Action

The project area, consisting of the three claim groups and associated roads, is spread over 810 acres. Actual activity areas will disturb less than 300 acres. Cultural resource investigations were conducted by qualified personnel in conformity with the Forest-Wide Standards and Guidelines of the Forest Plan.

Prehistoric Resources. Archival record searches and field surveys revealed no surface remains of prehistoric resources in the proposed mining area and road corridors. Therefore, no known prehistoric sites are expected to be affected by the proposed mining activity.

Historic Resources. Site LAn-1313H within and adjacent to Claim No. 10 (Claim Group I) may be affected by open pit mines, spoil areas, topsoil and low-grade ore stockpiles, and roads.

Based on information obtained from field surveys and archival research, the potential for these sites to yield additional information to local and regional mining history is limited. The sites lack physical integrity because of fires and other man-made disturbances. Because the historic site was recommended not eligible for the NRHP with concurrence from SHPO, no adverse impacts on historic properties are expected as a result of the project.

Native American Resources. Previous requests for data from Native Americans, along with archival and field research, revealed no evidence of sacred or heritage areas. Therefore, no sensitive resources are expected to be affected, unless additional information is received which indicates that these resources exist.

Paleontological Resources. The potential for disturbance of paleontological resources is negligible because the geologic deposits are not conducive to fossilized material.

3.6.3.2 Alternative 2 - Conveyor Transport - Claim Group II to Plant Site

This alternative would be the same as the proposed action, except that a conveyor belt would be used to transport ore from Claim Group II to the plant, and Road Section B would not be constructed.

However, a construction and maintenance road for the conveyor system would have to be built in place of a truck haul road.

Prehistoric Resources. No prehistoric sites are expected to be affected in the proposed mining area.

Historic Resources. This alternative modifies the road construction activity in Claim Group II in the vicinity of the Iron Blossom Mine from a haul road to a maintenance road. This action will reduce total construction disturbance and the potential for impacts to known historic resources.

Native American Resources. No Native American resources were identified; therefore, impacts are not expected.

Paleontological Resources. Because paleontological resources are not expected in the proposed mining area due to the non-fossiliferous nature of the local granitic bedrock, impacts are not expected.

3.6.3.3 Alternative 3 - Road Section D to Claim Group II

This alternative would require construction of Road Section D to reach Claim Group II. The construction distance would be reduced by 0.5 mile and the haul distance from Claim Group II to the plant site by 3.1 miles.

Impacts to prehistoric, historic, Native American, and paleontological resources would be the same as the proposed action.

3.6.3.4 No Action Alternative

The no action alternative is defined as not approving the Plan of Operations for the proposed project. Therefore, the study area would not be disturbed by the proposed mining project, and no impacts to cultural resources would occur.

3.6.3.5 Mitigation Measures

C-1 Because no significant surface remains of cultural resources were identified, mitigation measures are not required. However, upon discovery of any subsurface cultural or major paleontological resource during project activities, all work shall be stopped in the immediate

area of the find. The district ranger shall be promptly notified so as to initiate a scientific cultural examination of the site. Work shall not be resumed until authorized by the district ranger.

3.6.3.6 Effectiveness of Mitigation Measures

The suggested mitigation measure affords active protection for cultural resources as required by federal and state laws and regulations.

3.6.3.7 Significant Impact Summary

No significant adverse impacts are expected as a result of implementing the proposed project.

3.7 TRANSPORTATION (ISSUE CATEGORY #6)

3.7.1 Affected Environment

3.7.1.1 Roads and Highways

The P.W. Gillibrand Company facilities are on Lang Station Road, a paved two-lane road, primarily utilized for local industrial traffic. Land Station Road provides access to Soledad Canyon Road to the southeast of California State Route 14, also known as the Antelope Valley Freeway, the route utilized by the company for its present sand and gravel operation (Figure 3.7-1). Soledad Canyon Road is a two-lane undivided roadway at the Lang Station Road access, with a maximum capacity of 12,500 vehicles per day. State Route 14, a 4- to 10-lane freeway, is the primary link between Los Angeles and the High Desert area around Palmdale and Lancaster. At the Soledad Canyon Road onramps and offramps, State Route 14 has four lanes (two each direction) with a maximum capacity of 86,000 vehicles per day. In the Santa Clarita area, daily volumes range from 121,000 vehicles per day just north of the Interstate 5/State Route 14 junction, to 73,000 vehicles per day in the Agua Dulce area. The two major freeways, Interstate 5 and State Route 14, join in Newhall Pass just south of the Santa Clarita Valley and, like a funnel, constrain and back up traffic during peak hours and holiday weekends. Roadway level of service (LOS) is a qualitative measure describing operational conditions within a traffic stream, and the perception by motorists. An LOS definition generally describes these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety (Table 3.7-1). Conditions range from

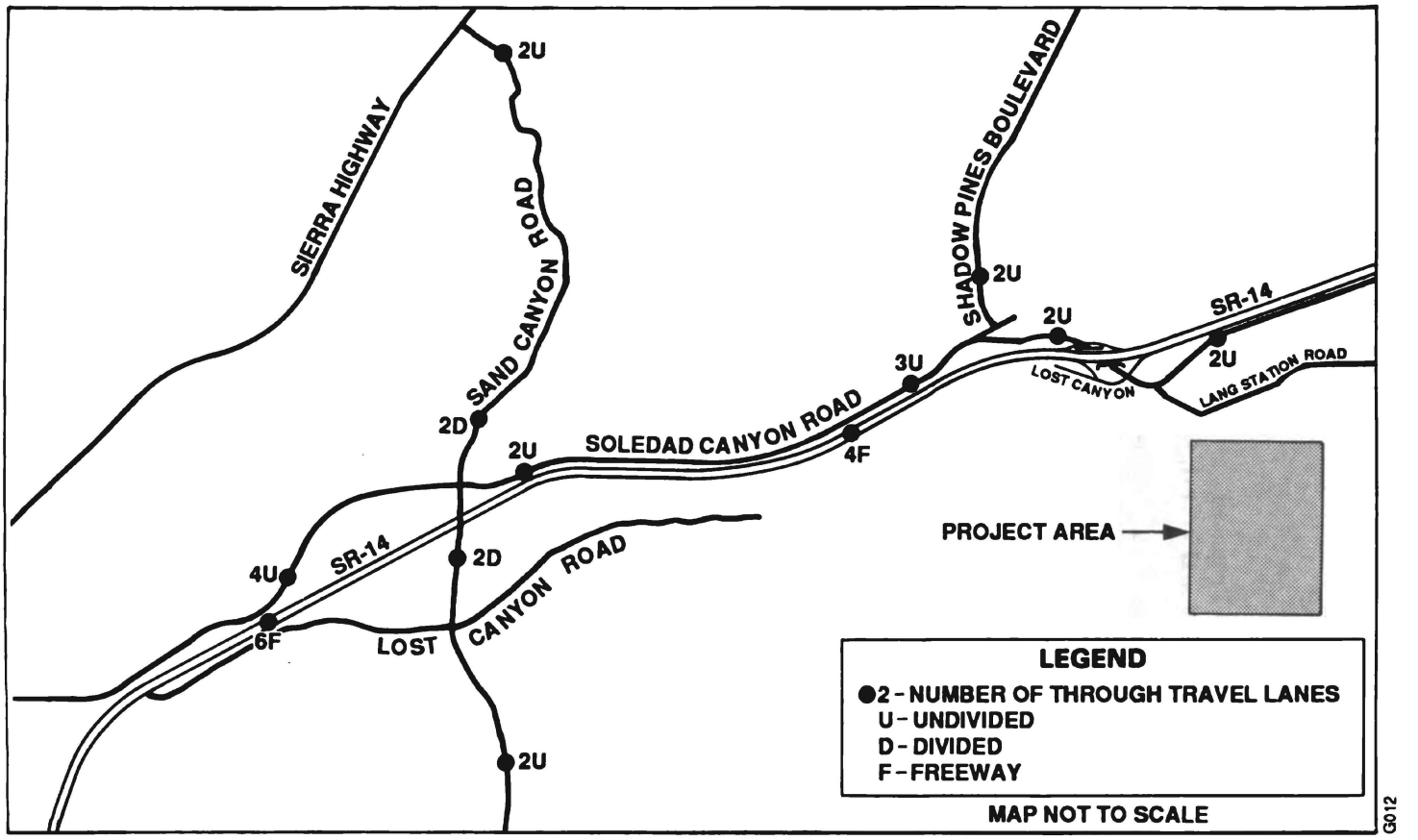

Figure 3.7-1 Existing Traffic Circulation in the Vicinity of Proposed Soledad Canyon Mining Operations

excellent (LOS A) to overloaded conditions (LOS F). Roadway capacity is used to quantify the LOS. Roadway volumes are divided by capacity (V/C), which can be expressed in a percentage form to relate to the LOS. A V/C ratio corresponds to each letter rating and nears 1.0 as the traffic volume carried by the roadway approaches the design carrying capacity of the system.

The existing LOS for the roadways in the general vicinity of the proposed project are shown in Table 3.7-1. The LOS on roads adjacent to the proposed project (Soledad Canyon Road west and east of State Route 14 ramps and Lost Canyon Road south of the State Route 14 underpass) are A or B. State Route 14, in the vicinity of the proposed project, is at LOS D.

To assess the operation of an intersection, the volume of traffic using the intersection is compared to the capacity of the intersection. Data collected by the City of Santa Clarita in February and March 1989 indicated LOS A at the intersection of both the northbound and southbound ramps of State Route 14 and Soledad Canyon Road (just adjacent to the P.W. Gillibrand plant). The V/C ratio was less than 0.45 for each of the intersection directions. A V/C ratio of 0.60 or less represents LOS A or signalized intersections.

Table 3.7-1

Existing Levels of Service in the Vicinity of the Proposed P.W. Gillibrand Soledad Canyon Mining Project, Angeles National Forest, California

Roadway	Location	ADT	Capacity	V/C Ratio	LOS
Soledad Canyon Road	West of State Route 14 southbound ramps	1,578	12,500	0.13	A
	East of State Route 14 northbound ramps	5,399	12,500	0.43	B
	East of Sand Canyon Road	25,570	25,000	1.02	E
	East of Sierra Highway	42,510	56,300	0.76	C
Lost Canyon Road	South of State Route 14 underpass	133	25,000	0.01	A
State Route 14	Segment east of Shadow Pines Blvd.	67,000	86,000	0.78	D
	Segment east of Sand Canyon interchange	79,000	86,000	0.92	D

Notes: ADT = Average daily traffic.
V/C = Volume-to-capacity ratio.
LOS = Level of service -
A = Free-flowing operations: high average speeds and slight impacts on maneuverability (V/C ratio <0.40).
B = Reasonably free-flow operations: above average speeds and slight impacts on maneuverability (V/C ratio 0.41 to 0.55).
C = Stable operations, typically meets design standards: some speed restrictions as a result of congestion and noticeably restricted freedom to maneuver (V/C ratio 0.56 to 0.75)
D = Borders on unstable flow: speeds reduced by congestion and severely limited freedom to maneuver (V/C ratio 0.76 to 0.90).
E = Unstable flow: virtually no usable gaps in the traffic stream to maneuver from one lane to another without causing disruption to traffic flow (V/C ratio 0.91 to 1.05).
F = Forced or breakdown flow: intermittent traffic stoppage in a lane and queues behind breakdown points (V/C ratio >1.06).

Sources: City of Santa Clarita 1990; Transportation Research Board 1985 (values interpreted for freeways and major highways).

3.7.1.2 Railroads

The Southern Pacific Railroad's San Joaquin Valley main line is adjacent to the P.W. Gillibrand property near Lang Station. The ports of Hueneme, Los Angeles, and Long Beach are 65 to 70 rail miles from the Santa Clarita area. Currently, about 8 to 10 trains pass by the Lang Station daily. Rail transportation is presently utilized for long distant transport of mined materials other than sand and gravel. The sand and gravel market is within 30 miles of the plant site; therefore, no rail transport is presently utilized.

3.7.2 Criteria for Significance of Impact Determination

An impact would be considered significant if one or more of the following conditions occur:

- Project-related traffic on public roads reduces the LOS below minimum desirable design standards endangering public health and safety and requiring major facility improvements at substantial cost.
- Access for emergency vehicles is obstructed.
- A major roadway or railroad is closed to all through traffic and no alternative route is available.
- Peak period LOS on major arterials is reduced to LOS E or F for more than 4 weeks.

3.7.3 Environmental Consequences

3.7.3.1 Alternative 1 - Proposed Action

Sand and gravel, the construction by-product materials that are residual to the proposed mineral operations, would continue to be sold in the Santa Clarita and San Fernando Valley regions of Los Angeles County, and the northern section of Ventura County. The present haul route to market, with immediate entry onto the freeway system from Soledad Canyon Road, would also continue to be utilized. The amount of sand and gravel traffic would remain dependent on market demand and no additional sand and gravel truck traffic is expected to occur from the proposed action. No change in the present LOS (A or B on the interchange and D on the freeway) is expected.

The mineral products mined for the proposed action would primarily be shipped to long-distant markets and involve high tonnages. Direct rail transportation, rather than truck transportation, would handle the distribution of materials and no change in LOS is anticipated. If demand for minerals and construction materials increases simultaneously, a limited increase in truck transportation is anticipated from the proposed action. Possible minor increased truck traffic associated with the proposed action would not change the LOS of State Route 14, the Soledad Canyon Road, or the Soledad Canyon/State Route 14 intersection. Because of the very limited increase in highway traffic, impacts on highways will not be significant. Direct rail transportation of ilmenite and titanium will add one train round trip carrying 8,000 to 10,000 tons of minerals per week to haul 400,000 tons of minerals per year. This will not result in any appreciable increase in rail traffic in the Lang Station area or in the Los Angeles area in general. Impacts on railroad traffic would not be considered significant.

3.7.3.2 Alternative 2 - Conveyor Transport - Claim Group II to Plant Site

The environmental consequences of Alternative 2 are the same as those for the proposed action.

3.7.3.3 Alternative 3 - Road Section D to Claim Group II

The environmental consequences of Alternative 3 are the same as those for the proposed action.

3.7.3.4 Alternative 4 - No Action

With the no action alternative, the traffic generated by the existing operations would continue without change. No additional environmental consequences are associated with the no action alternative.

3.7.3.5 Mitigation Measures

T-1 If demand permits, consider use of the Southern Pacific Railroad as the primary means of transporting of minerals to market to reduce traffic impacts on State Route 14 and become more cost effective.

T-2 Construct a 60-car industrial siding to load the railroad cars at Lang Station. The existing industrial siding accommodates only six cars. Or use the existing passing siding if SP decides it isn't needed for through freight movement on the mainline.

3.7.3.6 Effectiveness of Mitigation Measures

Use of the railroad to transport the minerals to the market will avoid increased traffic and congestion on Southern California highways. Road traffic from the transport of mineral by-products, such as sand and gravel, is not expected to increase beyond the current levels.

3.7.3.7 Significant Impacts Summary

There are no significant adverse impacts associated with transportation of the mineral materials.

3.8 VISUAL/SCENIC RESOURCES (ISSUE CATEGORY #7)

The visual/scenic resources analysis examines impacts associated with the development of three key lode claim groups, referred to in the *Plan of Operations* as Claim Groups I, II, and III. This analysis addresses impacts of the proposed overall project areas rather than being confined to the activity areas exclusively. Major activities with the potential for causing visual impacts include road widening, road building, brush clearing, open pit mining, spoil disposal stockpiling, and reclamation activities.

The primary analysis methodology used is the Visual Management System (VMS) of the Forest Service, as outlined in *National Forest Landscape Management, Volumes 1 and 2*, Agriculture Handbook Numbers 434 and 462. The analysis establishes certain Visual Quality Objectives (VQO) which define the degrees of acceptable alteration of the natural landscape. Five VQOs are commonly defined: preservation, retention, partial retention, modification, and maximum modification. There are two additional short-term management goals: rehabilitation and enhancement. As part of the analysis, some additional concepts are drawn from the Visual Contrast Rating System methodology developed by the Bureau of Land Management (BLM). Concepts and approaches from the BLM methodology are employed only when they enhance or augment the Forest Service methodology.

The analysis is also based on photographs and field data gathered during two extensive field surveys of the site and surrounding viewshed conducted on August 6 and 14, 1990. All three mining group areas were surveyed, proposed access road alignments were traversed, and surveys were made of numerous area roads and residential neighborhoods. These include State Route 14, Soledad Canyon Road, Sand Canyon Road, Little Tujunga Road, Placerita Canyon Road, Live Oak Springs Canyon Road, Lost Canyon Road, and numerous smaller residential streets within Sand Canyon, in "Canyon Country," and in various residential areas north of State Route 14 within the City of Santa Clarita. Atmospheric conditions during the site visit were variable. The morning of August 6 was hot and

clear with substantial cumulus clouds and haze building in the afternoon. August 14 was hazy with some clearing during the afternoon.

3.8.1 Affected Environment

The proposed P.W. Gillibrand mining sites occupy three widely separated areas on the northern slopes of Magic Mountain, within the Angeles National Forest east of the City of Santa Clarita. The proposed mining operations on the upper mountain lode claims encompass 810 acres, of which about 300 acres are designated as "activity areas" within the *Plan of Operations*.

The overall visual setting is complex, consisting of interactions between steeply eroded elements of the San Gabriel Mountains and various intersecting canyons. The most significant of these for the purposes of this analysis are the Magic Mountain massif and the Santa Clara River Valley, including the lower section of Soledad Canyon. The large, generally east-west trending valley carved back into the mountains by the Santa Clara River and various tributaries forms the cradle for nearly all of the significant area viewpoints. These viewpoints include those along area transportation corridors, primarily State Route 14, from residential areas along the highway (generally just to the north of the highway), and from residential areas within Sand Canyon to the west of the project site.

The Santa Clara River basin is enclosed to the south by Magic Mountain and to the north by the Sierra Pelona and other intermediate ranges. To the east, the valley is enclosed by the encroaching ridges and rising terrain of the mountains. To the west and southwest, the valley broadens, taking on a more open visual aspect in the Santa Clarita area and beyond.

The area has a complex internal geography, typified by rugged, eroded terrain and numerous deeply incised canyons. Numerous sharp ridgelines take on visual significance depending on precise viewpoint. Some valleys within the overall setting are completely concealed from significant area viewpoints, while others are highly exposed to numerous views. Vegetation is highly variable, ranging from sparse growth on steep talus slopes or rock outcrops, to chaparral slopes, riparian areas in canyons, and some stands of conifers on upper north-facing slopes. The relatively more abundant vegetation on the upper reaches of the mountains is highly evident even from quite distant vantages, and the mountain slopes are visually characterized by generally steep terrain varying from 10 to 20 percent to nearly vertical in some places. Areas of bedrock outcrops are visible in numerous places.

Despite its complexity, the overall visual effect of the area is one of vastness. From the low elevation vantages, such as those within the Santa Clara River Valley or within Soledad Canyon, the more distant ridges of the surrounding mountains appear to rise in tiers. The lack of evident scale in much of the vegetation tends to exaggerate this effect; some peaks appear more distant and therefore higher than is actually the case. As other visual analysts have noted, the juxtaposition of flat and steep landscapes can give open, desert landscapes a unique identity (Schauman 1979).

Changing atmospheric and lighting conditions greatly affect the viewing of open landscapes. This point is noted in the VMS as well as by other analysts. Sky itself -- its illumination, weather conditions, and relationship to the ground -- has been cited as one of the major visual components of the visual experience with open and desert landscapes (Smardon 1977). Visual perceptions of human additions to such landscapes are affected by changing light and atmospheric conditions. A reflective white surface at the summit of Magic Mountain can be seen for many miles under certain conditions, but during hazy conditions it may be relatively unobtrusive. This analysis is based on worst-case visual impact conditions, the commonly occurring clear conditions under which the proposed landscape changes will be most visible from significant viewpoints.

Geographic structure of the proposed mining sites and along the proposed access roads is also extremely complex, a reflection of the overall geographic complexity common to the physiographic region. Elevations of the study area range from approximately 1,700 feet at the existing plant site to over 4,200 feet at the Claim Group III. In a broad sense the sites are situated on the upper north and northwest slopes of Magic Mountain; however, Claim Group III straddles the ridgeline on the upper mountain, with a significant portion of the proposed mining area on a south-facing slope in upper Sand Canyon.

A number of significant drainages cross the study area. The most significant of these for this analysis are Pole Canyon, Oak Spring Canyon, Sand Canyon, and Iron Canyon. Each of the three Claim Groups are within a different drainage - Claim Group I within Oak Springs Canyon, Claim Group II within Pole Canyon, and Claim Group III within Sand Canyon and Iron Canyon. These canyons are significant as potential corridors of view. Oak Springs Canyon, upper Sand Canyon, and Iron Canyon drain to the west, offering potential view opportunities from residential or other viewpoints to the west. Pole Canyon drains to the north into Soledad Canyon.

For the most part, the character of the overall study area is undisturbed. The mountains are unscarred; no structures are visible. There are some exceptions. The summit of Magic Mountain has an array of communications towers, microwave relays, and related equipment silhouetted against the

sky, but these are a considerable distance from any significant area viewpoints. A scattering of roads and firebreaks are visible from various viewpoints. The most prominent of these roads have been constructed as part of exploratory operations relating to the proposed mining and follow the alignment of proposed mining operations access roads. Completion of these sections of roads would essentially be a widening operation.

A significant consideration for this analysis is distance. Distance is one of the most important variable considerations within the VMS methodology. Significantly, the proposed mining operations are in middleground (1/4 - 3 miles) or background (3 miles to infinity), as seen from all significant area viewpoints. There are no significant area viewpoints in which the proposed action appears as a foreground view.

The landforms represented on the Gillibrand claim sites are common to the physiographic region. Slopes range from 10 to 60 percent or more and are extremely dissected and varied. The extreme geographic complexity of the area prevents the emergence of individual striking, visually dominant features, with the partial exception of the Magic Mountain summit and crest. Instead, the landscape takes on the character of a large, visually complex mass. Features contain wide variety in form, line, color, and texture, but tend to be common throughout the character type and are not outstanding in visual quality. No visual elements represented on the site are rare within the region or within the landscape character type. Using the VMS methodology, the landform category of the site is determined to be Variety Class B (Figure 3.8-1).

The study area has a number of commonly occurring rock forms, including talus slopes and rock outcrops. For the rock form category, the site is determined to be Variety Class B.

Vegetation cover in the study area is continuous with interspersed patterns, as viewed from significant area viewpoints. There is common diversity in plant species. There are some areas of conifers on the upper north-facing slopes of Magic Mountain and some of the drainages support modest riparian growth. From a purely visual rather than botanical standpoint, however, there is no unusual or striking species or vegetative features on the site. For the vegetation category, the site is Variety Class B.

Overall, the site is Variety Class B. However, some elements within the overall area do exhibit some elements that approach Variety Class A. These include the steep, skylined ridge of Magic Mountain, and some of the rugged and distinctive area canyons. This finding generally conforms to Forest

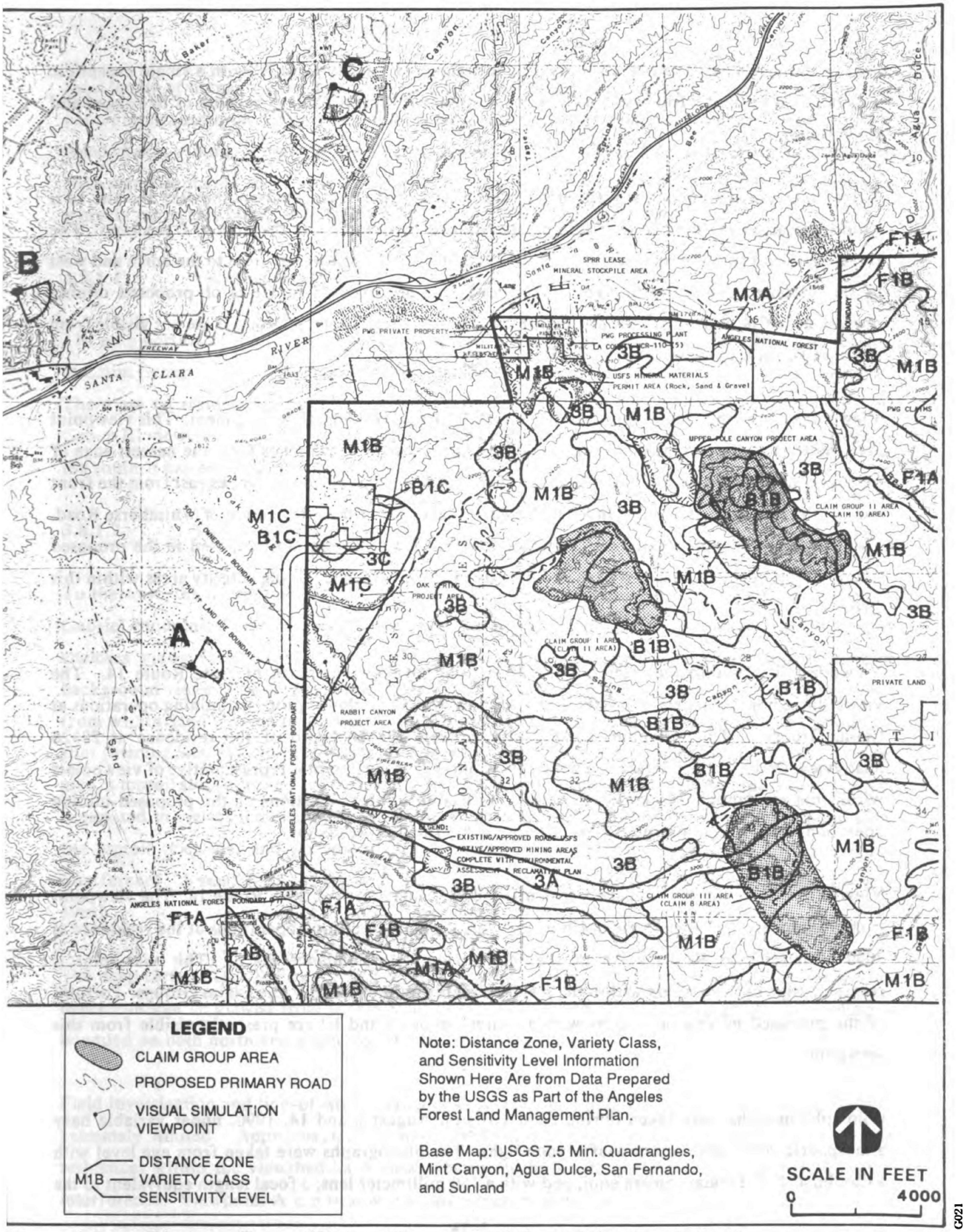

Figure 3.8-1 Distance Zones, Variety Classes, and Sensitivity Levels in the Proposed Project Area of the Angeles National Forest, California

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Service designations. The overall study area is designated Variety Class B, with a single exception: a ribbon that generally follows Iron Canyon is designated Variety Class A because of its rugged and steep slopes.

Three color visual simulations were prepared as a part of the visual analysis showing the site as it would appear during the course of mining operations as outlined under the *Plan of Operations*. The three viewpoint sites are representative of affected views from residential areas to the north and west of the proposed project area. The three viewpoints are exposed to views of proposed mining operations in Claim Groups I and III (Figure 3.8-1). Activities in Claim Group II are not visible from any significant area viewpoint.

Viewpoint A is within Sand Canyon in the "Crystal Springs" residential development. This viewpoint is to the west of the proposed mining operations, approximately 2.42 miles from the nearest edge of proposed mining area within Claim Group I. The precise viewpoint vantage looks east from the front yard of the residence at 15711 Condor Ridge Road, just west of the intersection of Whitehorse Road. This viewpoint is representative of viewpoints within Sand Canyon most exposed to the proposed Claim Group I project area as well as to currently proposed specific mining activity areas within this Claim Group.

Viewpoint B is within the "Sierra Hills" residential development north of State Route 14. The viewpoint is approximately 3.2 miles to the west-northwest of closest proposed mining operations at Claim Group I. The viewpoint looks southeast from the backyard of the residence at 28826 Shadyview Drive, at the intersection with Taira Court. This viewpoint is representative of viewpoints within the residential area most exposed to the Claim Groups. Portions of the proposed mining operations within Claim Groups I and III are visible for this viewpoint.

Viewpoint C is within the "Collage" residential development north of State Route 14. The viewpoint is approximately 3.7 miles to the north of the closest proposed mining operations at the residence at 30007 Grandifloras Road, north of the intersection with Sundance Place. This viewpoint is representative of viewpoints within the residential area most exposed to the Claim Groups. Portions of the proposed mining operations within Claim Groups I and III are presently visible from this viewpoint.

Color photographs were taken during field visits on August 6 and 14, 1990, under variable hazy atmospheric conditions and mid-afternoon light. The photographs were taken from eye level with a Cambo 4" X 5" format camera equipped with a 150 millimeter lens, a focal length equivalent to the

focal length of human vision. Landscape additions have been realistically rendered over the enlarged photographs, based on the proposed mining plan outlined in the *Plan of Operations*. The proposed Soledad area mining operations are all a considerable distance (3 to 5 or more miles in most cases) from significant area viewpoints. Mining operations, therefore, appear as very small, and sometimes scarcely noticeable elements within a much larger overall visual setting.

3.8.1.1 Viewshed to the South

The only portion of the proposed mining sites with an exposure to potential views from the south is at Claim Group III, located along the Magic Mountain ridgeline at and above 4,000 feet in elevation. There are no residences or publicly maintained roads or commonly visited viewpoints within the Group III viewshed. The number of potential viewers of mining operations at Claim Group III from the south is extremely small.

3.8.1.2 Viewshed to the West

To the west, the overall mining operations area viewshed is enclosed by rising portions of the San Gabriel Mountains west of Sand Canyon and the rising bulk of Magic Mountain, which sharply encloses views from Sand Canyon. Proposed mining operations appear in middleground or background views. The proposed mining area within Claim Group I is the only one exposed to views from within Sand Canyon to the west. Proposed activities within Claim Group I include two mining sites (Mining Site #11 North and Mining Site #11 South), a low grade ore stockpile, a spoil disposal area, a topsoil stockpile, and access roads. Field investigation shows that only Mining Site #11 North is exposed to views from Sand Canyon to the west. Mining Site #11 South, the spoil disposal area, the topsoil stockpile, and the low grade ore stockpile are concealed from view by topographic interference. A small portion of a Sand Canyon residential area has direct views of Mining Site #11 North.

The deep cleft of Oak Spring Canyon offers the only topographic niche through which the mining operations can be viewed from within Sand Canyon. Significantly, Oak Springs Canyon is sharply bounded on both north and south sides by steeply rising slopes.

Field investigation and line-of-sight drawings show that the Claim Group I viewshed to the west is extremely limited. Approximately 25 to 30 residences are within the viewshed. Many of the residences within the viewshed have views obstructed by existing vegetation or other foreground interference. Viewpoint A is a true worst-case exposure to the site. A line-of-sight drawing from

Viewpoint A shows that just over 66 vertical feet of the east pit wall will be visible. The rest of the pit wall is concealed. Some more distant residences, west of Sand Canyon Road, also are exposed to views up Oak Springs Canyon toward the Claim Group I mining area and Triumph Avenue. For nearly all of these residences, there is considerable foreground interference and a special effort must be made to locate the mine site. The proposed mining operation will not be at all dominant within the overall visual setting, as viewed from these viewpoints; it is merely another small, distant element within a complex overall setting.

The Claim Group I area is minimally exposed to views from Sand Canyon Road itself. There are only three extremely short stretches along the road -- all between Condor Ridge Road and Sandy Oak Lane -- from which the mining site can be seen. Even from these the view is partially obscured by trees and other foreground interference. Other than these locations, the Claim Group I area is completely concealed by topography or by foliage.

Sand Canyon Road is the main travel route in Sand Canyon. The road is of local importance. There is access provided to Forest Service lands via roads which intersect the highway. The road appears to be of secondary importance within the VMS framework.

3.8.1.3 Viewshed to the North

To the north the overall view is substantial, being enclosed at distances varying from 10 to over 20 miles by ridges of the Sierra Pelona Range. Numerous significant viewpoints are within this viewshed, most notably along portions of State Route 14, the numerous residences to the north and northwest of State Route 14, and other lesser area travel arteries. These viewpoints are variably exposed to portions of proposed mining operations within Claim Areas I and III and to mine access roads. Proposed mining operations within Claim Group II are not visible from viewpoints to the north. Proposed mining operations appear in the middleground or background views.

According to the California Department of Transportation, average daily traffic counts along State Route 14 north of the project site are 67,000 vehicles, with peak-month daily counts of 69,000 vehicles and peak-hour counts of 8,000 vehicles. These number are for 1989, the latest data available, and were taken between Sand Canyon Road and Shadow Pines Boulevard interchanges. These counts constitute a significant number of potential viewers and by far the largest number of viewers within the area.

The VMS provides a general framework for determining the importance of travel routes. The use volume of State Route 14 is the highest for any area travel route. The highway also provides access to National Forest lands via various offramps and side roads. Both of these criteria would place the highway in the "primary importance" category, according to the VMS. The highway is classified "nonscenic freeway and expressway," according to the California Department of Transportation.

Some areas of State Route 14 have views of portions of proposed mining operations at Claim Groups I and III. Claim Group I is approximately 1.65 miles from the closest point along State Route 14; Claim Group III is some 3.5 miles distant.

Nearly all of proposed mining areas at Claim Group I are concealed from viewpoints along State Route 14. A ridgeline just north of Claim Group I conceals nearly all of the mining operations from northern viewpoints. The exception to this is the existing crest of the small hill where proposed Mining Site #11 North occurs. A gap in the concealing ridgeline, combined with this hill's height, makes the upper portion of it visible from the north. Approximately the upper 75 feet of this hill is visible from 0.5-mile-long stretch of State Route 14 just west of its crossing of Soledad Canyon Road, and from points along the highway beginning 0.8 mile west of Sand Canyon Road and continuing in a western direction; however, proposed mining operations would remove the crest of this hill completely, dropping its profile out of sight from views on State Route 14.

As previously discussed, proposed mining operations at Claim Group III are directly on or immediately south of the visible crest of the Magic Mountain ridgeline. Most of the proposed mining activities are south of the ridgeline and are consequently not visible from viewpoints to the north. The exceptions to this are the access roads (the current 20-foot-wide version of which is now quite visible), the proposed spoil disposal area, and the proposed mining operations at Mining Site #8 North. Line-of-sight drawings and angle of deflection calculations show that nearly all of the area within Mining Site #8 North will be concealed from viewpoints to the north and northwest, depending on viewpoint, and only 20 to 40 vertical feet of the back pit wall will be visible. In general, viewpoints farther toward the northwest will have greater, if more distant, degrees of exposure to the mining operations. It should be noted that some of the existing road cuts associated with the existing exploratory road have greater vertical ground disturbance than 20 to 40 feet.

A substantial number of residences north of State Route 14 have similar exposures to proposed mining operations on Claim Groups I and III. These viewpoints are represented by Viewpoints B and C, for which visual simulations have been prepared.

The comments concerning project visibility from viewpoints along State Route 14 are valid for the residential areas represented by these two viewpoints. The upper portion of the hill on Mining Site #11 North, Claim Group I, is visible through a gap in the screening ridgeline immediately to the north, although proposed mining operations will completely remove it from sight. The duration of impact will thus be limited to the time required to remove the upper 75 to 100 feet of the hill. Claim Group I mining operations are not visible from the newly graded residential tract east of Floribunda Road.

At Claim Group III, a small portion of the back wall of Mining Site #8 North will be visible from the residential viewpoints. The proposed spoil disposal area is partially visible.

It is also worth noting that viewed from viewpoints to the north, the visible landscape presently appears moderately modified by human intervention. The overall visual context contains roads, rail lines, substantial aggregate mining operations, as well as residential developments. Toward the proposed mining areas to the south, existing haul roads and exploratory roads are visible on the mountain face, as well as a cluster of communications equipment at the mountain summit. Within this context, the visible portions of the mining areas constitute a less than prominent middleground or background, depending on viewpoint location. The color and texture contrasts associated with the proposed mining will be prominent within the overall visual context.

3.8.1.4 Viewshed to the East

To the east, the study area is enclosed by the rising ridges of the San Gabriel Mountains. The terrain is extremely rugged, characterized by steep ridges and intervening valleys. Soledad Canyon Road follows constricted Soledad Canyon east-northeast of the study area, but the steep intervening topography completely obstructs views. No significant viewpoints to the east have views of any proposed mining operations.

State Route 14 constitutes a primary travel route, and much of the overall study area is visible from State Route 14. Additionally, substantial portions of the site are exposed to views from residential areas. According to the VMS, these conditions make those portions of the study area visible from these viewpoints Sensitivity Level 1. This would make key portions of Claim Group I, including Mining Site #11 North, and the northern portion of Claim Group III, including a portion of Mining Site #8 North and spoil disposal area, Sensitivity Level 1. Substantial portions of the proposed road alignment, much of which is already in place as a 20-foot-wide exploratory road, would also be in

a Sensitivity Level 1 area. The balance of the proposed mining areas, including all of Claim Group II, is not visible from significant area viewpoints and is therefore Sensitivity Level 3.

Figure 3.8-1 shows previous Forest Service determinations concerning area sensitivity levels. In Claim Group I, the majority of the area is designated Sensitivity Level 1, with a portion toward the north Sensitivity Level 3. Claim Group II is also split between Sensitivity Levels 1 and 3. Claim Group III is designated Sensitivity Level 1.

3.8.2 Criteria for Significance of Impact Determination

Impacts to visual/scenic resources will be considered significant if :

- Project activities are in conflict with the VQO established by the Forest Plan.
- Degradation of visual and scenic quality of the area from the project is of a magnitude that it causes a permanent eyesore for regular viewers of the affected landscape and rehabilitation is not possible.
- Project activities include use of high intensity strobe lights that would shine directly into nearby residences on a regular basis.

3.8.3 Environmental Consequences

3.8.3.1 Alternative 1 - Proposed Action

Visual resource analysis was conducted in conformance with the Forest Plan Guidelines and mitigations have been suggested to meet the plan objectives. The Forest Service has established VQO for the proposed project site. The overall study area has two classifications: Modification and Partial Retention in a complex interlocking structure. Figure 3.8-2 shows the three claim groups on which mining is proposed, the viewpoints from which visual simulations were prepared as part of this analysis, as well as VQO boundaries as established by the Forest Service.

Under the Partial Retention VQO, management activities remain visually subordinate to the characteristic landscape. "Activities may repeat form, line, color, or texture common to the characteristic landscape but changes in their qualities of size, amount, intensity, direction, pattern, etc., remain visually subordinate to the characteristic landscape. Activities may also introduce form,

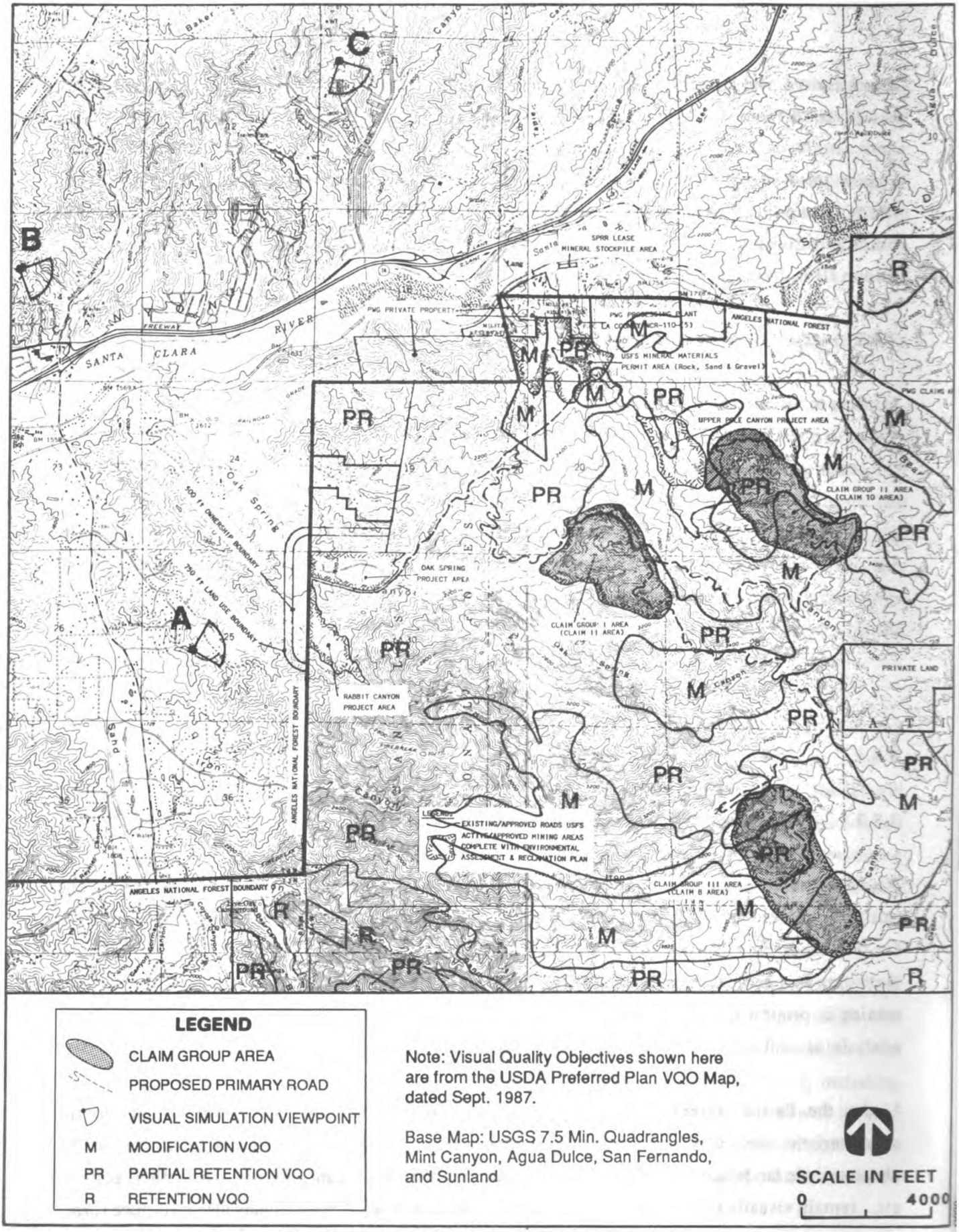


Figure 3.8-2 Visual Quality Objectives in the Proposed Project Area of the Angeles National Forest, California

line, color, or texture which are found infrequently or not at all in the characteristic landscape, but they should remain subordinate to the visual strength of the characteristic landscape. Reduction in form, line, color and texture to meet partial retention should be accomplished within the first year."

In the VMS, VQO are established through a matrix which combines the distance zone, variety class, and sensitivity level.

Under the Modification VQO, "management activities may visually dominate the original characteristic landscape. However, activities of vegetative and landform alteration must borrow from naturally established form, line, color, or texture which are found infrequently or not at all in the characteristic landscape, but they should remain subordinate to the visual strength of the characteristic landscape. Reduction in form, line, color and texture to meet partial retention should be accomplished in the first year or at a minimum should meet regional guidelines."In the VMS, VQO are established through a matrix which combines the distance zone, variety class, and sensitivity level.

According to the VQO matrix, a middleground or background area that is Variety Class B with a Sensitivity Level of 1 has a VQO of Partial Retention. The following proposed activity areas fit into this category:

- A significant portion of proposed activity areas in Claim Group I, including Mining Site #11 North.

- Portions of Claim Group III, including the northernmost section of Mining Area #8 North and the proposed spoil disposal area.

- A significant portion of the proposed haul roads. (These are variously visible from numerous area vantages, with the effect that somewhere between 60 at 75 percent of the total haul road length is visible from at least one significant area viewpoint.)

These findings, although slightly more specific, are roughly parallel to the previous Forest Service VQO determinations concerning the study area.

According to the VQO matrix, a middleground or background area that is Variety Class B with a Sensitivity Level of 3 and that is adjacent to an area of Partial Retention has a VQO of Modification. The following proposed activity areas fit into this category:

- All activity areas within Claim Group II.
- Activity areas within Claim Group I, except for those cited above.
- Activity areas within Claim Group III, except those cited above.

These finding vary somewhat from previous Forest Service VQO determinations concerning the study area, which tends to classify a larger area as Sensitivity Level 1.

Visual Simulation Analysis. Impacts of the proposed mining activities and road construction as identified through visual simulation analysis are discussed below. Figures 3.8-3 through 3.8-8 show before and after photographs of the proposed site from viewpoints A, B, and C shown on Figure 3.8-1.

Claim Group I. Proposed activity with Mining Site #11 North will be exposed to views from select residential areas within Sand Canyon to the west. Some residential viewpoints will be exposed to views of up to a 66-foot-high pit wall. Most mining operations, however, will remain hidden from even the most exposed Sand Canyon viewpoints. The proposed mining site is in the middleground and is a small part of a visually complex overall setting.

The proposed mining activity will contrast with the surrounding natural setting in a number of ways. Apart from the crests of ridgelines, the rugged, irregular terrain of the setting is largely without strong linear elements. The visible edge of the proposed back pit wall will contrast to a moderate degree with the existing setting in the visual element of line. The color of the exposed rock will contrast to a moderate degree with the existing setting in the visual element of line. The color of the exposed rock will contrast to a moderate degree with the existing surroundings. Often, freshly exposed rock is a striking lighter color than weathered rock. This is less true in this study area than in most cases. As the relatively new road cuts associated with the exploratory roads show, the rock in the study area is fairly dark in tone and tends to weather quickly. To a significant extent, the color contrast associated with the exposed rock is the result primarily of the absence of vegetation, rather than from differences in the color of the exposed rock face. In the visual element of texture, contrasts are created almost entirely by the absence of vegetation.

Under the Partial Retention VQO, management activities should "remain visually subordinate to the characteristic landscape." As viewed from Viewpoint A in Sand Canyon, mining activities in Claim

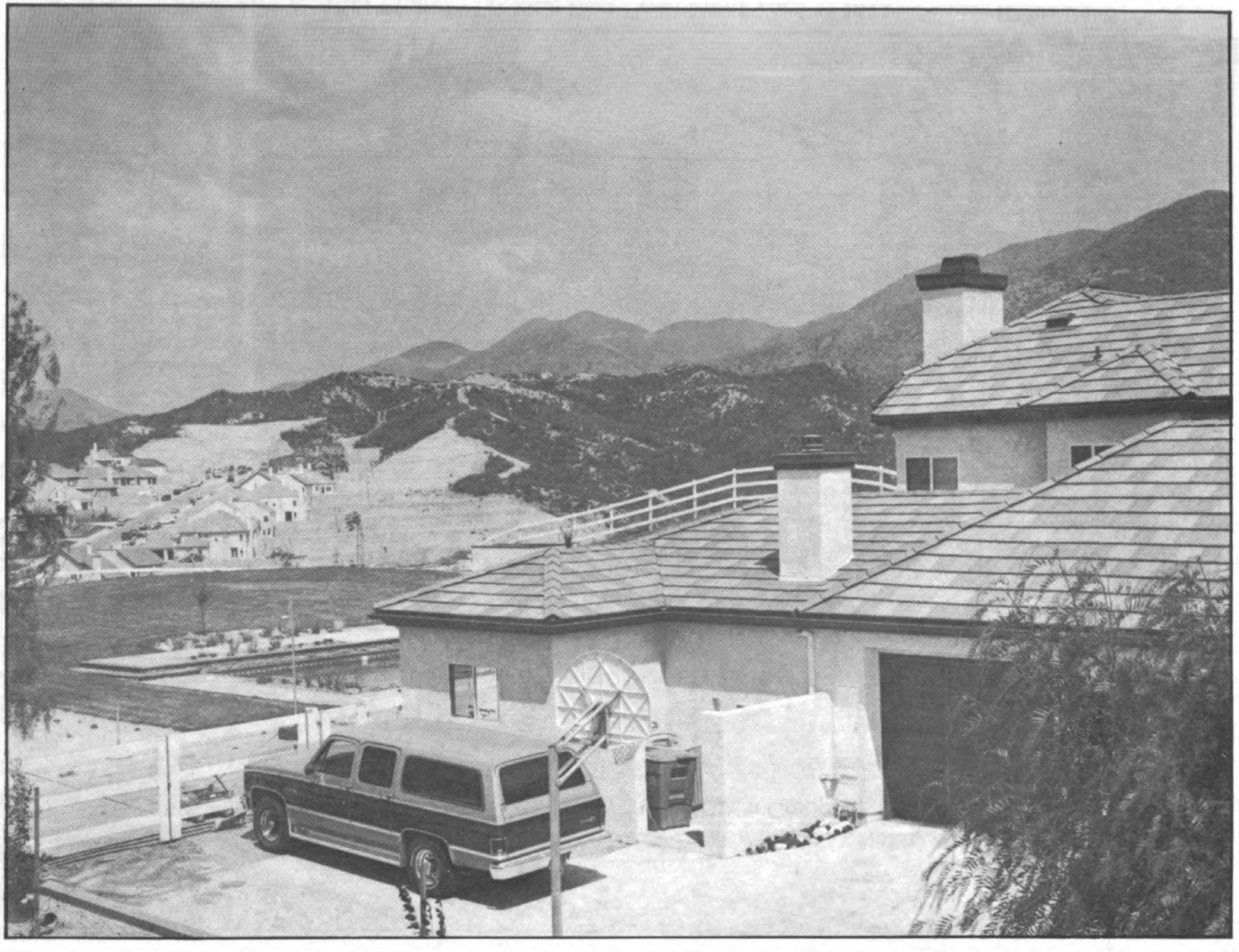


Figure 3.8-3 Viewpoint A: Before Project - Looking East From Front Yard at 15711 Condor Ridge Road in the"Crystal Springs" Development in Sand Canyon

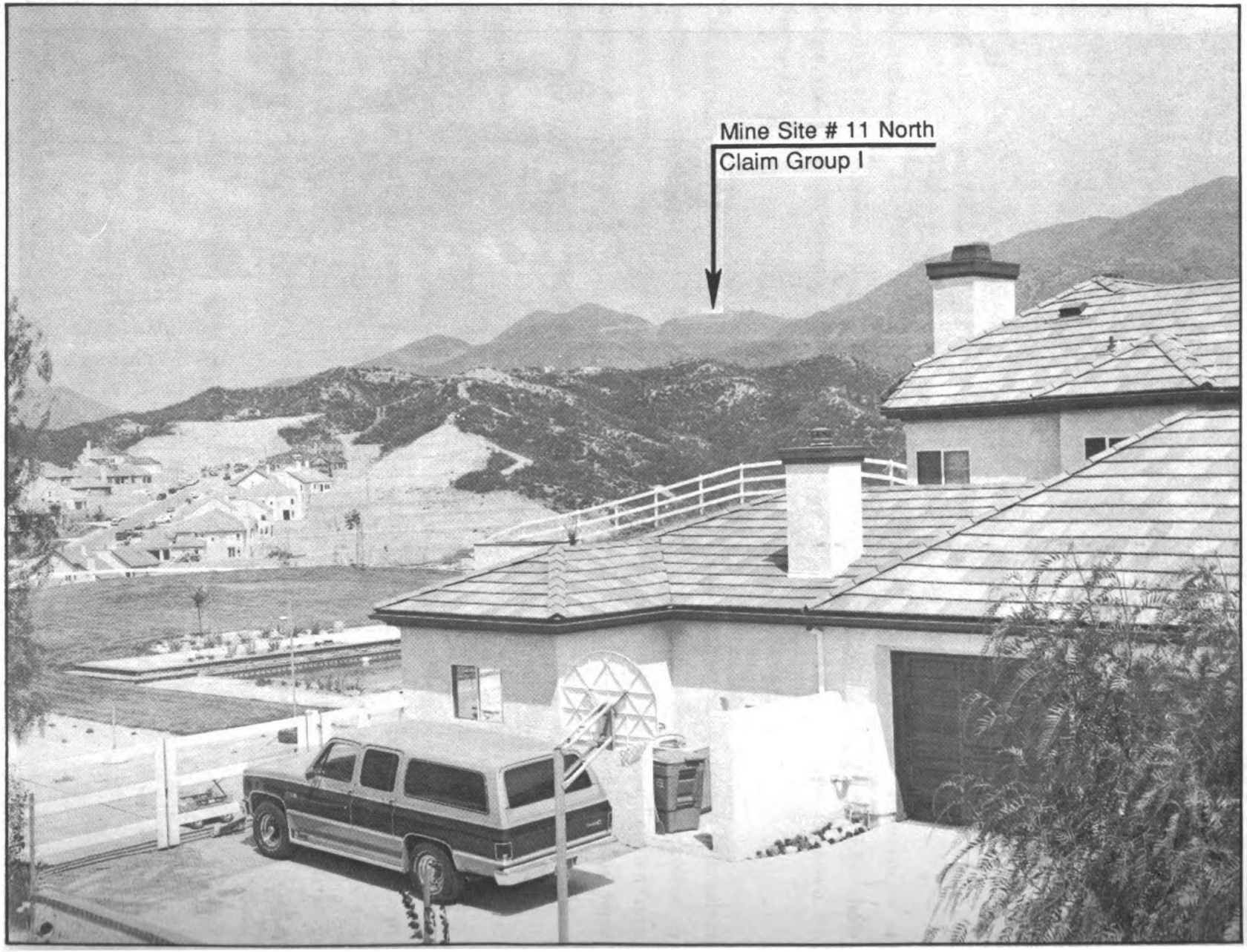


Figure 3.8-4 **Viewpoint A: After Project - Looking East From Front Yard at 15711 Condor Ridge Road in the "Crystal Springs" Development in Sand Canyon**

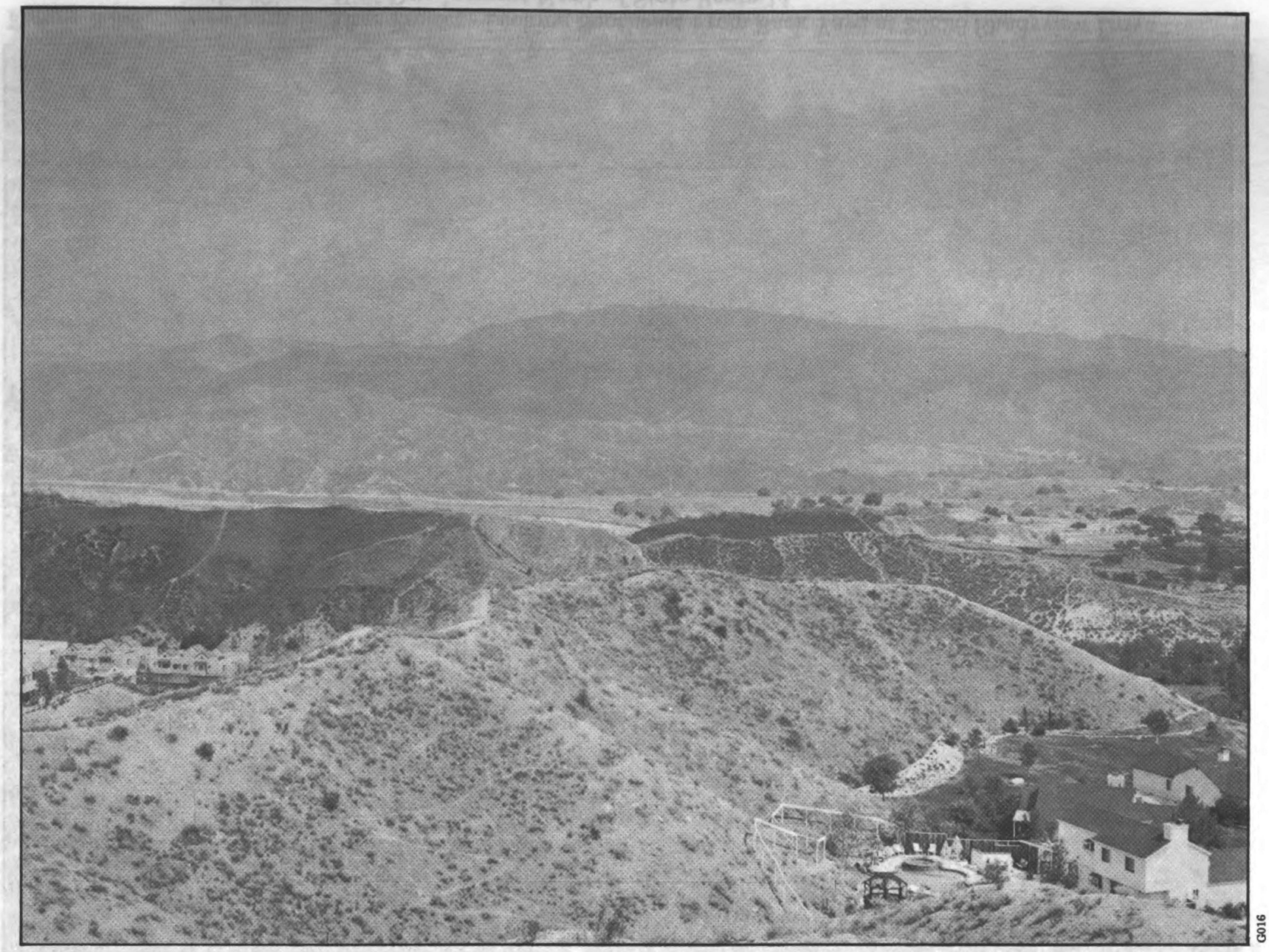


Figure 3.8-5 Viewpoint B: Before Project - Looking Southeast From Back Yard at 28826 Shadyview Drive in the "Sierra Hill" Development North of State Route 14

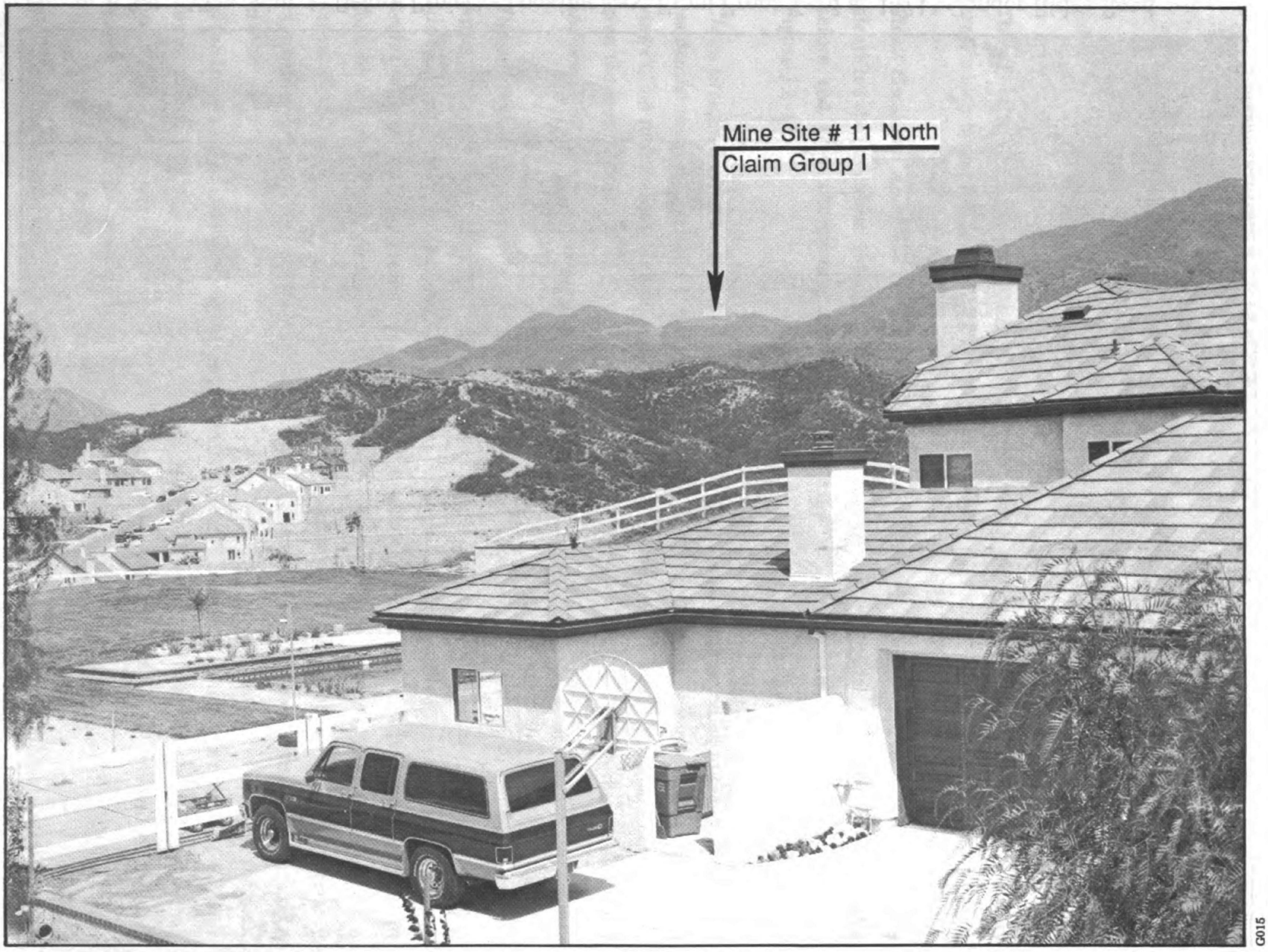


Figure 3.8-4 Viewpoint A: After Project - Looking East From Front Yard at 15711 Condor Ridge Road in the"Crystal Springs" Development in Sand Canyon

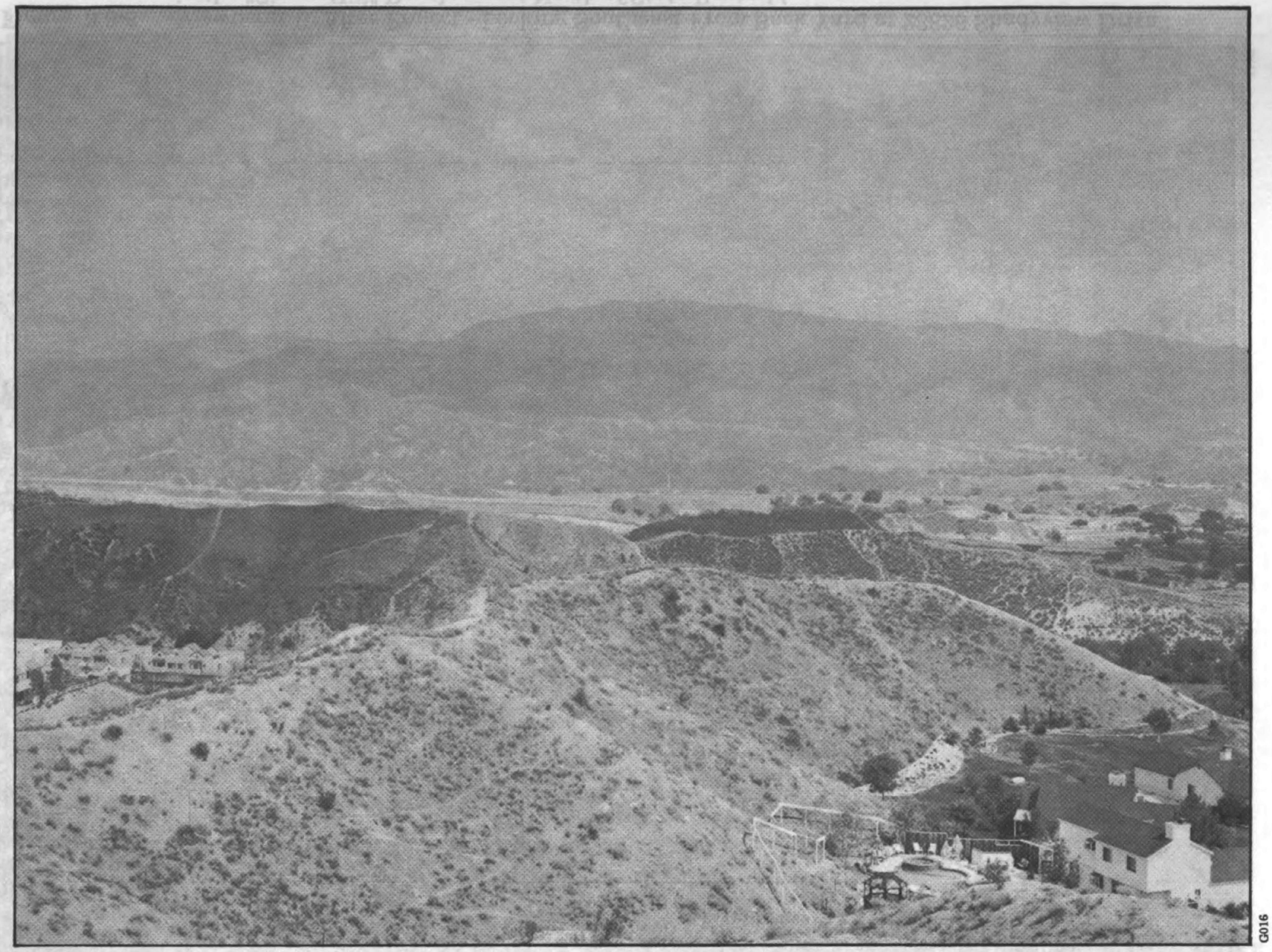


Figure 3.8-5 Viewpoint B: Before Project - Looking Southeast From Back Yard at 28826 Shadyview Drive in the "Sierra Hill" Development North of State Route 14

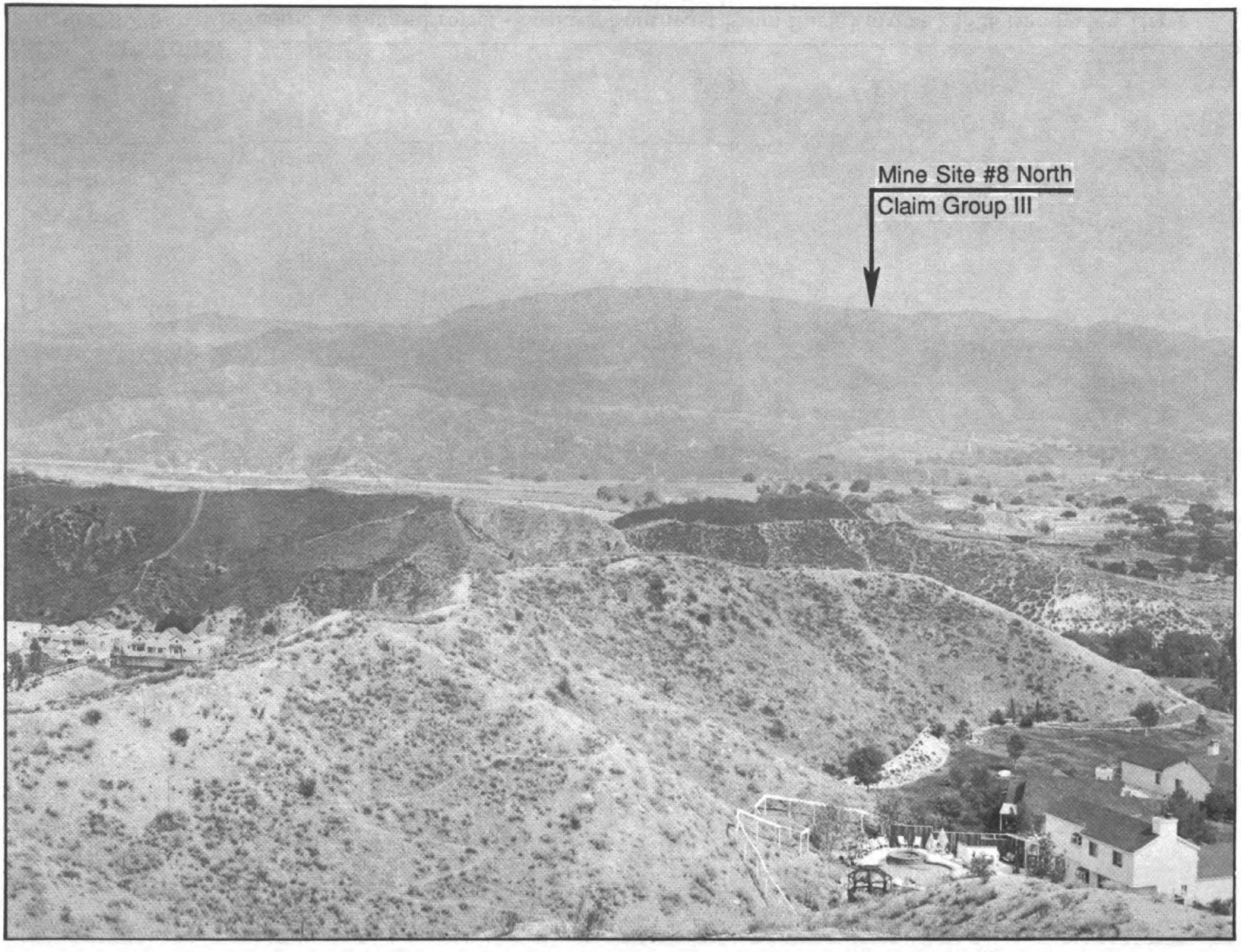


Figure 3.8-6 **Viewpoint B: After Project - Looking Southeast From Back Yard at 28826 Shadyview Drive in the "Sierra Hill" Development North of State Route 14**

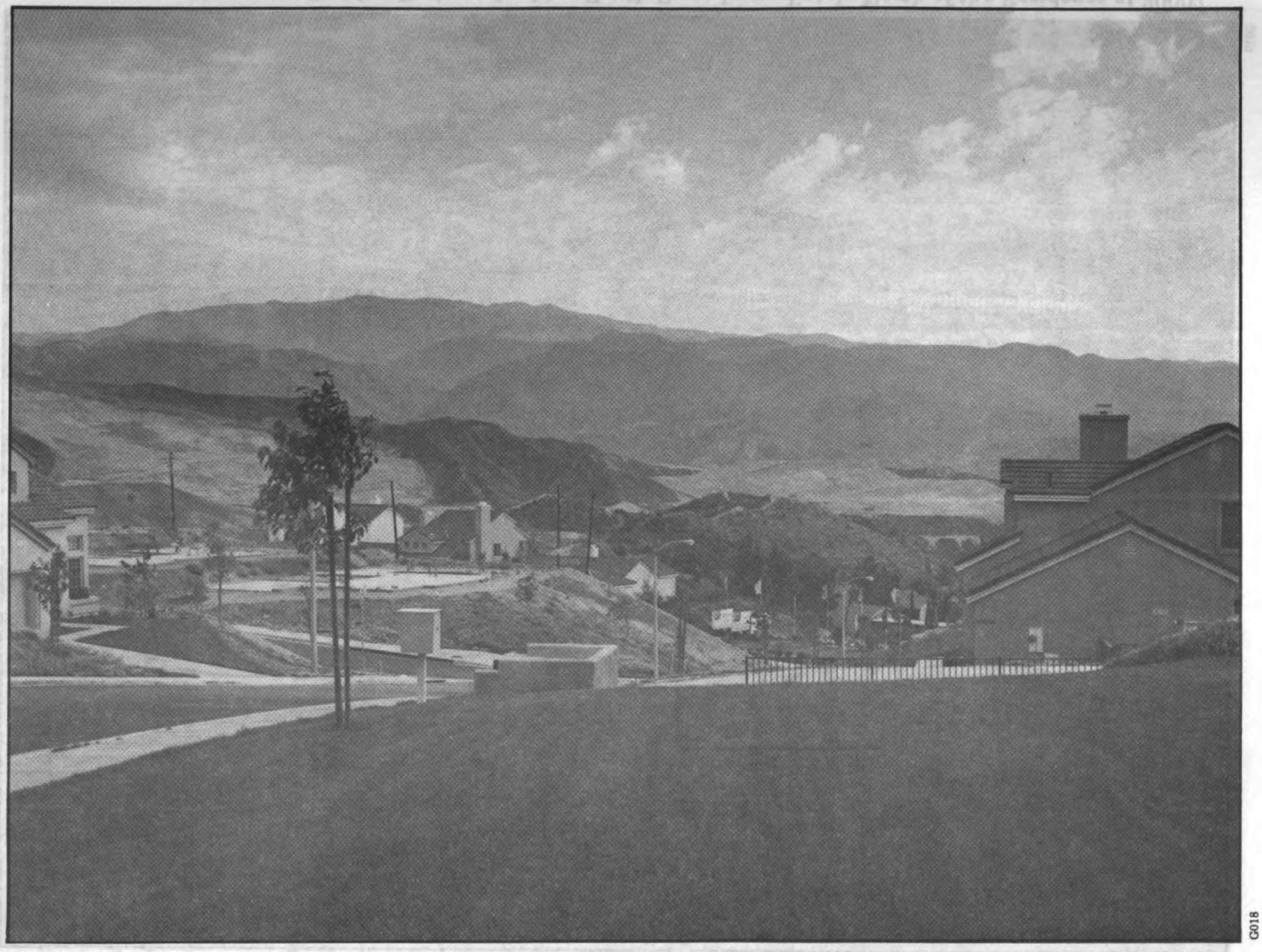


Figure 3.8-7 Viewpoint C: Before Project - Looking South From Immediately North of the Residence at 30007 Grandifloras Road in the "Collage" Development North of State Route 14

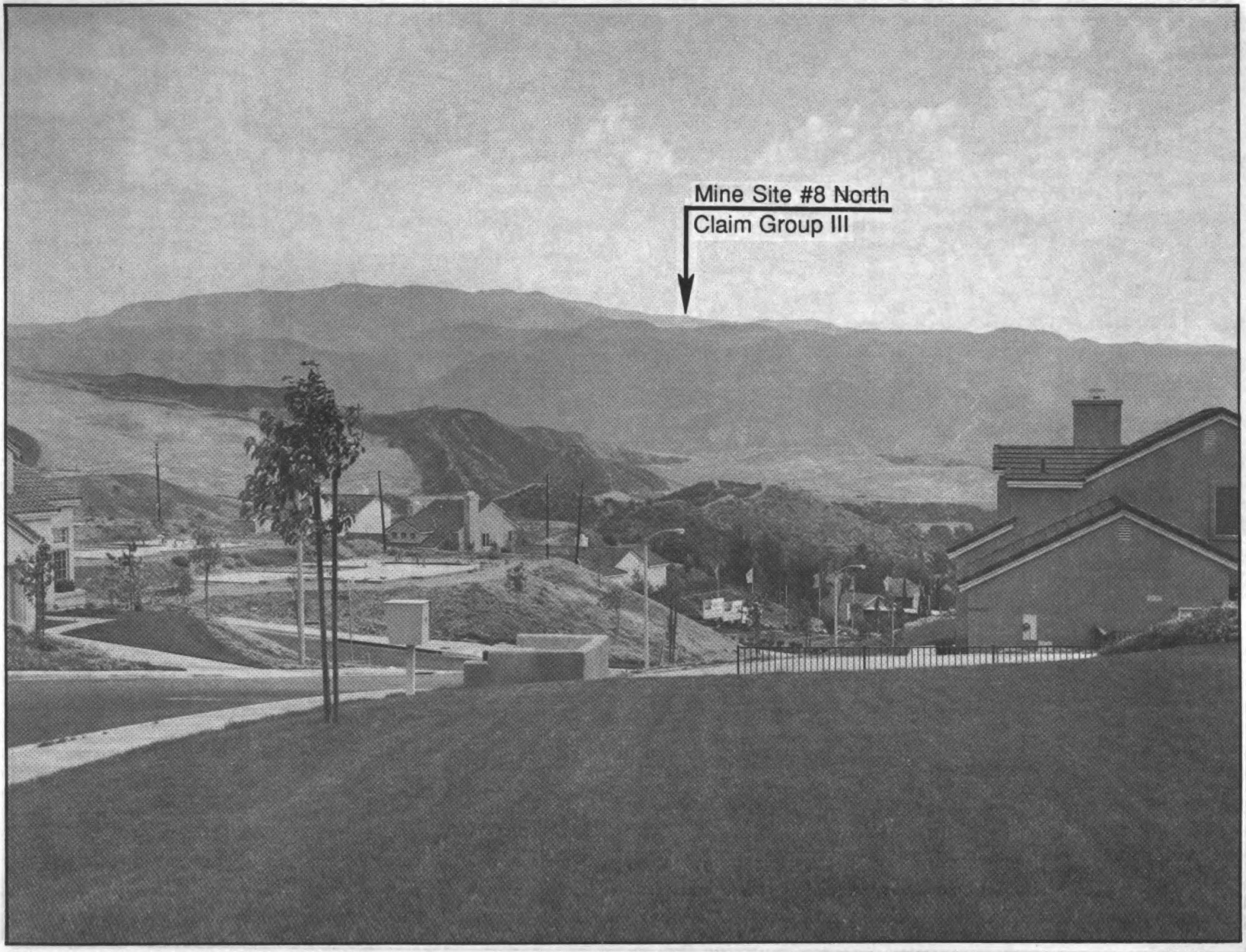


Figure 3.8-8 Viewpoint C: After Project - Looking South From Immediately North of the Residence at 30007 Grandifloras Road in the "Collage" Development North of State Route 14

Group I can remain visually subordinate to the characteristic landscape. This is possible primarily because of the softening effects of both the horizontal and vertical distance between viewpoint and mining activity. As outlined in the Mitigation Measures, Section 3.8.3.5, some preventative measures will ensure project compliance with partial retention guidelines.

Claim Group II. Proposed mining activities in Claim Group II are not visible from any significant area viewpoints.

Claim Group III. Proposed mining operations in Claim Group III are for the most part south of the ridgeline and are consequently not visible from viewpoints to the north. The exceptions to this are the proposed spoil disposal area and the proposed mining operations at Mining Site #8 North. Depending on precise viewpoint in the residential areas north of State Route 14, between 20 and 40 vertical feet of the back pit wall will be visible. In general, viewpoints farther toward the northwest will have greater, if more distant, degrees of exposure to the mining operations.

All significant viewpoints exposed to views of proposed mining activity areas at Claim Group III are more than 3 miles distant. The visible project area is in the background in these views according to both this and previous Forest Service designations.

Under the Modification VQO, "management activities may visually dominate the original characteristic landscape. However, activities of vegetative and landform alteration must borrow from naturally established form, line, color, or texture so completely and at such a scale that its visual characteristics are those of the natural occurrences within the surrounding area or character type."

Primarily because of the softening effects of distance and because most of the proposed mining activities are concealed from significant viewpoints by topographic circumstance, proposed mining activities in Claim Group III meet the management objectives of the Modification VQO. Mitigation measures will ensure project compliance with modification guidelines.

Primary Haul Roads. The proposed project includes the widening of 8.1 miles of existing primary haul roads and the construction of 2.8 miles of new primary haul road to a 48-foot width. Between 60 and 75 percent of these roads are visible from significant residential and travel corridor viewpoints, primarily to the north and northwest. The proposed haul roads traverse areas in the middleground or background of these views. The portions of the haul roads exposed to significant viewpoints are Sensitivity Level 1, with a VQO of Partial Retention.

As viewed from significant viewpoints to the north and northwest, the proposed haul roads contrast to a substantial degree with the existing landscape in the visual elements of line and color. The existing 20-foot-wide exploratory roads appear across the face of the mountain as very visible linear slashes. Their high degree of apparent linearity when viewed from a distance reinforces the color contrast.

An examination of sloped conditions along the road alignments reveals that the widening to a 48-foot cross section will increase the visual impacts, but to a lesser degree than might be expected. This is due to several factors. First, the road cuts are being made at the steepest angle the uphill slope will hold. For nearly the entire length of the road, the cut slope is extremely steep, made possible by the rock close to the surface. This steep slope lessens the overall height, and therefore visibility, of the cut slopes. Were these slopes being cut at 2:1, the cut slopes would be substantially higher. Second, the natural color of the newly exposed rock is fairly dark and weathers relatively quickly to match the tawny browns and reds of the prevailing ground surface. This is evidenced by the newly exposed surfaces along the exploratory roads.

Nonetheless, visual impacts associated with the roads are more substantial than those associated with currently proposed mining activities within the three Claim Groups. This is a result of the road length and its contrasting linearity, the unavoidable substantial road cuts, and the fact that it traverses generally open slope, vegetated only by low chaparral. The existing road does not now "remain visually subordinate to the characteristic landscape," as outlined under the Partial Retention VQO. The widened version of the road, together with the new road to access Claim Group II, will slightly increase these impacts. The visual impacts, therefore, are considered significant. No mining activities are planned for night hours. Therefore, impacts of light and glare on the nearby communities are not expected.

3.8.3.2 Alternative 2 - Conveyor Transport - Claim Group II to Plant Site

This alternative is the same as the proposed action except that a conveyor belt would be used to transport ore from Claim Group II to the plant. The conveyor belt plus its associated maintenance road will not be visible from any significant area viewpoints. Overall, impacts would be similar to those identified for the proposed action.

3.8.3.3 Alternative 3 - Road Section D to Claim Group II

This alternative would require construction of Road Section D to reach Claim Group II. Impacts as a result of construction of Road Section D are not visible from any significant area viewpoints. Overall, impacts would be similar to those identified for the proposed action.

3.8.3.4 Alternative 4 - No Action

This alternative would mean the proposed project would not be implemented. The visual impact from existing conditions would not be changed.

3.8.3.5 Mitigation Measures

As previously identified and discussed, project activities, particularly road construction, will have a significant impact on the visual/scenic resources of the project area. The following measures shall be taken to ensure that these activities are not in conflict with the VQO established by the Forest Service in the *Angeles National Forest Land and Resources Management Plan*:

V-1 Make initial cuts in mining areas on the east side of Pit #11-N to conceal activity behind the pit wall in Claim Group I.

V-2 Relocate the proposed spoil disposal area in Claim Group III to a point south of the visible Magic Mountain ridgeline.

V-3 Reduce ground disturbance and vegetation clearance associated with road construction and mining areas to the minimum.

V-4 Reclaim slopes in a manner designed to blend smoothly with the remaining existing topography.

V-5 Mine during daylight hours to minimize light and glare.

3.8.3.6 Effectiveness of Mitigation Measures

Visual impacts associated with road construction are unavoidable. Newly constructed roads will exceed the partial retention VQO. However, mitigation measures, particularly, revegetation will soon reduce the impacts to near current levels to meet the prescribed VQO.

3.8.3.7 Significant Impacts Summary

Reclamation measures including revegetation of exposed areas will reduce the impacts to a non-significant level.

3.9 NOISE (ISSUE CATEGORY #8)

Noise can be characterized as unwanted, unpleasant sound. It can cause hearing loss, interfere with speech communication, disturb sleep, and interfere with the performance of complex tasks. Noise may be either intermittent or continuous, steady or impulsive. It can result from a broad range of sources and frequencies blending together or from one specific sound. The human response to noise is diverse and varies with the type of noise, time of day, and sensitivity of the receptor.

Over the past 40 years, a wide variety of levels, scales, and ratings have been developed for the purpose of quantifying the effects of noise on humans and the environment. The following noise parameters will be used in this analysis:

- Decibel (dB): a unit for expressing the relative intensity of sounds on a logarithmic scale from zero for the average least perceptible sound to about 130 for the average pain level.

- A-Weighted Sound Level: The ear does not respond equally to sounds of all frequencies, but is less efficient at low and high frequencies than it is at medium or speech range frequencies. Therefore, to obtain a single number representing the sound pressure level of a noise containing a wide range of frequencies of the ear, the effects of the low and high frequencies are weighted with respect to the medium frequencies on the A-scale. Thus, its low and high frequencies are deemphasized with the A-weighing.

The A-weighted scale sound level represents a quantity, in dB, read from a standard sound-level meter with A-weighting circuitry. The A-scale decibel levels are expressed as dBA.

- Equivalent Sound Level (L_{eq}): The L_{eq} is the level of a constant sound which, in a given situation and time period, has the same sound energy as does a time-varying sound. The level is normally defined over a relatively long time, e.g., 1, 8, 12, or 24 hours. The time interval over which the measurement is taken should always be specified.

- Community Noise Equivalent Level (CNEL): The CNEL is a measure of the noise environment over a 24-hour annual average day. It is the 24-hour A-weighted sound level with a 5 dB penalty added to the evening (7 p.m. to 10 p.m.) noise levels and a 10 dB penalty added to the nighttime (10 p.m. to 7 a.m.) levels. The 5 and 10 dB penalties are applied to account for increased noise sensitivity during the evening and nighttime hours. The CNEL is not measured but computed. The State of California uses the CNEL noise index to relate community noise exposure to compatibility criteria. Typically, minor roadways do not generate sufficient noise to create a CNEL noise level of 65 dB off the roadway, while minor arterials and freeways create 65 dB levels that extend hundreds of feet into adjacent properties. CNEL values are specified by state noise insulation standards for new multiple-family dwellings. Local compliance with these standards requires that community noise be specified in terms of CNEL.

- Day-Night Equivalent Sound Level (L_{dn}): The L_{dn} is a measure of the noise environment over a 24-hour annual average busy day. It is the 24-hour A-weighted equivalent sound level, with a 10 dB penalty applied to nighttime (10 p.m. to 7 a.m.). The EPA has adopted L_{dn} as the rating method used to describe community noise. Usually CNEL and L_{dn} values will not differ by more than 1 or 2 dB.

The State of California has adopted noise standards in areas not preempted by federal regulations. The California Sound Transmission Control Standards are found in California Administrative Code, Title 25, Building Standards, Chapter 2.5, as adopted March 1, 1986. The purpose of the standards is to establish minimum noise performance standards to protect persons within new hotels, motels, apartment houses, and dwellings, other than detached single-family dwellings. The standards specify that interior noise levels, which are attributable to exterior sources, with windows closed, shall not

exceed an annual CNEL noise level of 45 dB in any habitable room. Residential buildings or structures within an exterior noise environment of 60 dB CNEL levels, where noise levels are caused by airport, vehicular, or industrial noise sources, are required to have acoustical analysis prepared indicating that the proposed buildings have been designed to limit background interior noise to the allowable CNEL noise level of 45 dB. The California Office of Noise Control has recommended that residential land uses and other noise-sensitive receptors generally should locate in areas where outdoor ambient noise levels do not exceed 65 to 70 dB (CNEL or L_{dn}). The California Department of Housing and Community Development has established mandatory noise guidelines for multiple-family residential construction. New multiple-family units cannot be exposed to outdoor ambient noise levels in excess of 65 dB (CNEL or L_{dn}), and sufficient insulation must be provided to reduce interior ambient levels to 45 dB. Office buildings and businesses and professional land uses are acceptable in areas of 65 dB or less L_{dn} noise levels and are normally acceptable in areas exposed to 65 to 75 dB L_{dn}. In industrial areas, noise levels up to 75 dB are normally acceptable. Conditionally acceptable noise levels range from 70 to 80 dB.

3.9.1 Affected Environment

Vehicular traffic, trains, and current mining operations are the major noise sources in the vicinity of the proposed project area. Vehicular traffic on State Route 14 and Soledad Canyon Road are the principal sources of highway noise near residential areas. Local truck traffic, hauling material from the current mining operations, contributes to the noise sources on State Route 14.

The current peak hour traffic on State Route 14, as determined by the California Department of Transportation (1989), was about 8,000 vehicles in the project area. Of these 8,000 vehicles, about 24 of them were trucks hauling material from the current sand and gravel operations in the project area. Some residences in the Pinetree subdivision or tract are within 300 feet of State Route 14. Because noise measurements have not been made in this residential area, the Federal Highway Administration model, STAMINA 2.0, was used to estimate the existing noise levels at the sensitive receptors. The L_{eq} (1-hour) noise level, 300 feet from State Route 14, was found to be about 77 dBA while the L_{dn} noise levels were 62 to 65 dB.

The Southern Pacific Railroad tracks are about 2,300 feet from these residences. The L_{dn} noise levels in this residential area, resulting from train traffic, were calculated to be about 52 dB. These noise levels would contribute less than 1 dB to the current L_{dn} noise levels resulting from the vehicular traffic on State Route 14. This increase would not be detectable to the human ear.

The current Gillibrand Pole Canyon plant site generates noise from the operation of a rock crusher, trucks, and other construction equipment. Noise levels for typical construction equipment are shown in Figure 3.9-1. For noise calculations, it was assumed that during plant operations L_{eq} (1-hour) noise levels would be about 85 dBA at the property line. The nearest sensitive receptors (residential areas) are about 1.2 miles from the plant facility. Calculated noise levels at these receptors, due to plant operations, show that L_{eq} (1-hour) noise levels are about 44 dBA. Because the current ambient noise level is about 55 dBA in these residential areas, the noise from the plant operations is not detectable.

Current mining operations in the Oak Spring and Rabbit Canyon areas may cause noise levels of 48 to 50 dBA in the Oak Spring community. These levels are about 3 to 5 dBA above current background levels in the area. Therefore, noise from current mining operations can be audible in this community, but within the range of noise levels which are typical of a suburban residential area.

Occasionally, blasting is performed in the quarry and during road construction. "Blast noise," in contrast to vehicular traffic noise, is impulsive and generally is less than 1 second in duration (approximately 0.5 second). The rapid onset of impulsive blast noise can produce a "startle" effect. The noise level that is experienced at a receptor is a function of the source strength (charge weight), meteorological conditions, and distance to the observer. In general, the noise originating from current blasting operations may be audible out to a distance of 1 to 2 miles from the source.

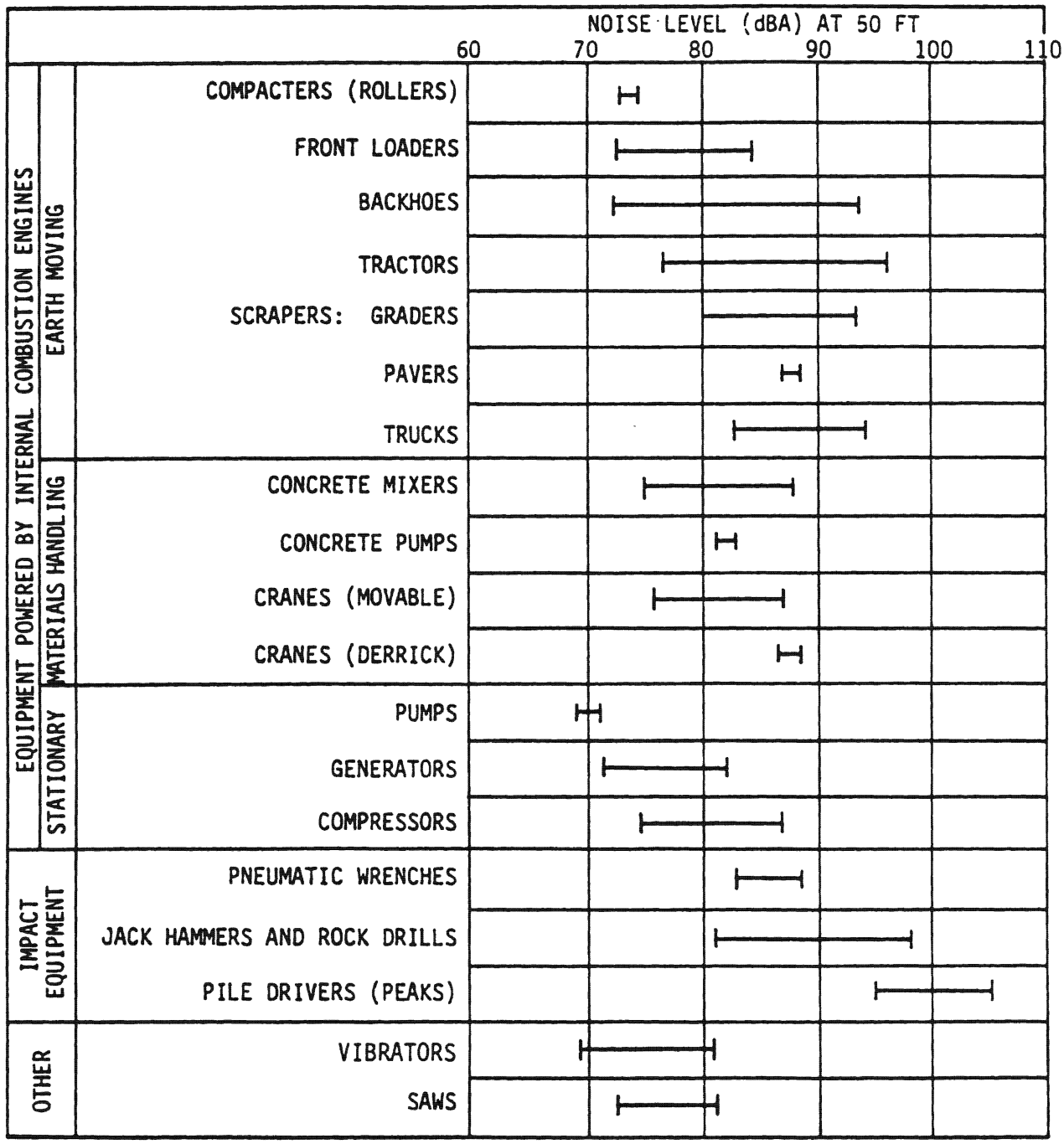
3.9.2 Criteria for Significance of Impact Determination

An increase in noise will be considered significant if the following conditions occur for an extended period of time:

- An increase in noise levels of greater than 10 dBA related to construction activities if the existing noise levels are below the EPA-recommended 55 dBA (L_{dn}), which creates a potential nuisance. This is comparable to 57 dBA L_{eq} (1-hour energy equivalent).

- If the noise levels related to traffic exceed the Federal Highway Administration's standard of 65 dBA (L_{eq}) at any time.

- If noise levels exceed a day-night average sound pressure level (L_{dn}) of 60 dBA at the nearest noise sensitive receptor.



Note: Based on Limited Available Data Samples.

Source: EPA 1971

Figure 3.9-1 Construction Equipment Noise Ranges

3.9.3 Environmental Consequences

3.9.3.1 Alternative 1 - Proposed Action

Construction and expansion of haul roads in the proposed project area would result in a temporary increase in noise levels above the present ambient levels. However, the nearest residential areas would be 2 to 3 miles from the haul road construction. Because of the reduction of noise levels with distance, the increase in the ambient noise level in the communities west of the project area would be only 2 to 3 dBA. This increase is not detectable to the human ear.

The operational activities of the proposed action would not result in an increase in the current number of truck trips required to haul the ore from the mines to the plant facility. About 60 trips per day are currently made from the Rabbit Canyon and Oak Spring project areas. The proposed project would not require additional trucks. However, at the peak of operations, the number of haul trips would increase between the three claim groups and the plant site and decrease from the Rabbit Canyon and Oak Spring project areas. This decrease in the present hauling schedule would result in a decrease in the daytime noise levels in the communities west of the project areas. This decrease would be slightly offset by a small increase in noise levels, resulting from hauling operations on the new haul roads, located 2 to 3 miles east of the present haul roads. The net change in noise levels would amount to a decrease in the ambient daytime levels of 1 to 2 dBA. This decrease would not be noticeable.

Because the change in noise levels would not be noticeable in the residential communities west of the proposed project, the noise impacts from road construction and mining activities would not be significant.

3.9.3.2 Alternative 2 - Conveyor Transport - Claim Group II to Plant Site

This alternative requires construction and use a conveyor belt to transport ore from Claim Group II to the plant in lieu of the Section B haul road. This alternative would eliminate the noise generated by trucks hauling ore from Claim Group II. However, this noise reduction would be offset, somewhat, by the noise generated by the conveyor system. Therefore, the noise levels generated by this alternative at sensitive receptors would be slightly less than the proposed action. Because of the significant distance (1 to 2 miles) and the intervening topography that separates the sensitive receptors from the potential noise sources, changes in the existing residential ambient noise levels would not be detectable. Therefore, the noise impacts resulting from this alternative would not be significant.

3.9.3.3 Alternative 3 - Road Section D to Claim Group II

This alternative would require the construction of haul Road Section D south of the location planned in the proposed action. The number of haul trucks using the road in this alternative would be the same as for the proposed action. Therefore, the noise on the alternative haul road would be essentially the same as the proposed action. The shortest distance from residential areas to the proposed Section D haul road for this alternative is about the same as the proposed action. As discussed for the proposed action, the change in the current residential ambient noise levels resulting from this alternative would not be detectable. Therefore, the noise impacts would not be significant.

3.9.3.4 Alternative 4 - No Action

The ambient noise levels in the region would remain at existing levels with the no action alternative.

3.9.3.5 Mitigation Measures

N-1 Use standard noise reduction techniques (e.g., mufflers on construction equipment exhaust and enclosures on noisy stationary sources) to minimize the noise generated by the project so that the standards described in Section 3.9.2 are not exceeded.

3.9.3.6 Effectiveness of Mitigation Measures

Mitigation measures suggested have proven effective on most construction and mining projects in the past.

3.9.3.7 Significant Impacts Summary

The proposed project would not produce any significant adverse noise impacts.

3.10 RECREATIONAL OPPORTUNITIES (ISSUE CATEGORY #9)

3.10.1 Affected Environment

The Angeles National Forest is within the Los Angeles Metropolitan Area and provides outdoor recreational opportunities. The proposed project area is used primarily for dispersed recreation; that is, recreation use not associated with fixed structures such as campground or picnic areas. The area

is generally undeveloped and remote, and is adjacent to private lands with scattered residences. No Forest Service-developed recreation sites are within 2 miles of the proposed claim groups, and no wilderness or wilderness study areas are in the vicinity.

The Forest Plan classifies the north slope of Magic Mountain as Roaded Natural in the Recreation Opportunity Spectrum (ROS). The Roaded Natural ROS class is characterized by predominantly natural-appearing settings, with moderate sights and sounds of human activities and structures.

The project area has received infrequent off-road vehicle (ORV) use and occasional foot travel for hiking and hunting. The old du Pont mining road extends from the end of Capra County Road to the site of the abandoned military radar facility on Magic Mountain. The Proponent has reopened this road between Soledad Canyon and the Iron Blossom mining claim to perform exploration work. The Edison Company maintenance road serves their power distribution line to Magic Mountain. The proponent has reopened the Edison road from its junction with the Oak Springs Canyon haul road to Claim 11. These two existing facilities offer future potential as ORV, equestrian, or hiking trails.

The established Live Oak Picnic Area is approximately 2 miles west of Claim Group III, with no direct access to or from the claim group. Established ORV routes cross Claim Groups I and II and a proposed ORV route crosses Claim Group II (Figure 3.11-1 in the Land Use section). The Forest Plan shows a proposed a hiking trail that would cross Claim Group III.

Access to the area is limited and day use is primarily restricted to persons in the local area. The residents in the area utilize the ORV routes and hiking trails for equestrian activities.

3.10.2 Criteria for Significance of Impact Determination

If one or more of the following conditions occur, the impact would be considered significant:

- The proposed project would restrict access to dispersed recreation opportunities over a long period of time in areas designated for such uses by the Forest Plan.

- The proposed project would result in severe disturbance to developed recreation areas directly through degradation of opportunities or indirectly through generation of unacceptable noise levels.

3.10.3 Environmental Consequences

3.10.3.1 Alternative 1 - Proposed Action

Of the total 810 acres within the project boundaries, approximately 300 acres would be affected by the proposed action. Access to dispersed recreation opportunities would be restricted within this area. No developed sites are identified in the Forest Plan. A portion of the established ORV route in Claim Groups I and II may be restricted. The establishment of the proposed hiking trail in Claim Group III may have to be delayed for the duration of the project (Figure 3.11-1 in Section 3.11). Such a restriction will, however, be in conformance with the Forest Plan if project approval is granted. Therefore, the impacts are not considered significant.

Noise generated by project activities is not expected to disturb developed recreation sites. The claim groups are remote from established developed recreation site and the expected decibel increase (daylight hours only) from truck traffic and explosives would not significantly affect the campgrounds to the south (see Section 3.9.1).

3.10.3.2 Alternative 2 - Conveyor Transport - Claim Group II to Plant Site

The environmental consequences of Alternative 2 are the same as those for the proposed action.

3.10.3.3 Alternative 3 - Road Section D to Claim Group II

The environmental consequences of Alternative 3 are the same as those for the proposed action.

3.10.3.4 Alternative 4 - No Action

Ambient noise levels in the study area would not change substantially with this alternative. The establishment of hiking trails and ORV routes and their use by recreationists would result in some changes in noise levels but these are expected to be within acceptable limits.

3.10.3.5 Mitigation Measures

R-1 Mitigate temporary losses of recreational opportunities by reclamation of the site. Primary project roads may be kept open and made available to the public for off-road vehicle or other dispersed recreation uses at the discretion of the Forest Service.

R-2 Reroute established off-road vehicle routes and the proposed hiking trail around the mining sites to reduce the loss of dispersed recreation opportunities during the 10-year operational phase.

3.10.3.6 Effectiveness of Mitigation Measures

Restrictions on dispersed recreation are commonly placed in mining areas by the Forest Service to ensure public health and safety. The availability of primary haul roads to the public after the project operational phase will more than compensate the short-term delay in the establishment of one ORV route and a hiking trail.

3.10.3.7 Significant Impact Summary

Implementation of the mining program would not have any significant impacts on recreational opportunities.

3.11 LAND USE (ISSUE CATEGORY #10)

3.11.1 Affected Environment

3.11.1.1 Land Use

The land use study area consists of portions of the Angeles National Forest, the communities of Lost Canyon/Oak Springs Canyon, the Sand Canyon area of the City of Santa Clarita west of project area, and the Pinetree area north of the project area.

Angeles National Forest. The existing land use of the proposed project area is shown in Figure 3.11-1. Santa Clara Divide Road (Forest Route 3N17) forms the southern boundary of the study area. This Forest Service road is the primary access road to the Magic Mountain Heliport, and water tanks have been established along the right-of-way to provide water storage for firefighting purposes. The land is generally open space and includes the Gillibrand Processing Plant and existing or approved mining projects of Oak Spring, Pole Canyon, Rabbit Canyon, and Forest Service Mineral Materials Permit Area with the accessory roads and exploratory roads. The area contains approximately 674 unpatented placer claims and 31 overlapping unpatented lode claims on 13,480 acres of public land. There is also one patented mining claim and eight oil and gas leases. The Forest Service has granted several special

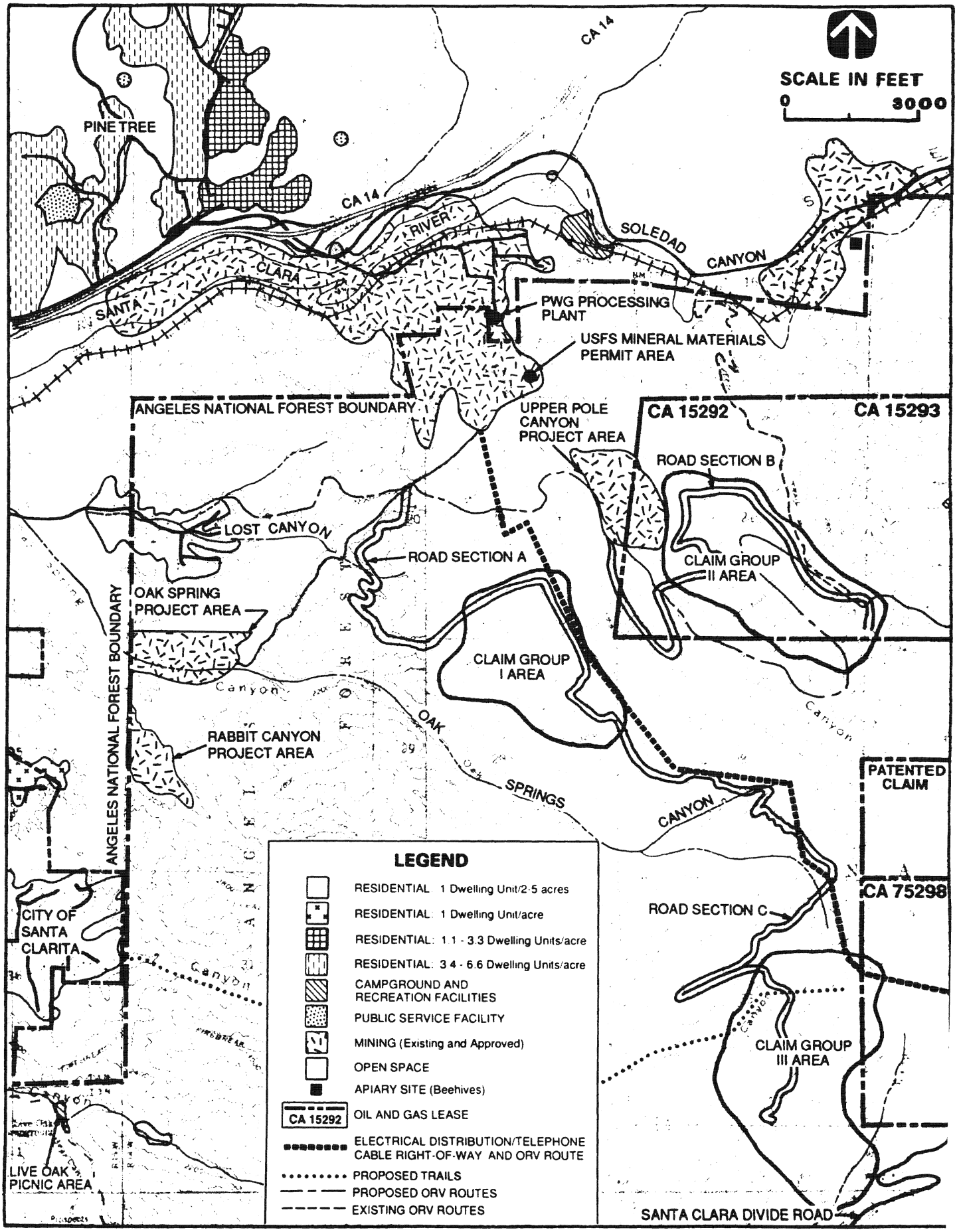


Figure 3.11-1 Land Use at Proposed Soledad Canyon Mining Operations and Vicinity

use permits including an electrical distribution line and a low standard access road to Southern California Edison Company; an electronic commercial communications site on Magic Mountain to Meridian Sales and Service; and several apiary (beehive) sites adjacent to Forest Route 3N17. Residential development in the forest consists of the community in Lost Canyon/Oak Spring Canyon and four houses on a 20-acre inholding in upper Sand Canyon east of the Live Oak Picnic Area. The Live Oak Picnic Area is located at the confluence of Bear and Sand canyons.

Surrounding Land Use. The communities of Santa Clarita and Lang Station are adjacent to the public lands of the Angeles National Forest. The community of Lost Canyon/Oak Springs Canyon is in and adjacent to the forest. Access is generally provided by paved county roads and private unimproved roads. Residential housing consists of both custom-built single-family homes and mobile homes. The community has both old and new housing. Housing is sited on individual parcels from 1 to 5 acres or more. Horses are commonly stabled in the neighborhoods as well as on some commercial horse farms. The Sand Canyon area also has single-family residential lands. Housing consists of both custom-built and tract houses. The area is developing rapidly, and new tracts are being proposed. Access is primarily on city-maintained paved roads; some private roads are within upscale gated residential developments.

The unincorporated residential community of Pinetree is north of the project area, State Route 14, the Southern Pacific mainline, and the Santa Clara River. Pinetree has a much higher density than the rural Sand Canyon area. Housing consists of single-family residential tract homes with densities of 3.4 to 6.6 dwellings per acre. New tracts are currently being constructed with lower densities of 1.1 to 3.3 dwellings per acre. The area is served by county-maintained paved streets.

The Lang Station area is primarily composed of a mining district south of Pinetree and the Santa Clara River. Access is via State Route 14, county-maintained paved roads, and the main line of the Southern Pacific Railroad. Residential use is restricted to one house on Lang Station Road and another on Soledad Canyon Road. The Rivers End RV Park, east of Lang, provides affordable alternative housing consisting of 39 spaces rented on a monthly basis.

3.11.1.2 Land Use Plans and Policies

The Forest Service, the State of California and the County of Los Angeles, exercise land management through land use plans in the proposed Soledad Canyon Mining project area. The Tujunga Ranger

District administers the Forest Plan. The Forest Plan is a federal action addressing the management of the land and resources within the boundaries of the Angeles National Forest.

The project area is within Management Area Prescription #2, where management of vegetation for age-class diversity in all chaparral vegetation is emphasized. The objectives of vegetation treatment are to maintain age-class mosaics of less than 25 years in the chamise chaparral. Appropriate faunal assemblages are used as management indicator species to monitor habitat conditions. The principal management tool is prescribed fire. The proposed project area also consists of a system of fuel breaks which are maintained by prescribed fire, mechanical means, herbicides, or various combinations of these.

Mining is allowed in the forest. The Forest Plan integrates the exploration and development of minerals consistent with the use and protection of other resource values and provides for the reclamation of the land that has been or will be mined.

The adopted *Santa Clarita Valley Area General Plan* (amended December 1988) and the county zoning ordinance are the Los Angeles County planning documents governing land use in the unincorporated nonfederal lands in the project vicinity. The general plan addresses those public lands administered by the Forest Service as open space. The county exercises jurisdiction over federal lands as "lead agency under the 1975 State of California Surface Mining and Reclamation Act (SMARA).

The private inholdings within the forest boundaries are administered by the county and designated as Hillside Management (HM) in the general plan. The HM designation stipulates a maximum density of one dwelling unit per 5 acres of land for areas not reasonably contiguous to urban areas. In addition, the plan designates that 75 percent of the site remain in a natural state.

Two unincorporated communities, Lost Canyon/Oak Spring Canyon and Pinetree, are outside the forest boundary and adjacent to the City of Santa Clarita. Lost Canyon/Oak Spring Canyon is approximately 5,300 feet west of the Claim Group I Area boundary. The general plan has designated the area HM, Non Urban 1 (N-1), and Non Urban 2 (N-2). These designations permit low density residential development ranging from one dwelling unit per acre (N-2) to one dwelling unit per 5 acres. Figure 3.11-1 illustrates the various residential densities within the community. Pinetree, located in Tick Canyon north of State Route 14 and the project area, is designated at a higher residential density. Existing development in Pinetree is designated Urban 2 (U-2) with densities of 3.4 to 6.6 dwelling units per acre. These areas are generally on the floor and sides of Tick Canyon and nearby smaller canyons. New development is currently occurring on the surrounding uplands and

a canyon east of Tick Canyon on land designated Urban 1 (U-1), which specifies densities from 1.1 to 3.3 dwelling units per acre.

The general plan designates the floodplains of the Santa Clara River, Sand Canyon, Iron Canyon, Oak Spring Canyon, and Rabbit Canyon as Floodway/Floodplain (W). It also designates the Santa Clara River floodplain as a significant mineral aggregate resource area in compliance with state legislative mandates such as SMARA. SMARA requires land use decisions for designated areas where mineral values of construction aggregate resources must be balanced against the future development of these areas. SMARA also emphasizes the conservation and development of identified mineral deposits. The Anorthosite-Gabbro group in the project area is designated as a Regional, Significant Aggregate Resource Area or Resource Sector.

The City of Santa Clarita became an incorporated city in December 1987. The city is currently developing its general plan. The project site is in the planning area of the proposed plan; however, the city has no jurisdiction outside its boundaries. Sand Canyon, a large residential area in the city, abuts portions of Angeles National Forest and the Lost Canyon/Oak Spring Canyon community (Figure 3.11-1). Residential densities in the city range from one dwelling unit per acre to five units per acre. It is anticipated that the new general plan will be consistent with the existing density in the Sand Canyon area of the city.

3.11.2 Criteria for Significance of Impact Determination

Impacts on land use will be considered significant if:

- Proposed land use is inconsistent with the Forest Plan; and
- Proposed land use is inconsistent with the adopted general plans and policies of the local jurisdictions.

3.11.3 Environmental Consequences

3.11.3.1 Alternative 1 - Proposed Action

All of the project is on public land within the Tujunga Ranger District of the Angeles National Forest. The Proponent will develop his unpatented claims, which are open to mineral entry under the

federal mining laws, and process the ore in an existing plant and stockpile area on adjoining private lands owned by the Proponent, prior to shipment to market.

The boundary of the Claim Group I area will include a common right-of-way with the existing facilities. Southern California Edison Company holds a special use permit to operate and maintain an electrical distribution line and accessory unimproved access road. The lines are on a mountain crest on the east side of the haul route outside of proposed excavation and stockpile areas; therefore, no relocation of the distribution lines would be required.

The development of the Claim Group II area would overlay approximately 170 acres of oil and gas lease CA 15292 and 17 acres of CA 15293. The public lands are open to oil and gas leases under the administration of the Bureau of Land Management with Forest Service review. The Forest Plan states that there have been no plans submitted for oil and gas operations in the forest and none are anticipated in the near future.

Forest Service policy requires the adequate protection of other resources; therefore, the P.W. Gillibrand operations must allow for the shared development and access of oil and gas leases. The development of haul routes, secondary routes, and grading by the mining operator could be of benefit to the oil and gas lessee in the event the leases are exercised for oil and gas exploration.

The development of the Claim Group III area would place the project boundary adjacent to the existing common utility right-of-way containing the electrical distribution line and access road. The project would not disturb the right-of-way and facilities at this point.

The Forest Service also has approved several apiary sites along Forest Route 3N17 and other apiary sites are on private land outside the forest in Soledad Canyon. The development of the unpatented claims at Claim Groups I, II, and III, and associated vegetation clearing, would have negligible impacts on the apiary sites.

The proposed action is consistent with the Forest Plan and the County of Los Angeles *Santa Clarita Valley Area Plan.* The City of Santa Clarita, a new city, is in the process of preparing their general plan. A review of the preliminary draft of the *City Background Report* for the general plan does not indicate any inconsistency. Therefore, land use impacts would not be considered significant.

3.11.3.2 Alternative 2 - Conveyor Transport - Claim Group II to Plant Site

This alternative would be the same as the proposed action, except that a conveyor belt would be used to transport ore from Claim Group II to the plant. The operator would not build the proposed Road Section B. A construction and maintenance road for the conveyor belt would be substituted. The construction of the conveyor belt and maintenance road would result in some additional ground disturbance within oil and gas lease CA 15292. The impacts would be about the same as the proposed action and there would be no inconsistencies with any federal, state or local jurisdiction planning laws and general plans. Therefore, impacts would not be significant.

3.11.3.3 Alternative 3 - Road Section D to Claim Group II

This alternative would be the same as the proposed action, except that Road Section D would be constructed to reach Claim Group II. The alignment of Road Section D would intersect the existing common right-of-way containing the electrical distribution line, access road, and underground telephone cable. The construction of Road Section D would require the design and construction of a crossing at these facilities. The resulting impacts of Alternative 3 are the same as the proposed action; that is, not significant.

3.11.3.4 Alternative 4 - No Action

The no action alternative will not have any impacts on the existing federal and local jurisdiction land use plans because no action will occur. However, the Forest Service does not have the authority to deny approval of an Operations Plan where the impacts to surface resources can be minimized, mitigated, and reclamation costs can be recovered by a performance bond secured prior to commencement of the activity.

3.11.3.5 Mitigation Measures

L-1 Notify holders of special use permits in advance of any mining activities that might affect full enjoyment of their authorized uses. Responsibility for disruption of use or relocation of facilities for permits that predate mining operations shall be borne by the proponent.

L-2 Solicit oil and gas lessee comments regarding potential conflicts with planned oil and gas operations and negotiate a solution. Incorporate the terms of any agreement in the approved *Soledad Canyon Plan of Operations.*

L-3 Coordinate periodically with local planning jurisdictions or participate periodically in interagency meetings to ensure compliance with local jurisdiction planning regulations and general plans.

3.11.3.6 Effectiveness of Mitigation Measures

The proposed project is consistent with the current land uses in the Angeles National Forest. Recommended mitigation measures would be effective in avoiding conflicts with any future conflicting land use proposed by other interests in the area.

3.11.3.7 Significant Impact Summary

Project-related impacts identified are either beneficial or adverse but not significant.

3.12 PROPERTY VALUES (ISSUE CATEGORY #11)

3.12.1 Affected Environment

The Santa Clarita Valley was once known for unpopulated open space. Its proximity to the San Fernando Valley, a part of the Los Angeles Metropolitan Area, resulted in the accelerated development of the region from the late 1950s to early 1960s. The pace of growth has continued and has significantly increased in the last few years. Market data (1990) from the Canyon Country District Board of Realtors, in the City of Santa Clarita, indicate the average home selling price in Canyon Country to be about $198,000, which includes new and old housing, and single-family residential homes and townhouses.

The study area for this project issue is the eastern end of the Canyon Country area. The Sand Canyon area of the City of Santa Clarita generally consists of upscale rural estate type development of both individually custom-built houses and tract homes. A review of available residential values shows ranges of $589,000 to $795,000 for tract homes and $500,000 to $4,300,000 for custom-built homes. Values for homes in the Pinetree community, which consists of higher density single-family residential tract homes, range from $164,000 for existing individual home sales to $270,000 to $315,000 for new tract construction.

Some Sand Canyon housing, in both the unincorporated and incorporated areas, is currently 1,400 to 2,000 feet from existing or approved mining projects. Some Pinetree housing is 700 feet from

existing aggregate operations in the Santa Clarita River, 1,500 feet from the Southern Pacific rail line, and abuts the Soledad Canyon Road/State Route 14 highway corridor.

3.12.2 Criteria for Significance of Impact Determination

Impacts on property values will be considered significant if development of the project results in substantial loss of property values in the project vicinity.

3.12.3 Environmental Consequences

3.12.3.1 Alternative 1 - Proposed Action

Residents both west and north of the proposed project area have expressed the concern that the proposed mining project will adversely affect local property values. The residential areas in the Lost Canyon/Oak Spring Canyon community and the Sand Canyon area of the City of Santa Clarita, which are west of the project area, are closer to the project than the Pinetree community to the north. Some residences in Lost Canyon are 3,300 feet west of the nearest proposed haul route and 5,300 feet west of the Claim Group I area boundary, the closest of the three proposed claim group areas. Sand Canyon and Oak Spring Canyon are farther west. Existing mining operations at the Oak Spring Mining Project are much closer than the proposed action at approximately 1,400 feet north of the existing mining project and 1,700 feet away from the nearest haul route.

Pinetree, north of the project, is much farther away from the Claim Group I boundary approximately 10,600 feet northwest. In addition, the area is 6,500 feet from the nearest project haul route. Pinetree adjoins both the sand and gravel aggregate area (700 feet away) and State Route 14 (180 feet away).

Changes in residential values are the possible result of the direct effects associated with open pit mining, particularly noise, dust, and visual resources.

The subject residential areas currently are sited closer to existing mining operations than the proposed action. The property values presented in March 1988 in the *Black Diamond Mining Project EIS* are within the price ranges of August 1990. New construction is continuing with no apparent drop in property values. The sections related to air quality, visual resources, and noise do not identify any significant impacts related to the proposed action on neighboring communities. To date, no effect

on property values has been identified from existing mining operations. Therefore, impacts of the proposed action, located farther away, are not considered to be significant.

3.12.3.2 Alternative 2 - Conveyor Transport - Claim Group II to Plant Site

This alternative would be the same as the proposed action, except that a conveyor belt would be used to transport ore from Claim Group II to the plant. The operator would not build the proposed Road Section B. A construction and maintenance road for the conveyor belt would be substituted. The construction of the conveyor belt and maintenance road would not result in any additional impacts over those of the proposed action to the property values in the project vicinity.

3.12.3.3 Alternative 3 - Road Section D to Claim Group II

This alternative would be the same as the proposed action, except that Road Section D would be constructed to reach Claim Group II. The resulting impacts of Alternative 3 are the same as for the proposed action.

3.12.3.4 Alternative 4 - No Action

The no action alternative would result in no effect on property values other than what the market conditions will allow.

3.12.3.5 Mitigation Measures

Because no significant impacts are identified, no mitigations measures are suggested.

3.12.3.6 Effectiveness of Mitigation Measures

Because no mitigation measures are suggested, effectiveness was not analyzed.

3.12.3.7 Significant Impacts Summary

No significant impacts on property values will result from the implementation of the proposed action or its alternatives.

3.13 PUBLIC HEALTH AND SAFETY (ISSUE CATEGORY #12)

The major public health and safety issues associated with this project include (1) increased public health risk from potential spills of diesel and gasoline, motor oils, and other hazardous materials used in transportation activities; (2) increased risk of accidents from the use of dynamite and other explosives in the mining operations; (3) increased safety hazards to recreationists and other road users in the project vicinity; and (4) increased potential of fires and associated risks to workers, visitors, National Forest land, and neighboring properties.

3.13.1 Affected Environment

The proposed project activities represent an expansion of the Proponent's mining operations which have been carried out in this area since 1981. In compliance with the regulations and requirements of Occupational Safety and Health Administration (OSHA), the Mine Safety and Health Act (MSHA), the Forest Service, and the Los Angeles County Fire Department, the proponent has established health and safety as well as emergency response procedures to ensure employee and visitor safety. A short discussion of the hazardous materials used in the existing operations and the safety procedures follows.

There are several aboveground and underground tanks on the proponent's property and National Forest land under permit. These hold approximately 32,000 gallons of diesel fuel; 7,500 gallons of unleaded gasoline; 4,000 gallons of motor oil; 45,000 gallons of liquid asphalt; and 20 gallons of propane gas. About 300 cylinders of oxygen/acetylene used for welding and soldering are also stored onsite. About 40,000 pounds of nitro-carbo-nitrate; 1,000 pounds of dynamite; and 1,000 blasting caps are stored in approved explosives magazines within locked areas away from structures. Explosive magazines are checked at least once each week and older materials are used first.

Any release or threatened release of a hazardous material is reported to the local fire emergency response personnel, the local administering agency, and the State Office of Emergency Services in accordance with the business plan submitted to the Los Angeles County Fire Department. The proponent also has a private onsite emergency response team whose members are in constant contact by radio, telephone, or in person. Four separate telephone locations, three CB radio base units, three CB mobile radio units, and three company radio units are used regularly at the facilities. Six front end loaders, four bulldozers, six haul trucks, and 100,000 tons of sand stockpile are available to contain any spills or releases. Onsite 2,000,000-gallon water storage ponds with a 2,500-gallon per

minute pump capacity, three fire hydrants, and three water wells are available for fire suppression or hazardous material spill cleanup.

Dynamite and other explosives are used for blasting of rock once every 2 weeks or an average of 25 to 30 times a year. Normal safety precautions are taken in the use of explosives. Previous quarry operations are recontoured and revegetated such that the exposed geologic material is stable and poses no hazard to the public.

The Angeles National Forest has had many forest fires that have caused substantial losses in both natural resources associated with the forest and those located within the urban environment. As a result, the District Ranger has devised an activity level chart that is based on the potential for fire in a rating area comparable to the project area. Based on the next-day forecast, the existing operations are limited or curtailed by the proponent to reduce fire risk during the fire season.

3.13.2 Criteria for Significance of Impact Determination

Impacts to public health and safety will be considered significant if:

- Project activities endanger the health and safety of people living in the vicinity of the project or those people visiting the project areas open to the public.
- Project activities increase the risk to public health and safety to unacceptable levels.
- Project activities are not in compliance with applicable design code or regulations.
- Project activities do not conform to National Fire Protection Association Standards.

3.13.3 Environmental Consequences

3.13.3.1 Alternative 1 - Proposed Action

The proposed action would involve various activities with potential health and safety impacts. These include rock blasting and mining at the pit sites, hauling ore from pits to the plant site, and maintenance of mining equipment and vehicles. Health and safety impacts of these activities are evaluated below.

Use of dynamite and nitro-carbo-nitrate would increase during proposed mining operations to break and loosen overburden and ore in the mine pits. However, this is not expected to change materially the probability of accidents above existing levels. Explosives would continue to be stored in secure explosives magazine areas constructed and maintained in accordance with federal and local regulatory requirements. The requirements of the Mine Safety and Health Act will be adhered to during all operations to ensure employee and visitor safety on the project site.

Haul trucks, mining machinery, and other vehicles will use fuel, oil, and lubricants in their daily operations. Facilities to store and dispense these fuel already exist at the plant site. No additional facilities are planned. The plant support equipment used 325,000 gallons of diesel fuel for the production and hauling of 1.2 million tons of sand and gravel in 1989. No additional construction equipment (haul trucks, bulldozers, loaders, etc.) would be required to produce 400,000 tons of ilmenite per year. The potential for spills and possible soil or water contamination will remain at the existing levels. Procedures established for existing operations, and described in Section 3.13.1, would continue to be followed to minimize impacts to health and safety from possible fuel spills. Impacts are not expected to be significant.

Safety risks to recreationists from potential accidents would increase over time as the size and depth of the mine pits increase. Accident risks would also increase on haul roads if visitors are allowed to travel on those roads when haul trucks are in operation. Because of these concerns, and in accordance with the past practices approved by the Forest Service, the proponent proposes to restrict public use of the haul roads or any other mining access until the project is completed or any logical subdivision of the project area becomes safe for dispersed recreation. Further, the proponent will fence the areas and post "No Entry" signs at points where the public might gain vehicular access to project roads and mining sites. Implementation of these mitigation measures would reduce the accident risks to a minimum.

Mining activities related to the proposed action will bring more company people and equipment into the project area. Work will be conducted year-long, including during the fire season. The interior chaparral and coastal sage vegetation types growing in the project area have reached overmaturity after the 1960 Magic fire. Rapid burning of these forest fuels can be expected during high fire activity levels. The accumulation of construction slash from project roads, mining sites, and waste areas adds to the fire hazard. However, the proponent's activities will help to break up the continuity of the overmature, even-aged stands of brush on the project area and provide much better access for ground attack forces. In addition, compliance with the *Project Fire Plan* submitted as part of the

Plan of Operations and Forest Service requirements will reduce the risk of fire as well as impacts to human safety and properties in the neighboring areas.

In summary, the proposed action would increase the health and safety risks to workers, visitors, and to the public at large. However, these risks will not increase to unacceptable levels since Best Management Practices and all health and safety guidelines established by OSHA, MSHA, and the Forest Service will be followed.

3.13.3.2 Alternative 2 - Conveyor Transport - Claim Group II to Plant Site

Public health and safety impacts of Alternative 1 would be similar to those described for the proposed action except for the impacts resulting from the use of conveyor transport for a portion of the project. Alternative 1 will reduce the haul road length by 2.8 miles. Potential for road accidents will be reduced correspondingly. Fuel consumption by haul trucks will be reduced, resulting in a minor reduction in potential for fuel spills. Accident risks to visitors and recreationists will also decrease as the conveyor system and associated maintenance road will not be accessible to the public. Overall, the impacts to public health and safety would not be considered significant.

3.13.3.3 Alternative 3 - Road Section D to Claim Group II

Impacts of Alternative 3 will be approximately the same as those for the proposed action. The haul distance will increase by 3.1 miles with this alternative and the exposure of people to road hazards will correspondingly increase. However, the probability of risk to public health and safety would not change materially.

3.13.3.4 Alternative 4 - No Action

The no action alternative is defined as not approving the proponent's *Plan of Operations* for the proposed project. Therefore, the activity levels will not increase beyond the existing operations. Additional impacts resulting from the proposed action would not occur.

3.13.3.5 Mitigation Measures

Mitigation measures to reduce risks to public health and safety have been discussed in Section 3.13.3.1 and are summarized below.

P-1 Comply with all regulations and requirements of the Occupational Safety and Health Act, Mine Safety and Health Act, Forest Service Best Management Practices, and Los Angeles County Fire Department.

P-2 Store explosives in secured areas constructed and maintained in accordance with federal and local regulatory requirements.

P-3 Restrict vehicle use by the public on haul roads until the project or logical subdivisions of the project are completed.

P-4 Fence accident-prone areas and post "no entry" signs at selected points of possible entry to project areas. Maintain fences and signs during the life of the project.

P-5 Comply with the Project Fire Plan in the *Plan of Operations*.

P-6 Maintain an approved Spill Prevention Control and Countermeasure (SPCC) Plan in compliance with the Clean Water Act, Section 311 and 40 CFR 112.

3.13.3.6 Effectiveness of Mitigation Measures

Because of the nature of the project, the risks to public health and safety are unavoidable. However, the risks will be decreased to acceptable levels with the implementation of mitigation measures and compliance with federal, state, and local regulations. Such measures have proven effective on previous mining projects undertaken within the Forest Service jurisdiction.

3.13.3.7 Significant Impact Summary

With the implementation of mitigation measures, impacts on public health and safety will not be significant.

3.14 RELATIONSHIP BETWEEN SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Principal Forest Service uses of the project site include vegetation and wildlife habitat improvement, outdoor recreation, livestock grazing, and mineral exploration and production. The proposed action will commit approximately 810 acres of the 13,480 acres of Gillibrand mining claims to a single land

use (mining) for an approximate 10-year operation period. Except for areas to be secured for public safety reasons, the project area would continue to be available for vegetation and wildlife habitat enhancement. Recreational opportunities will be enhanced at the end of the project if the roads constructed for project use could become available for public use.

Following the operations period, the majority of the site would be reclaimed by taking measures that will control onsite and offsite damage to the environmental and forest surface resources including: (1) control of erosion and landslides, (2) control of water runoff, (3) removal or control of hazardous materials, (4) reclamation of disturbed areas, and (5) improvement of wildlife habitats.

Project employment, direct and indirect expenditures, and property taxes would contribute to the economic health of the region. Development of proposed mineral resources is in the national interest. In providing these benefits, the project would not preclude the long-term use of the site for other uses.

3.15 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Extraction of titanium ore and associated minerals would gradually diminish the reserves of the project area until it could no longer be economically mined. This would represent an irreversible commitment of titanium ores as well as sand and gravel. However, extraction and processing of titanium ore and other minerals would not diminish their usefulness to the society.

An irretrievable commitment of resources during construction and operations would involve the use of energy and materials. Energy will be expended in the form of diesel fuel, gasoline, and oil for mining equipment and transportation vehicles, and electricity for plant operations. The major commitment of materials during operations would include explosives for mining, water for dust control and mineral separation, and tires for mining equipment and haul trucks.

The proposed project would irreversibly change the visual character of the site because all mining areas cannot be reverted to their original elevations and grades. Mitigation measures would reduce long-term visual contrasts of the area, but nearby viewers would notice contrasts in color and landform relative to the surrounding environment. These changes will, however, be in conformance with the Forest Plan.

3.16 CUMULATIVE IMPACTS

The context of cumulative impacts includes the approved or planned projects in the vicinity of the proposed project, namely, the comprehensive Gillibrand mining operations. Existing projects in the immediate vicinity of the proposed project have the potential for cumulative impacts at least on selected environmental resources. Some resources, such as air quality and transportation, would have cumulative impacts at the area-wide level, while others like biologically sensitive species, water resources, and soils would be affected at the watershed level within the general project area.

The list of projects likely to generate cumulative impacts in the proposed project area are shown in Table 3.16-1. All identified projects represent P.W. Gillibrand Company operations since 1967 that are (1) still active in the area, (2) approved but not yet developed, and (3) the proposed action. Projects which are currently in operation form the existing baseline conditions described in the affected environment sections under each environmental resource. Two projects, the Upper Pole Canyon project and the Oak Spring Annex project, have been approved by the Forest Service but have not reached the full development stage. The projects will increase the P.W. Gillibrand Company operations and are designed to contribute to the company's overall goal of producing about 400,000 tons of titanium ore per year when the Soledad Canyon project is approved and put into full operation. Until then, the two projects, along with the existing operations, will fulfill the anticipated demand for titanium, as well as for sand and gravel.

The Upper Pole Canyon project is designed to give the proponent a ready source of heavy minerals and a long-term supply of good quality gabbro rock aggregate to blend with the low grade sand and gravel he mines from the adjacent Saugus formation. The project would involve construction of about 0.28 mile (1,500 feet) of road between the existing quarry and the north boundary of the proposed mining area. The road will start on the west side of Pole Canyon and eventually cross to the east side of the main drainage. This action will not increase the overall production goals of the company, which are determined annually by the demand for construction materials. However, the Pole Canyon watershed will experience cumulative impacts once the proposed Soledad Canyon operations reach developmental stage and Road Section B is constructed between Claim Group II and the Upper Pole Canyon area. The cumulative impacts in the Pole Canyon watershed will then be the result of mining activities in Claim Group II and Upper Pole Canyon, and hauling of ore from the mining sites to the plant site.

The Oak Spring Annex project, approved in July 1990, involves mining of titanium ore and hauling it to the plant site. It will require building of 0.3 mile of permanent 48-foot, double lane access road

Table 3.16-1

Approved and Proposed Projects for Cumulative Impacts in the Soledad Canyon Area of Angeles National Forest, California

Project	Approved Plan of Operations	Acres Affected
Pole Canyon Quarry (Permit issued 5/1/67)	3/18/77	100
Oak Spring Canyon	5/5/81	80
Amendment 1	6/8/83	
Amendment 2	3/7/84	
Amendment 3	10/16/84	
Rabbit Canyon	11/6/87	100
Upper Pole Canyon	1/12/89	65[1]
Oak Spring Annex	7/17/90	30[1]
Soledad Canyon Exploration	6/1/87	52
Soledad Canyon Development and Production	1/14/89	296[1]
(Subject of this study)	(preliminary)	—
Total Acres Affected		723

Note: [1]Development work not yet started.

to the mineral deposit. The activity will take place in the Oak Spring Canyon watershed which will experience cumulative impacts from this project and the mining activities in Claim Group I proposed under the Soledad Canyon mining program.

Once the proposed Soledad Canyon project becomes operational, the activities at the Upper Pole Canyon and the Oak Spring Annex will become part of the overall production goal of mining 400,000 tons of titanium ore per year. This implies that the activities at the two sites will diminish if mining in the three claim groups of the Soledad Canyon project is undertaken at the proposed levels. Conversely, if titanium ore, sand, and gravel from the two sites continue to be mined at their proposed levels, the mining activity at the three claim groups will not reach projected levels. In either case, the impacts identified for the Soledad Canyon project (the proposed action of this document) will be valid for all three projects at the area-wide level; only the location of impacts would differ depending on the level of mining activities at different sites within each watershed. Described below are the cumulative impacts for each of the issue categories identified for the proposed action.

Air Quality. Due directly to the increased mining activities at several sites in the general area, and the increased vehicular traffic on unpaved haul roads, all existing and proposed projects will contribute cumulatively to the degradation of local and regional air quality. The two pollutants of concern are dust (PM_{10}) and NO_2, both of which exceed established California standards. Total emissions of these two pollutants will differ depending on the location of mining activities and the haul distances to the plant site. Maximum emissions are, however, expected from the proposed action as it involves the maximum haul distances between the mining sites and the plant location. Hence, the impacts identified for the proposed action provide valid estimates for the cumulative impacts as well.

Soils. Exposure of bare soils during mining activities associated with cumulative development will result in increased erosion. Cumulative impacts of erosion will be felt in the Pole Canyon and Oak Spring Canyon watersheds. The Pole Canyon watershed will receive eroded topsoil from the Upper Pole Canyon and the Pole Canyon Permit Area project as well as from Claim Group II of the Soledad Canyon project. The Oak Spring Canyon watershed will receive eroded topsoil from the Annex project as well as the active Oak Spring Canyon and Rabbit Canyon alluvial operations. The increase in cumulative impacts will depend on the size of operations and reclamation activities at the two sites. Overall impacts will not be materially different from the impacts identified for the proposed action.

Water Resources. Sedimentation associated with cumulative project activities will increase the potential for flooding, channel scouring, and debris flow in the Pole Canyon and Oak Spring Canyon

watersheds. However, sand and gravel operations in the graded pits in the two canyons will protect the downstream channel from increased scouring and flooding. Local cumulative impacts may be somewhat greater than the proposed action but will not be significant.

Biological Resources. Cumulative impacts on biological resources, particularly the riparian areas, will be greater than the proposed action. The road connecting the existing quarries with the Pole Canyon mining areas will impact riparian areas along the canyon bottoms and at one stream crossing. Common vegetation will also be disturbed over a larger area compared to the proposed action. Mitigative measures, such as replacement or enhancement of riparian areas in other suitable locations, will keep the impacts at a non-significant level.

Although the mining operations (the proposed action as well as other mining activities in the project vicinity) will add to the cumulative reduction in chaparral habitat within the region (no oak woodlands are involved), large mammals, with extensive home ranges will not be significantly affected. The dirt access roads constructed for ore hauling will provide movement corridors for large mammals including deer. Disturbing less than 300 acres in a largely undisturbed area is not likely to hurt the deer herd. Instead, the deer herd is more likely to benefit from new browseways, edge, and water availability (see mitigation measure B-11 on page 3-60 of the Draft EIS) that the project will bring.

Cultural and Paleontological Resources. Cumulative project activities have a greater potential for disturbing cultural and paleontological resources as the area of land disturbance increases. Various surveys carried out for each individual project have indicated that no surface remains are likely to be impacted by mining activities. Mitigative measures in accordance with the cultural resources protection laws and regulations will be undertaken if any subsurface remains are found during road construction or mining operations. Impacts are expected to be similar to those identified for the proposed action.

Transportation. Since the overall production rate from the cumulative P.W. Gillibrand operations will remain the same as that identified for the proposed action, cumulative transportation impacts will not be different from the proposed action impacts.

Visual Resources. Both the Upper Pole Canyon and Oak Spring Annex operations are hidden from the public view by the surrounding terrain. Cumulative impacts will, therefore, be similar to those identified for the proposed action.

Noise. There are no sensitive noise receptors in the vicinity of any of the planned or proposed activities. Noise impacts will, therefore, be similar to those identified for the proposed action.

Recreational Opportunities. Cumulative project activities will restrict additional areas from dispersed recreation. No developed recreational facilities occur in the project area. Impacts will be similar to those identified for the proposed action.

Land Use. Cumulative project activities represent approved mining plans or consistency with the Forest Plan. Hence, cumulative impacts are not different from the proposed action impacts.

Property Values. No impacts on property values have been identified for any individual project included in the cumulative impact analysis. No cumulative impacts are expected.

Public Health and Safety. With the increase in the overall operations area under the cumulative project activities, there is a greater potential for impacts on public health and safety. However, mitigative measures identified for the proposed action are sufficient to keep the increased risk within acceptable levels.

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This Environmental Impact Statement has been prepared by Tetra Tech, Inc. under the direction of the U.S. Department of Agriculture, Forest Service, Angeles National Forest, California. The Project Manager for the Forest Service and the P.W. Gillibrand Company (the proponents of the project), provided information and assistance in preparing this document. The Forest Service has independently evaluated the information contained herein.

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1974 *National Forest Landscape Management.* Volume 2, Agriculture Handbook Number 462, Government Printing Office, Washington, DC.

U.S. Department of Agriculture, Forest Service
1974 *National Forest Landscape Management, The Visual Management System.* Volume 2, Agriculture Handbook Number 462.

1978a *Predicting Rainfall Erosion Losses. A Guide to Conservation Planning.* Agricultural Handbook No. 537.

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1976 *Visual Resource Management.* BLM Manual, Washington, DC.

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1985 *Unarmored Threespine Stickleback Recovery (Revised).* U.S. Fish and Wildlife Service, Portland, Oregon, 80pp.

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Williams, Daniel F.
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Wlodarski, Robert J.
1986 *Cultural Resource Reconnaissance for Access Roads and Key Lode and Placer Mining Claims in the Soledad Canyon Group, Angeles National Forest, Los Angeles County, California.* Report on file, Archaeological Survey, University of California, Los Angeles.

1988 *Cultural Resource Reconnaissance for the Upper Pole Canyon Project, Angeles National Forest, Los Angeles County, California.* Report on file, Archeological Survey, University of California, Los Angeles.

1989 *Final Report Cultural Resource Reconnaissance for the Oak Springs Annex Project, Angeles National Forest, Los Angeles County, California.* Report on file, Archeological Survey, University of California, Los Angeles.

6.0 GLOSSARY OF TERMS AND ACRONYMS

TERMS

Acre-Foot. The amount of water or sediment that would cover 1 acre to a depth of 1 foot (43,560 cubic feet, 325,851 gallons).

Affected Environment. The physical, biological, social, and economic environment within which human activity is proposed.

Age Class. One of the intervals, usually 10 to 20 years, into which the age range of vegetation is divided for classification or use.

ADT. Average daily traffic. Measured as a one-way trip (a round-trip is two one-way trips).

Alluvium. A general term for deposits made by streams on riverbeds, floodplains, and alluvial fans. The term applies to stream deposits of recent time.

Aquifer. A body of rock that is sufficiently permeable to conduct groundwater and to yield economically significant quantities of water to wells and springs.

Background. (Visual distance zone.) The distant part of a landscape. The seen or viewed area located from 3 to 5 miles to the horizon from the viewer.

Bench. A ledge, which in open-pit mines and quarries, forms a single level of operation above which mineral or waste materials are excavated from a single bank or bench face.

Berm. An earthen structure, generally several feet high, which acts as a barrier to make it difficult for a vehicle to cross, or which redirects the flow of traffic or water.

Best Management Practices. Management actions that are designed to maintain water quality by preventative rather than corrective means.

cfs. Abbreviation for cubic feet per second. One cubic foot per second equals a steady flow of 440 gallons per minute, or approximately 725 acre-feet per year.

Color. The property of reflecting light of a particular wavelength that enables the eye to differentiate otherwise indistinguishable objects.

Contoured Terraces. A level or gently sloping embankment of earth built along the contours of a sloping hillside.

Contrast. The effect of a striking difference in form, line, color, or texture of a landscape's features.

Crepuscular. Relating to, or resembling twilight. (Animal activity in the twilight.)

Cumulative Impacts. Two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects.

Debris Basin. An engineered structure used to capture sand, silt, and gravel and other debris from a watershed or similar drainage area during periods of high water runoff.

Drawdown. The lowering of the water table or potentiometric surface caused by pumping (or artesian flow). Knowledge of the amount of drawdown at a given pumping rate, over a specified length of time, is necessary to estimate the probable long-term effect on the water table of pumping from the aquifer.

Effects. "Effect" and "impact" are synonymous as used in this report. Direct or primary impacts are those caused by the project and occur at the same time and place. Indirect, or secondary, effects are those that result from the project that occur later in time or farther removed in distance or time, but are still reasonably foreseeable.

Endangered Species. An animal or plant species that is in danger of extinction throughout all or a significant portion of its range (as defined in the Endangered Species Act Amendments of 1982).

Environment. The physical conditions that exist within the area that will be affected by a proposed project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. The area involved shall be the area in which significant effects would occur either directly or indirectly as a result of the project. The "environment" includes both natural and man-made conditions.

Environmental Impact Statement (EIS). An analytical document that portrays potential impacts to the human environment of a particular course of action and its possible alternatives. An EIS is developed for use by decision makers to weigh the environmental consequences of a potential decision.

Ephemeral Stream. A stream or portion of a stream that flows only in direct response to precipitation. Such flow is usually of short duration.

Erosion. The wearing away of the land's surface by water, wind, ice, or other physical processes. It includes detachment, transport, and deposition of soil or rock fragments.

Feasible. Capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.

Floodplain. Low land and relatively flat areas joining streams, rivers, and lakes which are periodically inundated by overbank flows of water.

Foreground. (Visual distance zone.) A term used in visual management to describe the area immediately adjacent to the observer, usually within 1/4 to 1/2 mile.

Form. The mass or shape of an object, which appears unified; often defined by edge, outline, and surounding space.

Gabbro. A fine to coarse, dark-colored crystalline igneous rock composed mainly of calcic plagioclase (labradorite or anorthite), clinopyroxine, and sometimes olivine.

Geomorphic Province. An area of similarly related earth surface features.

Groundwater. Water found beneath the land surface, in the zone of saturation below the water table.

Habitat. The place where an animal or plant normally lives, often characterized by a dominant plant and codominant form, such as pinyon-juniper habitat.

Haul Road. A road used by large (50- to 100-ton capacity) trucks to haul ore and overburden from the open pits to other locations.

Historic Properties. Any historic or prehistoric district, site, building, structure, or object included in, or eligible for inclusion on the National Register of Historic Places.

Intermittent Stream. A stream that does not contain water year-round.

Landform. A natural landscape that exists as a result of wind, water, or geologic activity.

Land Status. The ownership status of lands within the national forest boundaries.

Lead Agency. The public agency that has the principal responsibility for carrying out or approving a project.

Line. The path that the eye follows when perceiving abrupt differences in form, color, or texture. In the landscape, ridges, skylines, structures, changes in vegetation, or individual trees and branches may be perceived as line.

Locatable Minerals. Generally refers to hardrock minerals on public domain lands that are mined and processed to recover valuable metals, such as gold and copper, chemical grade limestone, and asbestos.

Low-Grade Ore. Ore resources that cannot be economically processed at this time.

Magazine. A storage room for explosives. Magazines are built to specifications set by the Mine Safety and Health Administration and are usually located in a secure but remote area of the project site.

Management Area. An area of land used in planning that consists of similar analysis areas, has one prescription assigned, and may not be contiguous.

Middleground. (Visual distance zone.) The space between the foreground and the background in a picture or landscape. The area from 1/2 to 3 to 5 miles from the viewer.

Mine Pit. Area from which ore and overburden are removed.

Mitigation Measure. Method or procedure undertaken for the purpose of avoiding or reducing potential impact(s) of an action.

National Register of Historic Places. A register of districts, sites, buildings, structures, and objects important in American history, architecture, archaeology, and culture, maintained by the Secretary of the Interior.

Open Pit Mining. A type of mining that involves excavation of the ore aboveground by stripping off the overburden (vegetation, soil, etc.) and extracting the mineral beneath. The result of the mining operation is a pit or trench.

Operations Plan. A written notice to the local District Ranger by those engaged in mining activity in the forest of prospecting, exploration, mining, and mineral processing activities that will likely cause a significant disturbance of surface resources.

Ore. Rock containing sufficient quantities of titanium so that the titanium can be extracted economically.

Patented Claims. Mining claims for which the U.S. government has conveyed the fee simple interest in the surface and minerals into private ownership.

Permeability. A measure of relative ease with which a porous medium can transmit a liquid under a potential gradient. It is a property of the medium alone and is independent of the nature of the liquid sand of the force field causing movement. It is a property of the medium that is dependent upon the shape and size of the pores.

Prescription. The set of management practices applied to a specific area to attain specific objectives.

Project. The whole of an action, which has a potential for resulting in a physical change in the environment.

Recharge. Process by which water infiltrates and is added to an aquifer, either directly or indirectly, by way of another rock formation; also, the water itself.

Riparian Area. Land along the bank of a stream or other body of water and directly influenced by the presence of water, seasonal or intermittent, e.g., streamsides, lake shores, etc.

Scoping. The procedures by which the Forest Service identifies the issues and determines the extent of analysis necessary for the Environmental Impact Statement.

Sensitive Species. Species (plant or animal) with special habitat needs that may be influenced by management programs.

Significant Effect. A substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.

Soil Horizons. Layers of soil, each of which has comparatively uniform characteristics different from adjacent layers.

Soil Productivity. The natural capacity of a soil to produce a specified plant or sequence of plants under a specified system of management.

Subsidence. Sinking or settlement of the land surface, due to any of several processes but frequently from the removal of groundwater. As commonly used, the term relates to the vertical downward movement of natural surfaces, although small-scale horizontal displacement also may be present.

Texture. The visual manifestation of the interplay of light and shadow created by variations in the surface of an object.

Visual Quality Objectives. A set of measurable maximum levels of future alteration of a characteristic landscape.

Visual Resource. The physical features of a landscape that can be seen (e.g., land, water, vegetation, structures, and other features).

Visual Resource Management (VRM). The systematic means to identify visual values, establish objectives that provide the standards for managing those values, and evaluate the visual impacts of proposed projects to ensure that Bureau of Land Management objectives are met.

Wilderness Study Area (WSA). A roadless area of public lands that the Bureau of Land Management has determined may possess the wilderness qualities described in the Wilderness Act of 1964. WSAs were established in order to study the suitability of the areas for possible designation as wilderness by Congress. Bureau of Land Management protects each WSA's wilderness qualities until Congress

decides whether or not the WSA will be designated as wilderness.

ACRONYMS

ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
ADT	Average Daily Traffic
AQCR	Air Quality Control Region
BP	Before Present
CARB	California Air Resources Board
CDFG	California Department of Fish and Game
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations, 1987
CNDDB	California Natural Diversity Data Base
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon Monoxide
DEIS	Draft Environmental Impact Statement
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
HM	Hillside Management
LOS	Level of Service
MSHA	Mine Safety and Health Act
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act
NO	Nitrogen Oxide
NO_2	Nitrogen Dioxide
NPPA	Native Plant Protection Act
NRHP	National Register of Historic Places
O_3	Ozone
ORV	Off-Road Vehicle
OSHA	Occupational Safety and Health Administration
Pb_3	Lead
PM_{10}	Particulate matter smaller than 10 micrometers in diameter
ROS	Recreation Opportunity Spectrum
SCAQMD	South Coast Air Quality Management District
SHPO	State Historic Preservation Officer
SMARA	California Surface Mining and Reclamation Act
SO_2	Sulfur Dioxide
UPA	Unusual Plant Assemblage
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
V/C	Volume-to-Capacity Ratio
VRM	Visual Resource Management
VQO	Visual Quality Objectives

UNITS OF MEASUREMENT

acre-ft/yr	acre-foot per year
dB	decibel
dBA	decibels on the A-weighted scale
gpm	gallons per minute
L_{dn}	day/night equivalent sound level
L_{eq}	equivalent sound level
ppm	parts per million
$\mu g/m^3$	micrograms per cubic meter

7.0 AGENCIES, ORGANIZATIONS, AND INDIVIDUALS TO WHOM COPIES OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT WERE SENT

7.0 AGENCIES, ORGANIZATIONS, AND INDIVIDUALS TO WHOM COPIES OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT WERE SENT

Federal Agencies

U.S. Bureau of Land Management (Vern Stephens)
U.S. Bureau of Mines (Paul Hyndman and Paul Pierce)
U.S. Department of the Interior, Environmental Project Review, Washington, D.C. (Director)
U.S. Department of the Interior, Office of Environmental Project Review, San Francisco
U.S. Environmental Protection Agency, Office of Federal Activities, Washington, D.C.
U.S. Environmental Protection Agency, EIS Review Coordinator, San Francisco
U.S. Fish and Wildlife Service
U.S. Forest Service, San Bernardino National Forest (Jack Joyce)
U.S. House of Representatives (Honorable Carlos Moorhead, Bill Thomas, and Elton Gallegly)
U.S. Senate (Honorable Alan Cranston and Pete Wilson)

State of California

Department of Fish and Game (Bruce Eliason)
Office of Planning and Research (James Goodfellow)
State Assembly (Honorable Phillip Wyman)
State Senate (Honorable Newton Russell and Ed Davis)
Transportation and Analysis Branch (Gary McSweeny)
Water Quality Control Board

County of Los Angeles

Agricultural Commissioner
Board of Supervisors (Honorable Kenneth Hahn, Michael Antonovich, Deane Dana, Edmund Edelman and Peter Schabarum)
Department of Public Works
Department of Public Works, Road Department (Ed Rugel)
Department of Regional Planning (Frank Kuo)
Office of the County Council (Charles Moore)

City of Santa Clarita

Department of Community Development

Organizations

California Wilderness Coalition
Forest Preservation Society (Karin James)
Golden Thunder Mining and Processing Co.
P.W. Gillibrand Co.
Newhall Signal
Rancho Maria and Sable Ranch
Sierra Club
Small Miners of America
Soledad Canyon Property Owners' Association
(Jim Gilpin, and Boyd Chapman)
South Coast Air Quality Management District
Southern California Association of Governments
Sulphur Springs Elementary School, Parent and
Teachers Association (Judy Spencer)
Sulphur Springs School District
(Arnie Glassberg)
United General Corporation
Western Mining Council (Doris Dieteman
and Greg Ouellette)

Libraries

Public Library, Canyon County
Public Library, Newhall
Public Library, Valencia

Newspapers

Daily New, Newhall (Stacy Shaw)
Daily News, Woodland Hills (Dion Lefler)
Los Angeles Times (Steve Padilla)
Los Angeles Times (Myran Levin)

INDIVIDUALS

Allen, Paul C.
Anderson, Jim
Anselm, Leo
Allen, Dennis
Ashbaugh, Gary
Ashbaugh, Renie
Baker, Susan
Bertelson, Karl
Betz, Patrick R.
Bolstad, K.
Boyer, Carl
Brown, James
Bullamore, Ivan
Bew, Bill
Bianchi, Curtis
Bohmer, Kurt
Bonnett, Francis
Buecheler, Robert
Burbach, George
Coleman, J.
Cosley, Mike
Crozier, Suzette
Caskey, Patricia
Cherniack, Earl
Clement, Mr. & Mrs. Robert
Clemons, Karen
Cloyd, William
Collette, Mr. and Mrs. Tom
Conlon, Ralph
Craig, Kay
Crownover, Leonard
Davison, Arthur L.
Denny, George
Denton, Richard M.
Dontey, Andy
Drans, Dennis
Darcy, JoAnne
Deans, Mr. & Mrs. Dennis
Demsky, Richard A.
Dennis, Jeff and Shirley
Dwork, Joel
Espinueva, Francisco J.
Elam, Dean
Fik, Ed
Findley, Vera
Fisher, Jon
Frye, Ed
Garfinkel, Arther
Gates, John
Gerlach, William G.
Glancy, Glen
Glassberg, Arnie
Gomez, Sharilyn
Gray, Linda
Garasi, Louis
Goldman, Bob
Greenblatt, Alfred
Gremillion, Jan and Pat
Hammonds, Doug
Hanauer, Stephen
Hansen, Dennis and Terrie
Heywood, Tom
Higby, John
Hoeptner, Fred
Haggard, Cheryl Lee
Haim, James
Harris, Bill
Heidt, Jan
Hooker, David
Jacks, J.B.
Janes, Loren
Johanson, Gary
Kaminsky, Howard
Kelley, Donald
Kelley, Ruth
Kitch, Julie
Kreyenhagen, Diane
Leix, Fred
Lewis, Don
Lewis, Tom
Loeb, Tony and Randy
Lambourne, Steve
Lane, Phillip
Lembas, Barbara
Levison, Mr. & Mrs. Mike
Linn, Mr. & Mrs. Tom
Lopez, Jess
Ludwig, T.N.
Marsic, Dave
Matukas, John S.
Morgan, A.J.
Mortimer, Mr.
Murphy, Michael
Mallet, Harold
Marsh, Peter B.
Mason, Bill
Maurice, Marcie Fitz
Maxwell, Betty
Maxwell, Kathleen
McCombs, Diane

McCraw, Jack
McKenzie, Barbara
McKeon, Janet
Miller, Marjorie
Morris, Georgina
Nell, Kit
Newton, John
Norton, Elaine J.
Norton, Roger
Olsen, Kurt
Ostrom, Dennis
Palagyi, B.
Phillips, Ronald J.
Posten, Charmaine
Pusl, Ken
Pattison, Marcy
Peck, Dave
Phillips, Rodger
Ponter, Bob
Posthmus, Jim
Prichard, Guy
Quebman, Phil
Regan, Tom
Reinitz, Doris
Rice, Teresa
Romine, Traci
Ruddell, N.
Sanchez, J.
Schallert, Larry
Skipper, Peter
Spencer, Eugene
Spring, Gardiner W.
Sanders, Mr. & Mrs. Vern
Sears, Mick
Shebel, Dennis
Sheedan, Hayden
Siewart, Doug
Sorensen, Clyde
Sothwell, Mr. & Mrs. Jim
Spurlock, Mary Ann
Stevenson, Lynne
Stewart, D.
Stone, Terry
Strickland, Frank
Stroup, Don
Suomisto, Lauvel
Thaustron, K.N.
Torman, William
Trenham, Tracy
Taibi, Mr. & Mrs. Fred
Tanner, Shirley
Thompson, Robin
Ungar, Maurice
Upton, Penny
Vacek, Frank
Van Alphen Mr. & Mrs. S.
Van Der Reith, R.C.
Van Eune, C.P.
Vath, Sand
Verebach, Frank
Werner, L. Rob
Waldron, Robert
Waller, J.
Wank, Mr. Roy S.
Warner, Bob
Wheeler, Mr. & Mrs. John
Williams, John
Williams, Ken
Williams, Luci
Witter, L.K.
Woodson, W.
Zeldin, Max
Zimmermann, Rob

8.0 PUBLIC COMMENTS

The Council on Environmental Quality (CEQ) regulations (40 CFR 1503.1) require that "after preparing a draft environmental impact statement and before preparing a final environmental impact statement the agency shall:

- Obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved or which is authorized to develop and enforce environmental standards;

- Request the comments of:
  - i) Appropriate state and local agencies which are authorized to develop and enforce environmental standards;
  - ii) Indian tribes, when the effects may be on a reservation; and
  - iii) Any agency which has requested that it receive statements on actions of the kind proposed.

- Request comments from the applicant, if any; and
- Request comments from the public affirmatively soliciting comments from those persons or organizations who may be interested or affected."

The regulations further require that "an agency preparing a final environmental impact statement shall assess and consider comments both individually and collectively," and shall respond to those comments in the final document.

In compliance with these regulations, the Forest Service released the *Draft Environmental Impact Statement for the Gillibrand Soledad Canyon Mining Operations, Angeles National Forest, California,* for a 60-day public review and comment period on 4 January 1991. Copies of the Draft Environmental Impact Statement (DEIS) were sent to agencies, organizations, and individuals listed in Chapter 7.0 of the Final Environmental Impact Statement (FEIS).

The review of public comments served as one element in the preparation of the FEIS. Many issues addressed in the public comments led to the conduct of further analysis, reanalysis, and/or

verification of data. In accordance with CEQ regulations, all comments have received responses. All comments received and the responses to each are included in this chapter.

PUBLIC REVIEW OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

The public review and comment period for the DEIS began on 4 January 1991. Written comments were received by the Forest Service until March 1991. Verbal and written comments were also received at a public hearing conducted in Canyon Country, California, on 22 February 1991.

COMMENTS AND RESPONSES

During the public comment and review period, comments on the DEIS were received from federal, state, and local agencies and officials, and individuals. The comments included letters and written statements submitted at the public hearing. A total of 14 comment letters and statements were received by the close of the public comment period. Individual comments identified from these letters and responded to in this chapter number 135. All letters and statements have been reproduced in full on the left side of the page with comments numbered sequentially on the right hand margin of each letter. Responses to comments are provided on the right side of the page opposite each letter. Where comments warranted changes in the DEIS, the text of the FEIS has been revised accordingly.

STATE OF CALIFORNIA — GEORGE DEUKMEJIAN Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—
LOS ANGELES REGION

1 CENTRE PLAZA DRIVE
MONTEREY PARK, CALIFORNIA 91754-2156
(213) 266-7500

1

January 17, 1991 File: 700.125

George A. Roby
U. S. Forest Service
Angeles National Forest
701 North Santa Anita Ave.
Arcadia, CA 91006

REC'D F.S. OFFICE
JAN 2 4 1991

DRAFT EIR - GILLIBRAND SOLEDAD CANYON (LANG AREA) TITANIUM ORE MINING OPERATIONS. ANGELES NATIONAL FOREST

We have reviewed the subject document regarding the proposed project.

The discharge of contaminated wastewaters to stream channels will require a National Pollutant Discharge Elimination System (NPDES) permit, and to the ground, Waste Discharge Requirement (WDR), both issued by the Los Angeles Regional Water Quality Control Board. The appropriate application form should be submitted to this office at least 180 days prior to start of the discharge. Please contact Hubert H. Kang at (213) 266-7619 regarding an NPDES Permit and Gregg Kwey at (213) 266-7547 regarding WDR.] 1

Soil erosion shall be controlled and flood channels maintained so as to limit the sediment load in flood flows.] 2

At the completion of the mining operations the mining excavation or pits shall be made secure in such a way to make it impossible for illegal dumping to occur.] 3

Thank you for this opportunity to review your document. If you have any questions regarding the environmental document, please contact Eugene C. Ramstedt at (213) 266-7553.

John L Lewis

JOHN L. LEWIS, Unit Chief
Technical Support Unit

(07-13-89)

8-3

Response to Comments

1-1 The project-related activities will not result in discharge of contaminated wastewaters to stream channels or to the ground. Water from the mill operations is collected in on-site ponds that are sealed against percolation into the aquifer. About 85 percent of the process water is recirculated for use in mineral processing. Some water from the ponds evaporates into the atmosphere. The recycled water is sampled monthly and results are sent to Los Angeles County Department of Public Works. No contamination was reported over the past 5 years. Since there is no discharge of contaminated wastewaters to stream channels or to the ground, no National Pollutant Discharge Elimination System (NPDES) or Waste Discharge Requirement (WDR) permits are required.

1-2 Mitigation measure S-1 in summary and in Section 3.3 of this document calls for control of soil erosion and maintenance of stream channels.

1-3 At the completion of mining operations and reclamation of the excavation pits, the responsibility for land management will revert to Forest Service. Forest Service routinely monitors its lands for illegal activities such as waste dumping.

State of California

Business, Transportation and Housing Agency

Memorandum

(2)

Ms. Terri Tollette
State Clearinghouse
1400 Tenth Street, Room 121
Sacramento, CA 95814

Date : January 23, 1991

File No.: IGR/CEQA
DEIR
Soledad Canyon
Gillibrand Soledad
Cyn. Mining Operations
Vic. LA-14-33.42

Wilford Melton - District 7

From : DEPARTMENT OF TRANSPORTATION

Subject : Project Review Comments

SCH# 91014201

Caltrans has reviewed the above-referenced document. Based on the information received we have the following comments:

00
4

The project's existing and future traffic volumes appear reasonable, and the required calculations and assessments (both present and future) have been addressed. We concur with the proposed mitigation measures and analyses, and do not foresee any transportation/circulation problems that may significantly affect the operation of the State transportation system. 1

If you have any questions regarding this response, please call me at (ATSS) 8-640-3163 or (213) 620-3163.

Original signed by

WILFORD MELTON
IGR/CEQA Coordinator
Transportation Planning & Analysis Branch

cc: Charles McDonald, Angeles National Forest

Response to Comments

2-1 Noted.

NEWHALL COUNTY
WATER DISTRICT

23780 North Pine Street
P.O. Box 779
Newhall, California 91322-0779

Telephone (805) 259-3610
FAX (805) 259-9673

③

February 21, 1991

U. S. Department of Agriculture,
Forest Service,
Angeles National Forest
701 North Santa Anita Avenue
Arcadia, CA 91006

Subject: Draft Environmental Impact Statement
Gillibrand Soledad Canyon Mining
Operations
Los Angeles County, CA

Attn: Charles McDonald

Gentlemen:

Water quantity and quality issues require additional explanation and consideration.

The Draft Environmental Impact Statement (DEIR) indicates that the water requirements will remain unchanged except that in addition to the 225,000 gpd for plant activities and 190,000 gpd for dust abatement, an additional 225,000 gpd will be required for peak plant activities. 1

Where is this water to be obtained, what is the time frame of additional use, what treatment is proposed/required and where will it be discharged? 2

What is the quality of the well water and what will be the water quality of water discharged or returned to the underground? 3

The limited information provided on the existing wells indicates that two wells are capable of pumping 300 gpm and one well is capable of pumping 1,200 gpm. The information presented in the DEIR also indicates that there has been no change in the water level for the past 10 years. 4

Please provide additional data on the existing wells to indicate well depth, aquifer description (river alluvium or separate groundwater basin), water quality and potential influence on the quantity and quality of the Santa Clara River Alluvium.

Response to Comments

3-1 The statement in the Draft EIS that an additional 225,000 gpd will be required for peak plant activities was incorrect and has now been corrected (See Section 3.4.3.1). The amount of water needed for plant activities is 225,000 gpd for a single shift and 450,000 for a double shift. Double-shifting has been practiced by the proponent on a regular basis when sand and gravel sales are up, usually in the summer months. Another 190,000 gpd of water is used for road watering for a 10-hour day operation. This historical level of water consumption (415,000 to 640,000 gpd) will not increase as a result of the proposed project.

3-2 The water is to be obtained from the 3 wells listed in the Draft EIS. Although no additional water use above the current levels would occur as a result of the proposed project (see response to 3-1), the project is planned for 10 years of operations at the peak production levels of 400,000 tons of ilmenite per year. No treatment of water is needed for project operations, and treatment is not planned for obtaining small amounts of potable water which is now purchased as bottled water. No water is discharged from plant operations now and none will be discharged as a result of project activities (see also response to 1-1).

3-3 The quality of well water is adequate for plant operations. Since the water is not used for drinking or other domestic purposes, no testing for quality is conducted. No water is discharged or returned to the underground aquifers.

A statement in the DEIR indicates that bottled water will be used for drinking. What are the sanitation and quality problems to render the water unsuitable for domestic use? 5

The DEIR indicates that the requirements of the Regional Water Quality Board will be met. Since there appears to be no record of a properly permitted waste discharge, is the operation to be changed or will there be no discharge? Does the current operation require a waste water discharge? 6

Will the proposed operations change the quantity and manner of excavation now being conducted under grading plan 6883? Has the project been conducted in conformance with the recommendations of VTN and GeoSoils and the County of Los Angeles? Are there any other specific, site related permits or requirements which impact or govern the Gillibrand operations? 7

As you know, Newhall County Water District has four domestic water wells in the vicinity of and downstream from the Gillibrand processing facilities. These wells provide water to the NCWD Pinetree service area. Three of these wells are no longer operable due to the receding water level in the local aquifer.

Newhall County Water District is concerned that extraction of additional water from the local aquifer would impair our ability to provide domestic water for the health and safety of local consumers. NCWD urges consideration of conservation in the existing and proposed Gillibrand operations to enable the water to be used for a higher priority. 8

Yours very truly

NEWHALL COUNTY WATER DISTRICT

James E. Jinks
General Manager

JEJ/cs

cc: Robert H. Dahl
Santa Clarita Water Company
C. Franklin Steiner

Response to Comments

3-4 Additional data on the existing wells was obtained from Royce Pump Company of Oxnard, California which maintains the P.W. Gillibrand Company wells in Soledad Canyon. Each of the two wells capable of pumping 300 gpm are estimated to be 140 feet deep; the third, located in the unnamed canyon, is about 190 feet deep. The two smaller wells are performing as usual at 300 gpm. However, the third well has lost about 50 percent of its initial capacity of 1200 gpm partly due to rusted perforations in the well casing and partly as a result of the drought. All three wells are located in an aquifer associated with the Santa Clara River alluvium. However, their potential influence on the quantity and quality of the Santa Clara River is not known. The quality of surface or groundwater is not affected by the plant operations since no water is discharged or returned to the underground aquifer.

3-5 There are no sanitation and quality problems to render the well water unsuitable for domestic use; however, the quantity of domestic water used at the project site is very small. It is not economical either to build an on-site potable water treatment and distribution system or to obtain connection from the Newhall County Water District. The purchase of bottled water is found to be the most cost-effective method of obtaining water mostly for drinking purposes.

3-6 Since there is no discharge from the plant operations, no National Pollutant Discharge Elimination System (NPDES) permit or Waste Discharge Requirement (WDR) permits are required (see also response to 1-1).

Response to Comments

3-7 Grading plan 6883 applies to the private property in the unnamed canyon to the west of Pole Canyon. Proposed operations will not change the excavation on that property. The Plan will just take longer to complete. The project has been conducted in conformance with the recommendations of the agencies listed in the comment. Compaction tests have been conducted to indicate the fill meets County Grading Plan Standards. Grading plans are not required by the County on National Forest lands. As in the past, the applicant will obtain all permits required from federal, state, and local agencies prior to the implementation of an approved operations plan for the proposed project.

3-8 No additional water is planned to be extracted from the local aquifers since the water consumption from proposed operations is not expected to exceed the levels experienced in the recent past (415,000 to 640,000 gallons per day in 1989). The applicant will apply all possible conservation measures to keep the water consumption at a minimum and meet its production goals. The company already recirculates 85 percent of the plant water and applies chemical dust inhibitors on the haul roads to reduce water consumption for dust abatements.

Comments from Ms. Ruth Kelley

4

This is a well-written, easily understandable document. One picky thing--tell copy editor that the name of the canyon is Oak SPRING Canyon, the name of the road is Oak SPRING Canyon Road. Singular, not plural. Nor am I sure where Oak Creek is, or if there is such a place. 1

Also the map, Figure 3.5-2 shows no claim in the SW quarter of the south half of section 19. But I believe Claim stake #27 is in that section. North of, and on the western end of, the fence around the Oak Spring Canyon pit. 2

I'd like to mention, also, some information I've received. According to the Director of the Bureau of Mines, Mr. Gillibrand "stated he intends to make a product to be used by the paint industry." According to a Washington Post article, dated May 11, the Bureau of Mines contends there is no shortage of titanium. ~~Don't believe everything you read in the paper~~ about strategic defense needs. 3

which makes me skeptical

According to a letter from the Forest Service, the present mining operation is a rock quarry operation which is SUPPLEMENTED by the locatable minerals operation. Forest Service personnel have told me those quarries will continue in operation indefinitely. It could be FIFTY YEARS before those canyons are returned to public use. 4

Will this proposed 10-year operation also go on indefinitely?

Now for some concerns about this draft EIS. AIR QUALITY-- On page S-5: "Impacts considered signification but unavoidable"--for particulates and nitrogen dioxide and ozone. This is written off on p. 2-19. I quote: "At the local level, impacts would be significant only because violations already occur." Would you tell a pack-a-day smoker that a few more cigarettes a day won't make any difference? Since I have to dust my house anyway, a little more dust won't be significant? 5

On p. 3-6 we read "vehicular traffic is relatively light." This is an out-of-date statement. Take a look at the 7 a.m. stop and go traffic. Because of this supposedly light traffic, carbon monoxide (that's the one that's so deadly, isn't it?) measurements at LANCASTER were used to estimate the carbon monoxide level at the project site! This estimate was an AVERAGE of '86, '87, '88, and '89 levels--when it's perfectly obvious that levels are increasing, not averaging out. 6

Response to Comments

4-1 Noted.

4-2 Figure 3.5-2 is accurate. Claim Number 27 is located entirely in Section 30 and not in Section 19.

4-3 Noted.

4-4 The proposal is for 10 years of operation from the estimated start of peak production of 400,000 tons/year in January 1994, and is based on an approved Plan of Operations. However, based on available volume and demand for minerals, mining operations may continue beyond 10 years of peak production. If major changes in the Plan of Operations are made, new environmental documentation will be required.

4-5 Air quality impact analysis has been substantially revised in response to a number of comments received on this topic. See revised analysis in both summary and Section 3.2.

4-6 Statement has been revised to more accurately describe the represenativeness of the Lancaster Station for the project site (see Section 3.2.1).

4-7 Of the 415,000 to 640,000 gallons of water used per day, 225,000 to 450,000 gallons is used for plant activities. Only 190,000 gallons per day is used for road watering. This is the historical level and water

My other major concern is WATER
I was amazed that the local nearby water companies were not on the mailing list and that I was the one to tell Mr. Manetta that the proposal involved 415,000 gallons pumped from the aquifer PER DAY. Yes, I realize that some of that water will return to the ground. But some of it will spread laterally and a large amount of it will simply evaporate from the spreading basins. As hot and dry and windy as it is here--a weekly loss of one inch or more from the surface can be expected. 7

I wonder if the statement on p. 3-29, that Gillibrand's wells have shown no measureable decline, is still true. The Santa Clarita Water Company wells at Sand Canyon are all dry. 3 of 4 Newhall Water Company wells are dry. 8

On p. 3-29, I hope I'm interpreting correctly--that the additional 225,000 gallons will NOT be in addition to the 415,000 and that the "single-shift basis" mentioned does not imply a second-shift. 9

Looking at Table 2.4-1 on page 2-20, it works out to taking 100 gallons of water to process 1 ton of ore--including ALL ores. If we use only the ratio of the amount of water used to the amount of ilmenite produced, it is 259 gal. of water per ton of ilmenite. Is this a wise use of potable water during this drought? And there is no guarantee that this drought will soon be over. How can you approve the use of this much water EVERY DAY FOR THE NEXT TEN YEARS? 10

I have a question, too, about Biological Resources. We saw and heard mountain lions in 1983-1984, yet there was no mention of them in the EIS. They are, I believe, a protected species. Have they already been driven off by the current mining operations? 11

I also question the statement on p. 3-51 that "stripping the vegetation for mining will have the same effect as a 296-acre prescribed burn." During a fire, not all seeds are destroyed. I understand some need fire to germinate.
Hollyleaf cherry and elderberries and probably many others, will regrow from roots after a fire. And instead of bare ground, a fire leaves ashes which act as fertilizer. 12

Next, NOISE.
Those of us who live nearby don't appreciate the sound of trucks grinding up the roads at six a. m. or on Saturday mornings.

The trucks also affect the RECREATIONAL OPPORTUNITIES, making it too dangerous for hikers or riders.
Page S-9 says the "impacts are not considered significant."--Perhaps not to the rest of L. A. County--but it is VERY significant to local area residents. 13

6-8

Response to Comments

consumption will not increase as a result of the proposed minerals project. Water from the plant operations is collected into ponds and 85 percent is recirculated for mineral processing. The applicant will apply all possible conservation measures to keep the water consumption at a minimum.

4-8 Please see response to 3-4.

4-9 Please see response to 3-1.

4-10 Please see response to 4-7.

4-11 No mountain lions or signs of mountain lions were observed during the field survey. However, the species are expected to occur on or in the vicinity of the site. The mountain lion is not listed as a threatened or endangered species, but has recently been provided protection by the California State Legislature.

4-12 The text has been revised to read "Stripping the vegetation for mining and subsequent reclamation of this area will assist in creating age-class diversity in the chaparral community. Revegetation as described in the Final Mining and Reclamation Plan will produce an early seral stage of plant succession. This will create new growth in the vast expanse of over-mature chaparral surrounding the mining operation" (see Section 3.5.3.1).

On page 3-105 reference is made to a "short-term delay". How short is "short?" 10 years or 50? Will it be, like the loss of Rabbit Canyon and Oak Spring Canyon--for as long as Gillibrand wants to take? 14

Because of the PUBLIC HEALTH AND SAFETY problems, the public cannot use those parts of the Forest where Gillibrand mines. It may be decades before we can.

I deeply regret losing parts of MY Forest to the mining of rock and gravel and ores for paint whiteners. 15

I understand that Gillibrand has a right to mine, but that the Forest Service has a right to require mitigating measures. I suggest:

First--restrict operations within the Forest to weekdays, so that the public can use the Forest on the weekend.

Second--that only RECLAIMED water be used for the mining operations until such time as the drought is over.

Third--that the air quality data be up-dated and re-evaluated for possible additional mitigation measures.

Fourth--that the mining of Claim Groups I and II and III be completed within 10 years, unless the mining in Rabbit and Oak Spring Canyons has been completed and the restoration of those canyons for public use has begun by that time. 16

Response to Comments

4-13 With the implementation of the proposed program, the mining locations will shift eastward to more distant areas from the existing residences. This will result in reduced noise levels. Bikers and hikers will not be allowed on haul roads during active operations. Signs to this effect will be posted on these roads.

4-14 The Gillibrand mining operations are planned for a 10-year period at peak production levels starting in 1994. The short-term delay refers to this period. The U.S. Forest Service, however, does not have any immediate plans for establishing the trails mentioned in the Draft EIS.

4-15 Gillibrand Company has a right to mine in claim areas which are approved by the Forest Service. The Forest Service will take other uses of the forest lands, environmental concerns, and public health and safety concerns into consideration before approving the proposed project.

4-16 The Final EIS has incorporated all those mitigation measures which the Forest Service can legally demand and which are considered to be technically and economically feasible. Your suggestions were incorporated to the extent practicable.

COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (818) 458-5100

THOMAS A. TIDEMANSON, Director

ADDRESS ALL CORRESPONDENCE TO
P.O BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

5

February 27, 1991

IN REPLY PLEASE
REFER TO FILE
P-6

Mr. Charles McDonald
Angeles National Forest
701 N. Santa Anita Avenue
Arcadia, CA 91006

Dear Mr. McDonald:

RESPONSE TO A DRAFT ENVIRONMENTAL IMPACT STATEMENT

Thank you for the opportunity to provide comments on the Draft Environmental Impact Statement (DEIS) for the proposed Gillibrand Soledad Canyon Mining Operations. We have reviewed the DEIS and offer the following comments:

Drainage Planning

The mining operations are upstream of our adopted Oak Spring Canyon and Iron and Sand Canyon floodways. However, the project may ultimately change the water surface elevations within our adopted floodways. The effects on the water surface elevation and velocity in the Canyons due to the mining operations should be discussed in the EIS. 1

If you have any questions regarding these comments, please contact Mr. John Huang of our Drainage Planning Section at (818) 458-4316.

Hydrology

The EIS does not adequately discuss the consequences of mining on the streambed. Mining operations generally deplete the sediment supply to the canyon causing short-term and long-term scour to the streambed. This is specially important if development is planned downstream.

The EIS indicates that the soil erosion from the proposed stockpiles and from the mining pits may cause aggradation downstream. To mitigate the potential aggradation, pits would be dug in the streambed to trap the excess sediment. Those pits may have an adverse effect by trapping the natural sediment thereby decreasing sediment to the lower reaches. Also the stockpiles could washout leading to a mudslide or a mudflow problem. The discussion was qualitative and did not provide adequate supporting data. 2

In summary, mining operations in the hillside and within the stream should be subject to a sediment transport type study to determine the impact on the streambed and to determine appropriate mitigation measures, particularly in locations where development is occurring. Mining operations should be regulated

Response to Comments

5-1 A total of 93 acres of the 1,900 acre Oak Spring Canyon, 44 acres of 1,800 acre Iron Canyon, and 24 acres of 6,000 acre Sand Canyon watershed will be disturbed by the proposed action. Most of this disturbance (64 acres or 67 percent of the total disturbed area in Oak Spring Canyon, 25 acres or 57 percent in Iron Canyon, and 5 acres or 21 percent in Sand Canyon) would occur during a short (less than one year) period of road construction generally in the upper reaches of the canyons. The roads will be drained and the fills stabilized as road construction is completed. Probably only one-third of the total affected acreage in the mining areas (67 acres in three above-mentioned canyons) would be subject to current activities during any winter rainfall period. The effects of the disturbance from mining operations on water surface elevations and velocity in the canyons would be negligible compared to the total acreage in the steep watersheds that are great silt producers under natural conditions.

It should also be noted that the disturbance from mining activities (a total of 67 acres in three canyons) would occur over a 10-year period and reclamation will be carried out in stages as mining progresses from one area to another even within a single claim group or watershed. Of the total mining areas, in any one year, some acres will be in natural condition prior to mining, some will be disturbed and some will be reclaimed.

5-2 As discussed in response to 5-1, the disturbance caused by proposed mining operations would not measurably deplete the sediment supply to

and evaluated on a regular basis to ensure that the streambed remains in a stable state.

If you have any questions regarding these comments, please contact Mr. Sree Kumar of our Hydraulic/Water Conservation Division at (818) 458-6153. 2

Geology and Soils

Several potential landslides were identified during a site inspection on January 23, 1991. The stability of these landslides could be affected by proposed road and pit construction. The potential impact to the project resulting from the presence of these slides should be determined and appropriate mitigation proposed. 3

If you have any questions regarding these comments, please contact Mr. Victor Martinez of our Land Development Division at (818) 458-4923.

If you have any questions regarding the environmental reviewing process of this Department, please contact Ms. Clarice Nash at the previous page address or at (818) 458-4334.

Very truly yours,

T. A. TIDEMANSON
Director of Public Works

CARL L. BLUM
Assistant Deputy Director
Planning Division

MA:dsa
1/22

the canyons. Construction or use of sedimentation traps was recommended in the Draft EIS (Mitigation Measure S-1) to trap the sediments only if the rate of sedimentation was above the existing rates. This would include trapping of materials which could occur in the unlikely event of stockpile washouts which would be toed, surface stabilized or fenced to minimize erosion or slides. Mitigation S-1 also states that in accordance with the policies of the Los Angeles County Department of Public Works, the existing rates of sedimentation shall be allowed through overflows to maintain the stream channels in their present shape. Similar procedures are being followed by the Gillibrand Company in their current operations in the area.

A sediment transport study was conducted for the P.W. Gillibrand Company's current operations in the Oak Spring Canyon. This study indicates that scouring of any significance is not attributable to the mining activity. Aggravation would more likely be caused by natural storm events in the steep watersheds and not influenced by the small scale of the mining operations. A new and detailed sediment transport study, therefore, does not appear to be justified.

5-3 Natural slumps or slides do occur in the steep canyons of the project area as a result of winter storms. The project is not likely to be impacted by the presence of these slides. If the slumps turn into slides, the Gillibrand Company will recover the material and use it in the plant or for reclamation of the mining pits. Road fills will be compacted to the Forest Service specifications and erosion will be minimized through regular maintenance procedures to keep the roads operational.

Pete Wilson
GOVERNOR

State of California

GOVERNOR'S OFFICE
OFFICE OF PLANNING AND RESEARCH
1400 TENTH STREET
SACRAMENTO 95814

(916) 323-7480

6

DATE: March 1, 1991

TO: Charles McDonald
Angeles National Forest
701 N. Santa Anita Avenue
Arcadia, CA 91006

FROM: Office of Planning and Research
State Clearinghouse

RE: Draft Environmental Impact Statement for Gillibrand Soledad Canyon Mining Operations, Angeles National Forest, Los Angeles County (SCH 91014201)

As the designated California Single Point of Contact, pursuant to Executive Order 12372, the Office of Planning and Research transmits attached comments as the State Process Recommendation.

This recommendation is a consensus; no opposing comments have been received. Initiation of the "accommodate or explain" response by your agency is, therefore, in effect.

Attachment

cc. Applicant

8-13

Resources Building
1416 Ninth Street
95814
(916) 445-5656
TDD (916) 324-0804

California Conservation Corps
Department of Boating and Waterways
Department of Conservation
Department of Fish and Game
Department of Forestry
and Fire Protection
Department of Parks and Recreation
Department of Water Resources

PETE WILSON
GOVERNOR OF
CALIFORNIA

THE RESOURCES AGENCY OF CALIFORNIA
SACRAMENTO, CALIFORNIA

Air Resources Board
California Coastal Commission
California Tahoe Conservancy
California Water Management Board
Colorado River Board of California
Energy Resources Conservation and Development Commission
San Francisco Bay Conservation and Development Commission
State Coastal Conservancy
State Lands Commission
State Reclamation Board
State Water Resources Control Board
Regional Water Quality Control Boards

6

March 1, 1991

Charles McDonald
Angeles National Forest
701 N. Santa Anita Avenue
Arcadia, CA 91006

Dear Mr. McDonald:

The State has reviewed the Draft Environmental Impact Statement for Gillibrand Soledad Canyon Mining Operations, Angeles National Forest, Los Angeles County, submitted through the Office of Planning and Research.

We coordinated review of this document with the Air Resources Board, the California Highway Patrol, the Los Angeles Regional Water Quality Control Board, the California Integrated Waste Management Board, and the Departments of Conservation, Fish and Game, Health Services, and Transportation.

The Department of Conservation has submitted the attached comments for your consideration.]1

The Department of Transportation responded by copy of its correspondence dated January 23, 1991.]2

The Los Angeles Regional Water Quality Control Board responded to George A. Roby by their correspondence dated January 17, 1991.

Thank you for providing an opportunity to review this project.

Sincerely,

for Harold F. Waraas
Assistant Secretary
Administration/Finance

Attachments

cc: See attached list

Response to Comments

6-1 Please see comment letter number 2.

6-2 Please see comment letter number 1.

6-3 The reclamation plan presented in the Draft EIS has been substantially revised to conform to SMARA (see Final Mining and Reclamation Plan, Appendix C). The revised plan should satisfy the concerns of the Resource Agency of California and a separate EIR would be unnecessary.

6-4 Mitigation V-4 in the Draft EIS (page 3-95) outlines the measures to reduce visual impacts from road cuts and fill slopes. Further details are now available in the Final Mining and Reclamation plan presented as Appendix C of this Final EIS. Secondary roads will be developed and will be reclaimed at the completion of mining activity. These roads would not be generally visible from sensitive receptors; hence visual impacts are not considered to be significant. (See Appendix C for more details.)

6-5 The sentence in the Draft EIS (page 3-20) regarding "Current R-5 Engineering Standards" has been revised to read: "Construct all roads to comply with the Angeles National Forest Minimum Standards for Road Construction" (see Section 3.3.3.5). These standards are presented in the Final Mining and Reclamation Plan (see Appendix C).

cc: Office of Planning and Research
1400 Tenth Street
Sacramento, CA 95814
(SCH 91014201)

6-6 Final contour of the land after reclamation is better defined in the Final Mining and Reclamation Plan (see Appendix C). The language in Appendix C supersedes the language in the Draft EIS. The overall slope of the pit wall is proposed to be generally 1:1 or at an angle of 45 degrees. This angle is based on achieving a bench face slope of 63 degrees, a bench berm of 25 feet, and a bench height of 50 feet. However, breaking the pit slopes with rock sculpting with variable size benches and slope angles of up to 3:1 will be implemented in selected areas recommended by the Forest Service. Also, the possibility of taking one of the pit sides down to form a ramp at 3:1 slope will be considered in consultation with the Forest Service. Statements on pages S-12 and 2-11 of the Draft EIS have been revised.

At the completion of the mining activity, the pits would be reclaimed and would become part of the Forest Service lands available to the public for activities designated in the Forest Plan. Mitigation P-4 (page 3-120 of the Draft EIS) has been revised to read: "Fence accident-prone areas and post 'no entry' signs at selected points of possible entry to project areas. Maintain fences and signs during the life of the project".

Slopes greater than 1:1 are common in the steep canyons of the project area. It is true that the character of the gabbro formation will preclude artificial revegetation of the pit walls. However, experience gained from similar mining activities in the area shows that the native chaparral quickly reestablishes itself on disturbed sites such as steep road cuts and

State of California THE RESOURCES AGENCY OF CALIFORNIA

Memorandum

6

To Douglas P. Wheeler
Secretary for Resources

Mr. Charles McDonald
Angeles National Forest
701 N. Santa Ana Avenue
Arcadia, CA 91006

Date February 28, 1991

Subject J.W. Gillibrand
Soledad Canyon
Mining Operations
SCH# 91014201

From Department of Conservation—Office of the Director

The State Mining and Geology Board has received an appeal for approval of reclamation plan at the Pole Canyon, Soledad Canyon, and Oak Spring Canyon mine sites. Accordingly, the Board will be the CEQA lead agency for approval of these reclamation plan under the Surface Mining and Reclamation Act (SMARA). We have reviewed the draft Environmental Impact Statement (EIS) for this site and find a number of problems with the document. It appears that a separate CEQA document will be necessary for the reclamation plan.

CEQA Guidelines Section 15222 requires lead agencies to seek a joint EIR/EIS with federal agencies to avoid duplication. We contacted Charles McDonald of the Angeles National Forest to discuss a joint EIS/EIR. It was indicated that since the mining was on federal lands the Forest Service was not concerned about the CEQA requirement; the forest would not cooperate in a joint document even if it meant that the applicant would have to undergo two separate review processes. Upon reading the EIS it becomes apparent there are many unknowns regarding the proposed reclamation plan within this document, and CEQA may require a separate document to be completed. Areas of concern in the proposed Alternative 1 include, but are not limited to, the following: 3

1. The document recognizes substantial visual impacts with the 10.9 miles of 48'wide primary roads. In some locations roads will be constructed on slopes as great as 20% It is apparent this will result in a substantial visual impact, and possibly erosion impacts. However, size of cut and fill slopes are not indicated and specific visual and erosion control mitigation of these slopes is not outlined within the document. The EIS refers to "revegetation of disturbed areas to prevent sheet erosion and gullying in accordance with the proponent's 'Erosion Control Plan' submitted...as part of the 'Plan of Operations'." Neither of these documents were included in the EIS, therefore it is impossible to address the proposed mitigation. Additionally, reclamation of the 1.5 miles of secondary roads, also 48'wide, after completion of the mining operations is mentioned but not fully described as part of the project. We must conclude that significant visual and erosion impacts exist for the project. 4

2. The construction of the roads to "current R-5 engineering 5

Response to Comments

mined faces. Erosion of these exposed slopes is unlikely because of the inherent hardness of the host rock. Each bench between the slopes will be revegetated.

6-7 The Final Mining and Reclamation Plan (Appendix C of the Final EIS) provides more details on revegetation methods. Planting and seeding of freshly disturbed sites will be done annually by November 15 to avoid watering. Seeding will not be done between April 1 and August 31.

6-8 The Final Mining and Reclamation Plan (see Appendix C) provides more details for the reclamation procedures, including starting and termination dates. All disturbed areas will be reclaimed within one year of the conclusion of operations. In a mining pit, for example, the proponent will complete reclamation of the first bench or level before starting excavation on the fourth level. Active mining will progress in the third level, while the second level serves as a safety buffer between active mining and on-going reclamation. Also, see response to 5-1.

6-9 Comment noted. Necessary changes have been made in the Final EIS and a Final Mining and Reclamation Plan has been prepared as an Appendix to the Final EIS.

standards" is not explained. These standards may come from the Corps of Engineers or the Forest Service, but the document does not specify. Therefore, review of these standards is not possible. 5

3. The document is inconsistent as to the final contour of the land. Page S-12 indicates mining pits will be reshaped to a "final cut slope of a 1:1 ratio and smooth" with terrace benches wide enough to allow small machinery to prepare a seed bed for revegetation species. However, on page S-14, the document states that the plan will "contour final grade of reclaimed mining pits with disposable spoils so as to prevent erosion, resemble the surrounding natural habitat". Page 2-11 goes on to explain under a reference to the reclamation plan that the reclamation plan, the pits will have walls containing 25' wide benches, 50' high cuts and an overall slope of 1:1. The proposed grading for mine reclamation is very unclear. If it is to be 1:1 slopes, this does not promote revegetation and is more apt to allow for potential significant erosion problems. Will these abandoned pits be accessible to the general public? If not, the document does not need to specify how the public will be kept out, and if so, there may be a significant hazard for the safety of the public using the forest. Additionally, 1:1 slopes would likely not promote the reestablishment of wildlife habitat. Thus, erosion, vegetative, safety and wildlife impacts will exist on the site unless specific, effective mitigations are included. 6

4. The application of supplemental irrigation in summer months, as indicated on Page S-13 is unclear. Will this irrigation be applied to all areas to be seeded and planted? Will this irrigation be applied to a phased reclamation plan within the mining pits? Will this supplemental irrigation be applied to planted cut & fill slopes along primary and secondary road systems? How much water, how often during the summer and by what means will it be applied? These questions are not answered within the document. Additionally, the document seems to imply that water will only start after the prescribed 2 or 3 year time limit if a specific survival rate is not achieved within that 2 or 3 years. The document does not indicate there will be a replanting to replace the lost plant material prior to the addition of the supplemental water. Thus, without specific mitigations and replanting requirements, a significant vegetative impact may exist. 7

5. The document indicates reclamation will take place "when all the ore has been extracted from a given area." This does not really explain "when" reclamation will take place, it only implies at some future date. Mining could remove 95% of the ore, not remove the remaining 5% and it could be argued that reclamation does not have to commence. The site could be left 8

without reclamation indefinitely. Under SMARA, the reclamation plan must include a starting and termination date. We urge the Forest Service to add this requirement to allow a certainty in mitigation, and to eliminate confusion between required State and Federal documents. 8

In conclusion, the EIS does not present a precise reclamation plan and will not be adequate for use in a Board CEQA review. It is contradictory as to proposed final grading and unclear as to where and the types of revegetation to be completed. We recommend that the Forest Service correct these areas in the Final EIS and hope to work cooperatively in the review of this and the other Gillibrand sites. 9

Please contact me at (916) 322-5873 if I can answer any questions on this review.

Dennis J. O'Bryant
Environmental Program Coordinator

cc: Deborah Herrman, SMGB

8-18

202 S. Lincoln #5
Urbana, IL 61801

7

March 6, 1991

Mr. Charles McDonald
Angeles National Forest
701 N. Santa Anita Avenue
Arcadia, California 91006

Dear Mr. McDonald:

I have reviewed the Gillibrand Soledad Mining Operations E.I.S.

Most of the environmental impacts were thoroughly addressed. However, I noted a few deficiencies. These are discussed below. I hope you will consider them before any action is taken.

1.) Deletion of Alternative 6

On page 2-17 of the E.I.S., Alternative 6 - Reduce the Scope of the Project, was prematurely dismissed. Section 2.3.2 states "Additional test drilling might better define the density of heavy minerals...site dimensions could be reduced..." This alternative, which could reduce the extent of damaging environmental impacts, was dropped because "More drilling would delay the start of the project, and there is no guarantee that richer concentrations of heavy minerals would be found." Section 102 (2) (A) of NEPA mandates that the E.I.S. is to be used in the planning and decision making process. By stating that further test drilling would delay the start of the project, it is implied that the mining plan was already accepted before the E.I.S. was written. Although as E.I.S. cannot stop a proposed action, it must be considered in the planning stage (N.R.D.C. v. Morton, 458 F.2d 827). 1

8-19

Response to Comments

7-1 A number of elements were considered in eliminating Alternative 6 from detailed discussion. The referenced sentence "More drilling would delay the start of the project..." was neither the only reason nor even a sufficient reason to eliminate this alternative. The amount of drilling conducted in the three claim groups under consideration is sufficient to identify the density of heavy minerals which varies from one claim group to another. Moreover, Alternative 1, the proposed action, includes the possibility that pit limits may be increased or decreased to conform to the actual distribution of heavy minerals within the host rock (see paragraph 3, page 2-6 of the Draft EIS). It is in the financial interest of the proponent to obtain the desired volume from a richer source located in a smaller area as it would reduce the cost of mining the ore.

7-2 The text in Section 3.5.3.1 has been revised to read "Large mammals utilizing the wildlife movement corridor which leads to the big cone spruce forest may be displaced. However, because of the crepuscular and nocturnal behavior of most large mammals, and because mining operations will not occur at the mining claims during night time, wildlife is expected to continue to traverse or otherwise utilize this area. As mining practices have existed in this area for several years and as large mammals (i.e., mule deer, coyote, fox) were readily detected onsite during the biological assessment, it can be concluded that mining activities in the area have little adverse impacts to mammal populations".

2.) **Large Mammals in the Proposed Project Area**

Page 3-52 states that "Large mammals utilizing the wildlife movement corridor which leads to the Bigcone Spruce forest may be displaced. However, because of the crepuscular and nocturnal behavior of most large mammals, these species may continue to cross or travel around the margins of the impacted area." There is no discussion of the possibility that these animals will not cross or travel around the margins. How will mining operations impact natural wildlife travel routes, and what are the possible impacts if any animals wander into the mining area? Is there more available habitat if movement corridors are cut off? Can you document any evidence from older mine sites in the area that populations of large mammals reacted to habitat and corridor disturbances in the fashion that was predicted by the E.I.S.? 2

3.) **Herpetofauna Surveys**

Page 3-31 states "...wildlife was detected usually by direct observation...sign...auditorially..." These are accepted methods for the detection of most animals, but not reptiles and amphibians. To properly estimate populations of these animals, drift fences should be employed. It is very important that a proper and thorough herpetofauna survey takes place before any action occurs, especially since adequate habitat for several reptiles (including one or more sensitive species) has been identified in the proposed mining areas by the E.I.S. (pp. 3-38, 3-47). 3

4.) **Riparian Areas**

The impacts to riparian ecosystems are discussed on page 3-49. The E.I.S states that impacts to riparian zones will be mitigated, but no specific details are given. A 200-foot wide buffer zone between riparian zones and work areas is discussed, and required by California regulations. However, the E.I.S. does not clearly state where this 200' buffer zone will start. It should begin along the outside edge of the riparian vegetation, with no disturbances what so ever to be made inside of or within 200' outside of that edge. Figure 3.5-1 on page 3-35 shows roads cutting through and running on the periphery of riparian zones and Greta's Asters. The proponent should not make any disturbances within a minimum of 200' of these sensitive areas as discussed above. This may require the realignment of roads as mentioned on page 3-49. The exact road alignment should be decided upon and included in the E.I.S. before any action is taken. 4

Response to Comments

7-3 To characterize wildlife inhabiting or otherwise utilizing the natural resources onsite, field reconnaissance was conducted at all proposed claim sites and ancillary facilities. All habitats were visited and focused/directed surveys were conducted in areas of greatest potential for determining presence/absence of sensitive species. The general biological field surveys confirm no regional wildlife populations or federal/state listed threatened or endangered species would be impacted. Inquiries to the California Natural Diversity Data Base, USFWS, CDFG, and other sources identify three species including Santa Ana, sucker, unarmored three-spined stickleback and the San Diego horned lizard. Although surveyed, no suitable aquatic resources occur onsite for the aforementioned fish species and no horned lizards were encountered during focused searches. No relative density studies for any wildlife groups, including herpetofauna were required by the permitting agencies.

7-4 The text on page 3-54, first paragraph of the Draft EIS, has been revised to read "Avoiding impacts in riparian habitats, requiring 100-foot buffer zones (as was required by the Forest Service in approving the Upper Pole Canyon Road which connects to Section B of this proposal) between riparian zones and work areas, and monitoring during construction can largely eliminate adverse impacts to riparian resources related to this project. The buffer zone should begin along the outside edge of the riparian vegetation, with no disturbances inside of or within 100 feet of the outside edge of riparian vegetation." For detailed road alignment and mitigations, see Appendix C.

Page 3-52 states "...unavoidable disturbances (to riparian zones) will be mitigated by enhancement of existing riparian habitat in the area." Further explanation of "unavoidable disturbances" "replacement" and "enhancement" as used in the discussion of impacts to riparian zones would be helpful in understanding mitigation plans. Many ecologists agree that wetlands cannot be created in a short period of time, if at all. This should be kept in mind before any claims of creating new riparian zones are made. 5

5.) **The Edge Effect**

Page 3-55 states "...some wildlife habitat (loss) will be compensated by the creation of edge habitat..." Increasing the area of edge habitats usually does not increase overall habitat quality. Increased edge length will most often increase the populations of common species while decreasing populations of sensitive species. This concept is discussed in many ecological texts, and is known as the edge effect. 6

6.) **Cooper's Hawk**

Page 3-45 discusses the Cooper's Hawk. This raptor is considered a declining species, partially due to loss of habitat. Since the Cooper's Hawk uses riparian zones as breeding grounds, a detailed plan for specifically avoiding these zones during the breeding season should be developed. Riparian zones are to have a buffer strip of no activity of at least 200'. An ornithologist should be contacted to determine if this size buffer will also be adequate protection for the hawks during the breeding season. 7

7.) **Duration of Impacts**

There was little, if any, discussion in the E.I.S. pertaining to the duration of expected impacts. Estimates of how fast affected ecosystems will recover can be made using the success rates of reclamation efforts in similar but older local mine sites. These estimates would be useful in predicting how affected organisms will react to impacts, and how long it will take impacted areas to return to pre-mining conditions. 8

Sincerely,

Timothy R. Pollowy

Associate, A.S.L.A.
Reclamation Subcommittee

Response to Comments

7-5 Comment noted. Mitigation for project related disturbances to riparian and/or other vegetation types which may require creation/replacement and/or enhancement are described in the Final Mining and Reclamation Plan (Appendix C).

7-6 Comments relating to edge effect concept are well taken. However, this ecological concept is generally more applicable to forest communities. In addition the San Diego horned lizard, which was the only sensitive species identified inhabiting the chaparral would likely benefit from increased ant colonies commonly located in open areas adjacent to shrub vegetation.

7-7 During biological field surveys no active/inactive Cooper's hawk nests were found. Although riparian habitat occurs within proposed project boundaries, particularly in Pole Canyon, no suitable nesting substrate occurs onsite. Most of the riparian vegetation is shrubby in nature with only a scattering of small sycamore trees, generally less than 15 feet in height. Although foraging habitat occurs throughout the project area, this species is not expected to nest onsite.

7-8 The duration of expected impacts and time frame for vegetation recovery are addressed in the Final Mining and Reclamation Plan (see Appendix C).

8

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
Office of Environmental Affairs
600 Harrison Street, Suite 515
San Francisco, California 94107-1376

March 7, 1991

ER91/26

Charles McDonald
Angeles National Forest
701 N. Santa Anita Avenue
Arcadia, California 91006

Dear Mr. McDonald,

The Department of the Interior has reviewed the Draft Environmental Impact Statement for Gillibrand Soledad Canyon Mining Operations, Angeles National Forest, California and has the following comments.

We agree with Alternative 1, the proposed action, as an acceptable plan of operations. This is a thorough document with a generalized mining plan and detailed discussion of its environmental consequences. Based on company data available to the Bureau of Mines, but not provided in the DEIS, it appears that adequate mineral resources have been delineated to undertake development planning. 1

Thank you for the opportunity to review this document.

Sincerely,

Patricia Sanderson Port
Regional Environmental Officer

cc: Director, OEA (w/orig. incoming)
State Dir., BLM
Chief, BM

8-22

Response to Comments

8-1 Comment noted.

8-2 Mitigation B-16 has been added in Summary and Section 3.5.3.5 in response to this comment as follows: Do not remove vegetation from the project area during the migratory bird breeding season (approximately March to August) and apply for a permit from the U.S. Fish and Wildlife Service if removal and relocation of migratory bird eggs and young to licensed rehabilitation care centers is required.

8-3 Text in Section 3.5 has been revised. See also response to 11-25.

8-4 Comment noted. An application for Section 404 permit has been submitted by the proponent.

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
Office of Environmental Affairs
600 Harrison Street, Suite 515
San Francisco, California 94107-1376

8

April 8, 1991

ER91/26

Charles McDonald
Angeles National Forest
701 N. Santa Anita Avenue
Arcadia, California 91006

Dear Mr. McDonald,

The following comments from the U.S. Fish and Wildlife Service (FWS) on the Draft Environmental Impact Statement for Gillibrand Soledad Canyon Mining Operations, Angeles National Forest, California are an addendum to our comment letter dated March 7, 1991.

8-23

GENERAL COMMENTS

In general, the referenced document adequately addresses the project area and alternatives except for mitigation measures to offset project impacts. As the Department of the Interior bureau charged with protecting public fish and wildlife resources under the provisions of the Endangered Species Act and the Migratory Bird Treaty Act, we advise you that stripping vegetation and other habitat manipulations may constitute a violation of the Migratory Bird Treaty Act if any migratory birds, their young, or eggs would be taken.

Because there is no provision for the incidental take (e.g., pursuing, wounding, killing) of migratory birds, the only permit that could be applied for, in such cases, could only authorize the removal and relocation of migratory bird eggs and young from the proposed project site to licensed rehabilitation care centers. 2

Although FWS recommends that the vegetation removal be conducted outside of the migratory bird breeding season (approximately March to August), FWS's Law Enforcement Division may elect to issue a permit allowing take of migratory bird eggs and/or young from the proposed area of manipulation to licensed rehabilitation care centers.

The discussion regarding the Federal and State listed endangered unarmored threespine stickleback found in the Santa Clara River was inadequate. The unarmored threespine stickleback would most likely be found where perennial water exists. The potential impacts from the proposed activities in the upper watersheds on this species need to be more thoroughly assessed and addressed in the final document. 3

As stated in the referenced document, the proposed project would require a Section 404 permit under the Clean Water Act from the U.S. Army Corps of Engineers. FWS will provide comments to the permit applicant at a later date on aspects which may affect waters of the United States. 4

Sincerely,

Patricia Sanderson Port
Regional Environmental Officer

cc: Director, OEA (w/incoming)
State Dir., BLM
Chief, BM
Reg. Dir., FWS

STATE OF CALIFORNIA—THE RESOURCES AGENCY PETE WILSON, Governor

DEPARTMENT OF FISH AND GAME
.olden Shore, Suite 50
Long Beach, CA 90802
(213) 590-5113

9

March 8, 1991

Michael J. Rogers
U.S. Forest Service
Angeles National Forest
701 N. Santa Anita Avenue
Arcadia, CA 91006

Subject: Gillibrand Soledad Canyon Mining Operations - Draft Environmental Impact Statement (DEIS), Angeles National Forest, California

Dear Mr. Rogers:

We have reviewed the subject document. The applicant, P.W. Gillibrand Company, proposes to extract titanium ores from three locations in the Soledad Canyon area of the Tujunga Ranger District of the Angeles National Forest in Los Angeles County, California. Specifically, the proposed activity involves open pit mining at various locations on a 780-acre site and new construction or widening of approximately 12.5 miles of road to transport extracted material. Some 300 acres of the project site would be significantly altered upon project completion, resulting in substantial cumulative impacts to biological resources.

Upon receiving a Notice of Intent to Prepare a DEIS, the Department of Fish and Game (Department) provided written recommendations pertaining to the content of the subject document in a letter dated January 11, 1990. The following constitutes the Department's Region 5 comments concerning adequacy of the DEIS.

The DEIS is inadequate and fails to address issues and concerns listed in our previous letter. Specifically, the document lacks an adequate description of the proposed project and a complete analysis of project impacts to wildlife resources. The DEIS does not explicitly identify when the proposed mining activity will begin or the duration (in years) of mining activity. Such information is essential for an adequate analysis of project impacts to wildlife resources. The Department is unable to conclude that impact analysis is adequate based on information currently in the DEIS. The document also fails to adequately discuss whether the mining activity can be completed in phases and when revegetation efforts can begin. With regard to revegetation, the document does not identify criteria that the Forest Service will use to monitor revegetation efforts, including criteria to determine diversity, specific revegetation plans, a timetable for reclamation, and criteria to determine success of revegetation efforts. 1

The DEIS fails to explicitly quantify sycamore, oak woodland, and riparian habitat acreages within the project site. Therefore, direct and secondary impacts (e.g. noise, dust) to these habitats are not adequately identified, and we are unable to determine the efficacy of mitigation measures. Because the document fails to quantify the acreage of tree-dominated habitat and ephemeral riparian habitat within the project site, the Department is unable to determine whether spotted owls could reasonably be expected to forage within or nest adjacent to the project site. Thus, the document has not adequately discussed the potential for adverse impacts to spotted owls. 2 3

8-25

Response to Comments

9-1 The Draft EIS has been revised in response to specific comments (see response to Comments 2 through 8 below). A Final Mining and Reclamation Plan prepared as Appendix C of the Final EIS also provides more details in response to these comments.

9-2 The Draft EIS (Table 3.5-5) and Biological Evaluation submitted separately to the CDFG provide sufficient quantification of sycamore, oak woodland, and riparian habitat acreage. The Final Mining and Reclamation Plan (see Appendix C) gives additional details on the required mitigation measures to enhance or restore the riparian areas.

9-3 Most, if not all, potential suitable habitat for spotted owl occurs offsite, on forest service lands. Spotted owl surveys throughout the Angeles National Forest are currently being conducted by the Forest Service. Although some foraging habitat may be temporarily lost during mining operations, adverse impacts to foraging owls is expected to be minimal. Mining operations will not occur during nocturnal and crepuscular activity periods for this species, and the opening up or creation of additional edge habitat in the extensive areas of dense chaparral may actually benefit foraging opportunities for this species.

9-4 The Draft EIS (page 3-54, paragraphs 1 and 2) gives sufficient detail to indicate that the project will not result in net loss of riparian acreage. Mitigation measures B-8 of the Draft EIS is revised as follows to strengthen this commitment: "Monitor construction activities to ensure that no net loss of riparian acreage will occur. Forest Service will conduct monitoring. Mitigate unavoidable disturbance by replacement

The document lacks specific quantification and mapping of riparian habitat that will be adversely affected by the project. The document also lacks specific measures to ensure complete replacement of riparian acreage and habitat value. The Department opposes projects that result in net loss of either riparian acreage or habitat value. 4

Cumulative impacts are inadequately discussed in the DEIS. When considered with past, present, and reasonably foreseeable future actions in the Forest (e.g. off-highway vehicle activity, other mining projects, and proposed landfill sites), the Department contends that the proposed activity represents a significant cumulative impact to wildlife. In our January 11, 1990 letter, we specifically stated the importance of cumulative impacts relative to long-term maintenance of the deer herd and conservation of riparian and oak woodland habitats within the Forest. However, the DEIS fails to discuss effects of cumulative impacts to these important resources. 5

Direct and secondary impacts (noise, dust, human activity) resulting from the mining operation will effectively eliminate the entire project site from use by many wildlife species. Because of this significant (and cumulative) impact, we indicated in our earlier letter that adequate mitigation might require acquisition and/or enhancement of off-site habitat. However, the DEIS fails to examine the feasibility of acquisition and/or enhancement of off-site habitat as a mitigation measure. 6

In conclusion, we recommend that further consideration of the proposed project be deferred until an adequate DEIS is prepared and circulated for review and comment. We request formal and timely notification of any decision related to the future of this project to enable us to take appropriate action. 7

Diversion, obstruction of the natural flow, or changes in the bed, channel, or bank of any river, stream, or lake will require notification to the Department of Fish and Game as called for in the Fish and Game Code. This notification (with fee) and the subsequent agreement must be completed prior to initiating any such changes. Notification should be made after the project is approved by the lead agency. 8

Thank you for the opportunity to review and comment on this project. If you have any questions, please contact Kim McKee of our Environmental Services staff at (213) 590-5137 or Jon Fischer, Wildlife Biologist, at (213) 590-5158.

Sincerely,

R. E. Mall for

Fred Worthley
Regional Manager
Region 5

Response to Comments

or enhancement of existing riparian habitat in areas identified by the Forest Service at a ratio agreed upon by the responsible agencies (Forest Service, U.S. Army Corps of Engineers, USFWS, and CDFG). Restore any riparian habitat disturbed during the project life after the activity in the disturbed area terminates. Inventory and replace mature trees and snags, if removed from the draws, at sites selected by the Forest Service".

It should be noted that the project conforms to the Forest Plan prescription number 2 and actually will help achieve some of the long-term seral-stage objectives of this primarily wildlife oriented management unit of the Angeles National Forest.

9-5 The cumulative impact section of the Draft EIS (page 3-125) recognizes the increased cumulative impacts on riparian areas. The following paragraph has been added to this section relative to maintenance of the deer herd. "Although the mining operations (the proposed action as well as other mining activities in the project vicinity) will add to the cumulative reduction in chaparral habitat within the region (no oak woodlands are involved), large mammals, with extensive home ranges will not be significantly affected. The dirt access roads constructed for ore hauling will provide movement corridors for large mammals including deer. Disturbing less than 300 acres in a largely undisturbed area is not likely to hurt the deer herd. Instead, the deer herd is more

likely to benefit from new browseways, edge, and water availability (see mitigation measure B-11 on page 3-60 of the Draft EIS) that the project will bring."

9-6 The project activities will disturb a maximum of 300 acres of the 13,500 acre Gillibrand Company mineral claim area (see page 2-1 of the Draft EIS) and a much larger forest environment in the Angeles National Forest (vegetation removal will take place on less than 100 acres). While the direct and secondary impacts (noise, dust, human activity) resulting from the mining operations are recognized, the Forest Service does not believe that the mining operation will effectively eliminate the entire project site for use by many wildlife species. Similarly, the Forest Service does not consider the acquisition and/or enhancement of off-site habitat as a required mitigation measure except in case of riparian areas where the policy of no net loss will be pursued.

9-7 In order to clarify some of the concerns reported in the subject letter of comments, dated March 1991, the Forest Service, on April 26, 1991, submitted a copy of the Biological Evaluation conducted for the proposed mining project. The additional information available in this document, revisions to the Draft EIS, responses to comments, and the inclusion of Final Mining and Reclamation Plan provide sufficient environmental impact discussion to make the Final EIS adequate. The Forest Service does not see the need for recirculation of a revised draft.

Response to Comments

9-8 Mitigation measure W-3 on page 3-30 of the Draft EIS recognizes the need to notify the California Department of Fish and Game. This language has been revised to incorporate the wording used in the comment. W-3 now reads: "Notify the California Department of Fish and Game of any diversion, obstruction of the natural flow, or changes in the bed, channel, or bank of any river, stream, or lake as called for in the Fish and Game Code. This notification (with fee) and the subsequent agreement must be completed prior to initiating any such changes. Notification shall be made after the project is approved by the Lead Agency. Similar notification shall be made to the U.S. Army Corps of Engineers, if needed."

SIERRA CLUB — ANGELES CHAPTER
3550 WEST SIXTH STREET, SUITE 321, LOS ANGELES, CALIFORNIA 90020
(213) 387-4287

10

In reply, please address the undersigned at:
2434 Fairmount Avenue
La Crescenta, CA 91214

March 10, 1991
Subj.: Draft EIS Gillibrand Soledad Canyon mining operations Angeles National Forest

Mr. Charles McDonald, Angeles National Forest
701 N. Santa Anita Avenue
Arcadia, CA 91006

Dear Mr. McDonald:

The Club has reviewed the subject DEIS. The document is well organized and relatively easy to read. We are concerned that the alternatives involving conveyor transport have been unjustifiably discounted. Alternative 2 appears to offer numerous benefits to the environment, some of which table S-1 belittles. The reduction in gaseous emissions and particulates should be considered significant in light of the violations of state and federal air quality requirements in the LA basin. 1

It is also unclear why alternative 7 was eliminated from further study. Allegedly, so-called "oversize" rock could not be accommodated (p. 2-18); however, the description of alternative 2 implies that the conveyor system could be designed to accommodate such rock (p. 2-12). The Club urges that a workable alternative employing conveyor transport be developed and adopted for this project. 2

The Club is especially concerned that an effective reclamation program be implemented upon completion of mining. Unfortunately, aspects of this subject are scattered through sections of the document. There should be a separate section or table delineating all elements of the reclamation plan. The EIS should describe the bond that the operator will have to post as required by state and federal law. A summary description of the area as it will appear after mining is completed in ten years should be given. For example, where will the trees cited in item S-8 (p. S-13) be planted? (The item refers to the proponent's erosion control plan, but surely the circumstances where such planting will be required should be specified in general terms in the EIS.) Will the mined pits become sag ponds as rainwater collects in them? 3

Protection of riparian habitat should receive top priority. The DEIS admits (p. 3-29) that claim group III can cause increased debris flows down several canyons and the conclusion that the impacts should not be significant is not substantiated. The discussions in Section 3.3.3.1 (p. 3-18) and in Section 3.4.3.1 (p. 3-28) both predict adverse consequences to canyons below if mining pits are "shallow or open-ended to allow sediments to flow downstream". Yet a commitment to avoid such a situation seems to be lacking from the document. 4

Disturbed riparian habitat is promised to be enhanced at a ratio of 5 acres for every acre disturbed (p. 3-54), but there is no indication of exactly what "enhancement" means. Why is this requirement not in the list of mitigation measures (p. 59-60)? A monitoring program is needed to detect impact on the Greta's aster, a CNPS list 4 species. These matters need to be fully explained in the FEIS. 5

The statement (p. 3-51) that stripping the vegetation for mining will be equivalent to the effects of a prescribed burn is misleading. Prescribed burns usually do not destroy the root crowns which mining activities (albeit perhaps not "stripping for mining") surely will. 6

Sincerely,

Fred Hoepther

Angeles Chapter, Sierra Club

Recycled Paper

Response to Comments

10-1 We believe that the impacts of Alternative 2 have been discussed in sufficient detail. It is recognized that air quality, soil, water resources, biological resources, and public health and safety would be reduced if this alternative was adopted. Some of the impacts in Table S-1 have been revised in response to other comments or further analysis.

10-2 Alternative 7 was eliminated from further study because construction of conveyor from all three claim groups was found to be neither technically nor financially feasible. Considering the terrain of the proposed project area, the construction of a conveyor system from claim Group II was determined to be feasible and was retained for further environmental analysis.

10-3 A Final Mining and Reclamation Plan has been added to the Final EIS as Appendix C. It responds to the club's concerns, including the feasibility of draining the pits, in sufficient detail.

10-4 Mitigation measure S-1 (page 3-20 of the Draft EIS) represents a commitment to avoid problems arising from debris flows. This mitigation is presented as W-4 (page 3-30 of the Draft EIS). A Forest Service debris dam already exists in the Sand Canyon most likely to be affected by Claim Group III.

10-5 Mitigation measure B-8 (page 3-60 of the Draft EIS) identifies the need for a monitoring program. This mitigation measure has been revised to strengthen the commitment (see B-8 in Section 3.5.3.5 of the Final EIS).

10-6 We agree with this comment. The statement has been revised (see Section 3.5.3.1 of the Final EIS).

23920 Valencia Blvd.
Suite 300
City of Santa Clarita
California 91355

Phone
(805) 259-2489
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11

City of Santa Clarita

Courtesy Copy Previously Sent By Telecopy

March 11, 1991

Mr. Charles McDonald
Angeles National Forest
701 North Santa Anita Avenue
Arcadia, California 91006

RE: DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS), GILLIBRAND SOLEDAD CANYON MINING OPERATIONS

Dear Mr. McDonald:

Thank you for the opportunity to review the DEIS for the project referenced above. It is our understanding that the proposed project is adjacent to the eastern boundary of the City of Santa Clarita, and is within the City's Planning Area and proposed Sphere of Influence. The City is highly concerned about proposed activities on its fringe and in Forest Service lands which largely surround the Santa Clarita Valley. While we understand the strategic importance of recovering mineral resources such as titanium, we believe that individual and cumulative effects of non-forest uses could present a significant impact on the environment and quality of life in this valley. We are also concerned that the proposed mining program may be contrary to the Angeles National Forest goals and policies for air quality, minerals and energy, and fish and wildlife, as stated in the 1987 Angeles National Forest Resources and Management Plan. (pp. 4-2 - 4-4)

We offer the attached comments on the DEIS (compiled by the Community Development and Public Works staff) and request that they be included in the public record on the project, together with an appropriate response, in the Final EIS. The City's concerns with respect to this project primarily relate to impacts on air quality, geology, hydrology, visual resources, biota, noise, and traffic.

Again, thank you for the opportunity to review the DEIS for this significant project. Please keep us informed of its progress, and of any public meetings which you may schedule. Our staff contact for the project is Christine Kudija, Assistant Planner (telephone (805) 255-4330).

We are aware of the public meeting which occurred on Friday, February 22, 7:00 p.m., at the Church of the Canyons. In addition, the applicant arranged a field trip which was attended by Chris Trinkley, Principal Planner, and Chris Kudija, of my staff, to view the site and existing operations during the day on the 22nd.

Sincerely,

LYNN M. HARRIS
DIRECTOR OF COMMUNITY DEVELOPMENT

LMH:CK:
ID:458

encl:

cc: Dave Vannatta, Planning Deputy
John Medina, Director of Public Works

11

CITY OF SANTA CLARITA

INTEROFFICE MEMORANDUM

TO: Lynn M. Harris, Director of Community Development

FROM: Christine L. Trinkley, Principal Planner

DATE: March 8, 1991

SUBJECT: Gillibrand Mining Operations DEIS

We have reviewed the DEIS for the Gillibrand Mining Operations, and offer the following comments and concerns regarding impacts on air quality, geology, hydrology, visual resources, biota, and noise.

A. Air Quality Impacts

1. Section 3.2.3.1 compares the future projected air quality emissions from the P. W. Gillibrand operation with the current emission levels for the entire Los Angeles Metropolitan area. Comparing the proposed action in this manner creates an unrealistic impression of the actual air quality impacts. Virtually all air quality impacts from the mining operation will occur within the Santa Clarita Valley. The EIS should compare the projected emissions for the proposed action with the air quality emissions and conditions found in the Santa Clarita Valley. 1

2. Table 3.2-4 provides information concerning fugitive dust emissions from the existing P. W. Gillibrand operation. According to the DEIS, the annual particulate matter of ten micrometers or less (PM10) emission from the current operation is 173.2 tons per year. We are concerned regarding an apparent discrepancy between this number and information from the South Coast Air Quality Management District (SCAQMD) contained in Table AQ-2 of the City of Santa Clarita's Final General Plan Background Report. According to this data from SCAQMD, the annual PM10 emission from the current mining operation is only 24.63 tons per year. Depending on which figure is correct for the existing operations, the difference between existing and proposed emissions could be significant when making comparisons between existing and anticipated future air quality. The City requests that these figures be double-checked with SCAQMD prior to compiling the FEIS. 2

Response to Comments

11-1 See response to 4-5.

11-2 The emissions shown in the Table AQ-2 of the City of Santa Clarita's Final General Plan Background Report are point source (stationary source) emissions while those shown in Table 3.2-4 of the Draft EIS are fugitive dust emissions resulting from the operation of mobile mining equipment and haul trucks.

11-3 See response to 4-5.

11-4 No specific geologic studies were conducted in connection with the proposed project. The presence of titanium in the claim areas is well-known to the Gillibrand Company as it is already recovering the mineral from its alluvium operations in the area. Exploratory drilling was conducted and samples analyzed to determine the density of heavy minerals. No groundwater contaminants have been identified in the sediments and debris flows from the project area. A reclamation plan is appended as part of the Final Mining and Reclamation Plan (see Appendix C).

11-5 Impacts of potential debris flow and surface runoff on downstream residential areas are determined to be negligible (see response to 5-1). The language of the Draft EIS has been revised to reflect these conclusions (see Section 3.4 of the Final EIS).

3. Cumulative impact from air pollutant emissions has not been addressed in either the short or long-term. This project may not be consistent with the State Implementation Plan to bring the state's air quality in compliance with the Clean Air Act. The DEIS should address cumulative air quality impacts, with respect to the objectives of the Implementation Plan, as well as the SCAQMD. 3

B. Impacts Related to Geology and Hydrology

1. The City Department of Public Works has expressed concern with the degree of detail in which the DEIS addresses geological concerns. We would appreciate the opportunity to review any geological studies which may have been prepared for the proposed project, particularly with reference to specific information regarding potential groundwater contaminants and the mine reclamation program, and request that these studies, if available, be referenced in the DEIS. 4

2. Impacts on downstream residential areas in Oak Springs Canyon and Iron Canyon caused by potential debris flow and surface runoff from the three mining sites, as well as proposed methods of containing debris flow from the claim areas, also appear to be inadequately discussed in the DEIS. The DEIS should provide the necessary information to evaluate impacts to these areas. 5

3. In addition to (2) above, the DEIS should discuss impacts of spoils material and low-grade ore storage, including immediate impacts to riparian areas (by spoils covering riparian area); proposed methods of ensuring stability of spoils material should also be discussed. 6

4. Additional information (including illustrative cross-sections) concerning proposed maximum slope heights, excavation areas, and height of roadcuts should be provided, with respect to slope stability and implications for slope failure. 7

C. Visual and Scenic Resource Impacts (Section 3.8)

1. <u>Impacts to Significant Ridgelines</u>: The DEIS presents a comprehensive discussion of visual impacts to nearby residential areas according to the US Forest Service "Visual Quality Objectives" evaluation method. However, it does not adequately discuss the impact of the proposed project on the visual and scenic resources within the Santa Clarita Valley as a whole. 8

We believe that the mining operations may have a widespread visual effect which should be fully addressed. (For example, it apppears that the three claim sites may be seen from Lyons Avenue in the communities of Newhall and Valencia, as well as from vantage points in Canyon County and Saugus) In the

Response to Comments

11-6 The treatment of the waste and stockpile sites is described in greater detail in the Final Mining and Reclamation Plan (see Appendix C). As shown on page 3-51 and in Table 3.5-5 (page 3-53) of the Draft EIS, most of the riparian areas likely to be affected by the spoils material and low grade ore storage are located in Claim Group III. These are almost the uppermost reaches of the Iron and Sand Canyons which are generally dry except during the rainy season. A small number of mature trees (and snags, if any) will be removed in placing the stockpile fills. The lost trees shall be inventoried and replaced at sites selected by the Forest Service. Storage areas shall be stabilized by strawbaling the toe and surface revegetation as soon as possible. Temporary fences or sand bags could be used during winter storms in areas where erosion potential is high. It should be noted that only trace amounts of riparian habitat is expected to be affected by the project after suggested mitigation measures are implemented.

11-7 The requested information is provided in the Final Mining and Reclamation Plan (Appendix C to the Final EIS).

11-8 It is recognized that some of the ridgelines identified in the General Plan are visible from various locations within the City of Santa Clarita. Similarly, some elements of the proposed project, such as, road cuts and pit walls, would be visible to an interested viewer. However, these points would be so far in the background that it would be extremely difficult for casual viewers or travelers on the roads and highways to distinguish the roads, pits, or stockpiles on most of the project sites

development of our first General Plan, the City has identified significant ridgelines within the City Planning Area. All of the proposed mining areas are located on identified significant ridgelines. This information should be included within the analysis of impacts for the proposed action(s), in addition to the Forest Service VOQ Standards. (The significant ridgeline information was not available when the City was initially contacted by Tetra Tech in late 1989.) 8

2. Visual Simulation Analysis: The DEIS contains photographs that are apparently intended to demonstrate "before" and "after" views in a "visual simulation analysis." However, no discernible difference exists from one photograph in a pair to the other. The visual simulation analysis should include images which more closely represent the proposed action. 9

D. Biological Resources

1. Riparian Resources: The Angeles National Forest Management Plan gives specific management direction for riparian areas, as well as for fish and wildlife in general, stating that "habitat capability for riparian-dependent species will be maintained, at a minimum, and possibly enhanced over the long term;" the Plan goes on to state that activities proposed within a riparian area "will be compatible with the needs of the riparian dependent resources,.(and that) resource conflicts must be mitigated in favor of the dependent resources." (pp. 4-10, 4-55 - 4-56) Section 3.5 of the DEIS discusses various impacts to riparian vegetation on each of the three claim areas. For the most part, it appears that opportunities exist for avoidance of much of the riparian area, particularly if Alternative 2 (installation of a conveyor system for Claim Area II, along the Pole Creek drainage) is implemented, thus avoiding widening of the access road, and consequent impacts to the creek, along Pole Creek. 10

However, comparing Figures 2.1-5, -6 and -7 (600-scale maps of the location and configuration of Claim Areas I, II, and III, respectively) to Figures 3.5-1 and -2 (3000 and 2950-scale maps of sensitive plants, riparian areas, and watersheds) indicates that there is potential impact to riparian resources from disposal of spoils on identified riparian areas in all three claim areas. The DEIS should show the correlation between the location of spoils disposal areas and the riparian areas on a single (or overlay) map, and discuss impacts thoroughly with respect to covering riparian areas with spoil material. Alternative locations for spoil disposal should be discussed, including both impacts to biological and to visual resources.

2. Impacts to Greta's aster population: The DEIS states that a population of Greta's aster (Aster greatai; a species listed by the California Native Plant Society as sensitive) has been identified in an apparently spring-fed area along Pole 11

Response to Comments

since they would be screened by undisturbed ridges in between. However, to minimize the impacts on significant ridgelines, the Gillibrand Company shall pay particular attention to mitigation measures V-1 and V-2 (pages 3-94 and 3-95 of the Draft EIS).

11-9 The black and white photographs presented in the Draft EIS do represent the proposed action. However, the impacted areas visible from the viewpoint locations are too small to be clearly identifiable. Large scale color photographs were made available for public viewing at the public hearings on the Draft EIS. These photographs can be seen at the Forest Service office or other arrangements can be made for the city to see them.

11-10 Please see response to 9-2, 9-4, and 11-6.

11-11 The paragraph quoted by the commentor also states that "the plant (Greta's aster) is found in sufficient numbers and distributed widely enough that the potential for extinction or extirpation is low at this time"...and "it is not included on the Angeles National Forest sensitive plant list at this time." Nevertheless, the mitigation measures to protect all riparian areas, in which this plant occurs, are suggested to minimize the impacts. (See Mitigation Measure B-8 of the Final EIS, Section 3.5.3.5). No impacts on groundwater and springs are anticipated from upstream excavation.

Creek), and that this occurrence "represents a new locality that extends the known range of the species to the northwest slope of the San Gabriel Mountains." (DEIS, p. 3-43) Road widening and development of Road Section B, upstream excavation, and spoil disposal may adversely impact this important population of a sensitive species. The DEIS should discuss these potential impacts on the identified sites, including the potential for groundwater (and spring) disturbance by upstream excavation. 11

3. Reclamation and revegetation: On pp. 3-20 - 3-22, the DEIS discusses an erosion control plan, and summarizes the methods used to "reclaim" each excavated area. Specific aspects of the plan, such as a species list for both container planting and hydroseed application, are not included. The DEIS should include a preliminary list of species for revegetation, and reference background documentation to show the success of the proposed methods of planting on 1:1 slopes. 12

Regarding section S-9 (p. 3-21), the Erosion Control Plan, it is recommended that additional consideration be given to include fertilization with a granular, slow-release, complete fertilizer, (the plan states that a 16-20-0 fertilizer will be used) and the incorporation of appropriate biological growth enhancers, such as mycorrhizal fungi, to promote native vegetation establishment. (See Allen, Edith B. (1989). The restoration of disturbed arid landscapes with special reference to mycorrhizal fungi. Journal of Arid Environments, 17,279-286., and references, for further information.) 13

E. Noise

Section 3.9 of the DEIS mentions that noise is presently being generated by rock crusher, trucks, and construction equipment, but instead of giving measurements for the noise levels, states that they "would be about 85 dBA at the property line." Given the availibility of noise measuring technology, it would be appropriate to document field data taken during operation and to extrapolate anticipated noise levels for increased plant activity for the proposed mining operation expansion in order to determine the significance of noise impacts. Additionally, the DEIS refers to plans for blasting of ore deposits, but does not state the anticipated blasting frequency, nor does it give any field measurements of present blast noise. The DEIS should indicate field data of blast noise levels, and should show an approximate blasting schedule, stating blast events per day, per week, or per month, whichever is most likely to occur. 14 15

F. Cumulative Impact

In addition to the specific impacts outlined above, the DEIS should describe the effects of the total operation for all the 16

Response to Comments

11-12 The Final Mining and Reclamation Plan, presented as Appendix C of the Final EIS, includes the detailed revegetation plan.

11-13 Mitigation S-9 on page 3-21 of the Draft EIS has been revised to include: Consider fertilization with a granular, slow-release, complete fertilizer and incorporate appropriate biological growth enhancers, such as mycorrhizal fungi, to promote native vegetation establishment."

11-14 The revised project description (see Chapter 2 of the Final EIS) indicates that the ore brought to the plant site would not increase from the 1989 levels of about 1.6 million tons per year as a result of the proposed action. This is because the ore obtained from the three claim groups would contain a higher ratio of heavy minerals and the Gillibrand Company would process lesser amounts of sand and gravel than the 1989 levels. Consequently, the noise generated by the rock crusher at the plant and haul trucks within the project area would be no greater than the existing levels. Noise is measured at the property line (project boundary) to identify the maximum impacts. Impacts away from the project area would be lower and would not be significant at any of the sensitive receptors.

11-15 Blasting would occur at the mining areas (quarries) once every two weeks. Blasting activity at this level already occurs for Gillibrand's existing operations. A discussion of "blasting noise" was presented on page 3-100 of the Draft EIS.

approved mining areas included within the Gillibrand operation. This assessment should include the evaluation of all previously approved, the currently approved, and presently proposed mining claim areas. In addition, as indicated in the introduction of this letter, the City has a broader concern relative to the encroachment of non-forest uses in the Forest and the elimination and destruction of the natural preserve and forest ecosystem surrounding this valley. 16

Finally, the DEIS does not present a monitoring and reporting program that would be in effect during the life of the project, that would ensure that the implementation of the mitigation measures are undertaken effectively. The City would appreciate the opportunity to evaluate such a program's efficacy in mitigating significant impacts. 17

F. Minor correction to error of fact:

1. Page 3-73, paragraph 4, line 2. The mountainous terrain north of the Santa Clara River is considered to be part of the Sierra Pelona, not the San Gabriel Mountains. 18

Response to Comments

11-16 Cumulative impacts of existing, currently approved, and presently proposed mining areas are described in Section 3.16 of the Draft EIS. Mining is an approved land use for Forest Service lands. City's concern for the destruction of the national reserve and forest ecosystem surrounding this valley is noted. Forest Service will ensure that mining activity is conducted in full compliance with the Forest Plan. (See also response to 4-15.)

11-17 The Forest Service monitors all activities within its jurisdiction in accordance with the Forest Plan. All mitigation measures identified in the Final EIS and in the Final Mining and Reclamation Plan will be routinely monitored by the Forest Service personnel. The EIS under the National Environmental Policy Act (NEPA) does not require a formal monitoring and reporting program required under CEQA.

11-18 The language in the Final EIS has been corrected in response to this comment (see Section 3.8.1 of the Final EIS).

11-19 Please see response to 4-5.

11-20 Please see response to 4-5.

11-21 Chemical analysis performed by the Colorado School of Mines Research Institute on typical ore samples from each of the three claim groups demonstrates that radioactive elements (uranium and thorium) were

(11)

CITY OF SANTA CLARITA

INTEROFFICE MEMORANDUM

TO: Lynn Harris
Director of Community Development

FROM: John Medina
for Director of Public Works Richard Kopecky

DATE: March 7, 1991

SUBJECT: COMMENTS ON GILLIBRAND MINING ENVIRONMENTAL IMPACT STUDY

On February 20, 1991 a memo was prepared providing comments for a meeting to be held on February 22, 1991 for input to the study for the Draft Environmental Impact Statement (DEIS) for the proposed mining operations on the P.W. Gillibrand Mining site, Soledad Canyon, Angeles National Forest, California (see attached memorandum).

As you know, comments on the DEIS can be received until March 12, 1991 by the U.S. Department of Agriculture, Forest Service, Angeles National Forest. Because of the time requirement to provide comments for the February 22, 1991 meeting, the DEIS was given an accelerated review. In light of the importance of the project, the study was again reviewed, and the following comments and concerns should be included into the public record:

AIR QUALITY

The EIS states that there will be a significant impact on air quality from both particulate matter (PM10) and nitrogen oxides (NOx). Table 3.2-3 on page 3-9 shows that there are a total of 623.6 lbs/day of NOx. The suggested SCAQMD threshold for NOx is 100 lbs/day. The exceedance of this threshold by a factor of more than six is therefore very significant and is of great public health concern to the local communities. The potential impact on the public health has not been discussed in the EIS, and this should be done. 19

The mitigation section states that the local concentrations of NOx resulting from the project will be well within the limits authorized by SCAQMD. It should be noted that SCAQMD does not authorize nor is it allowed by law to authorize an exceedance of state standards. The project should therefore obtain offsets for the NOx emissions, and these should be local to the area. 20

Some of the minerals being mined, especially the apatites and zircon, have the potential for radioactive contaminants and consequently have the real potential for causing additional cancer deaths in the local area because of the heavy particulate loading to the atmosphere. A health risk assessment should be prepared which includes an analysis of the potential effects of the several minerals being mined and the potential impurities including but not limited to radioactivity. 21

Groups II and III and below 40 parts per million in Claim Group I. These concentrations are not sufficient to generate any radioactive emissions. See Section 5.7.6 of the Final Mining and Reclamation Plan appended here as Appendix C for further detail.

11-22 Please see response to 4-5.

11-23 Please see response to 4-5.

11-24 Figure 3.5-1 of the Draft EIS (page 3-36) shows the riparian areas likely to be impacted by the project. Text on page 3-51 and Table 3.5-5 (page 3-53) identify the area of riparian habitat (about 3.0 acres) which may be affected if no mitigation measures are taken. However, the mitigation measures suggested in the Draft EIS would reduce impacts on riparian areas to a trace level. Gillibrand Company has applied for a Section 404 permit for the road fill on the Upper Pole Canyon Road that connects with Road Section B of the proposed project as well as for the potential disturbance to riparian areas from the proposed project. The Company has also applied for a Section 401 Water Quality Certification from the California State Water Resources Control Board.

11-25 As indicated in the Draft EIS, no unarmored three-spine stickleback occur or are expected to occur within the boundaries of the Gillibrand mining operation. However, known populations of this species occur within perennial waters in the Santa Clara River upstream of the

The EIS does not discuss the "special mitigation measures" that will minimize the significant impacts to the air quality. The section on the mitigation of air quality impacts should be rewritten and the document recirculated so that the public might understand what mitigation measures are actually proposed by the EIS. 22

The significant impacts section on page 3-16 states that the air quality impacts are significant and unavoidable. The impacts can be avoided either by selecting a no-action alternative or by obtaining offsets for the project. The document should fully disclose why offsets are not being obtained for this project when NEPA clearly requires that projects mitigate impacts. 23

BIOLOGICAL RESOURCES

The EIS states that there are "fingers of riparian vegetation". This riparian vegetation may constitute a wetland as the species mentioned such as Sycamore and Willow are dependent upon water. The area should be mapped and the area of riparian vegetation determined. If the area constitutes a jurisdictional wetland, any impacts to the wetland may only be authorized through Section 404 of the Clean Water Act and also through the California Fish and Game Code which would require a stream alteration agreement.

The EIS should discuss the impacts to jurisdictional wetlands and provide the required mitigation measures. The changes to the drainages and the consequent changes to the water flow should be discussed in terms of the potential impacts to the riparian habitat and the jurisdictional wetlands. 24

It is insufficient as a matter of law for the EIS to avoid a discussion in detail of the destruction of the riparian habitat and proposed mitigation measures until after the approval of the EIS as has been inferred in paragraph two of page 3-54. The Forest Service is required by NEPA and the Clean Water Act, as well as the Department of Agriculture, to fully evaluate the impacts to wetlands and to comply with the Executive Order on wetlands. A full disclosure of the impacts and the mitigation measures must be made as part of the EIS.

There is no discussion of the potential impacts of changes in the drainage pattern or flow or of water quality changes from the project on the federally and state endangered species, the unarmored three-spine stickleback, in the Santa Clara River which would be impacted from the project drainage. 25

A full discussion of the toxic materials used at the project must be disclosed, as there is a substantial probability that at some time during the life of the project a spill will occur and this would have the significant potential to adversely impact the unarmored three-spine stickleback downstream in the Santa Clara River, as well as impacting waters of the United States in violation of the Clean Water Act. 26

Response to Comments

Gillibrand mining operations, near Lang, and approximately 12 miles downstream of Gillibrand operations. The river course between these two populations is normally dry, receiving above ground waterflow only during flood events. Therefore gene flow between these populations only occur during natural flood events. The mechanism which enables the Lang population to move downstream is floodwaters generated above the Lang population. Drainage flows generated onsite within the Pole Canyon watershed are not expected to alter flows in the Santa Clara River during a flood event or contribute significantly to the cumulative reduction of river flows during these events.

11-26 The Final Mining and Reclamation Plan indicates that no toxic materials are required for extraction or processing of minerals. However, some hazardous material (i.e. petroleum products) are required for equipment operation as addressed in the Draft EIS Health and Safety section. Potential for adverse impacts to the unarmored three-spine stickleback exists only if the spill occurs during flood periods. However, because the processing plant is at a safe distance (greater than 100m) from the rivercourse, and as railroad tracks and levee occur between the rivercourse and the Gillibrand processing plant, no direct flow of hazardous materials would be expected to reach the rivercourse.

11-27 Chemical analysis performed by the Colorado School of Mines Research Institute on typical ore types from each of three claim groups is presented in Table 3.4-1 of the Final EIS. The analysis demonstrates

In addition, the minerals being mined will have a significant potential either from trucking accidents or from runoff or leaching to impact the unarmored three spine-stickleback and water quality objectives and beneficial uses of the Santa Clara River. Potential impacts from the following minerals should be analyzed:

Zircon may occasionally be radioactive due to the inclusion of small amounts of thorium diadochically replacing zirconium in its structure. What is the radioactivity of the ore bodies being mined? 27

Apatites often contain elements other than phosphate, some of which are toxic or radioactive elements or minerals including Arsenic, Vanadium, Xenotime and Monzanite. The potential for the presence of these and other toxics recognized by the State of California should be fully disclosed by presenting analytical data on the ore body and overburden to inform the public as required by NEPA. This is especially important since the drainage of this project will affect public water supplies.

NOISE

This section of the EIS fails to discuss the impacts of noise from the mining, blasting, rock-crushing and transportation on the wildlife resources in the area. Sudden noises from trucks, blasting, etc., prevent the normal activities of birds and other wildlife, and this would be disruptive during the nesting season. A full disclosure of the potential impacts to the various species should be made prior to any approval of the project. 28

The noise generated from the rock-crusher and associated screening operations has not been discussed in the document. This should be fully discussed because the existing operations would cease without these new claims and therefore the noise from such operations must be analyzed. 29

The noise section does not have any field data from the existing operations. Such data could easily be obtained, and it would assist the public in determining the potential impacts from the proposed budget. 30

Neither the noise section nor the air quality section have an equipment list that is complete, and the document should fully disclose what equipment is being used on the project. For instance, Tables 3.2-3 in the Air Quality Section and Table 3.9-1 in the Noise Section have different equipment lists. All of the equipment to be used on the proposed project, its air and noise emissions, its usage factors, time of day and other relevant factors must be fully disclosed to the public. No provision for generators or their noise and air emissions has been made. 31

limit of 10 ppm in Claim Groups II and III and below 40 ppm in Group I. These concentrations are not sufficient to generate any radioactive emissions. The governmental agencies monitoring the Gillibrand mining operations (both in alluvium and hard rock) in the project area have not reported any presence of toxic or radioactive elements associated with the mining operations. Tests of radioactivity conducted by the Newhall County Water District on their wells showed concentrations far below the maximum contaminant levels permitted in drinking water by government regulations (see Castaic Lake Water Agency, The Pipeline, Vol. III, No. 1, March 1991).

11-28 Impacts of project-generated noise on the wildlife resources are discussed in Section 3.5, Biological Resources (see page 3-54 of the Draft EIS).

11-29 Noise from rock-crusher and associated screening operations are discussed in Section 3.9, Noise (see page 3-98 of the Draft EIS). Since the amount of ore processed at the plant would not materially change from the 1989 levels of less than 1.6 million tons per year, the noise impacts are expected to remain at the existing levels.

11-30 Noise impacts at the nearby residences are discussed in Section 3.9 of the Draft EIS. Since noise levels decrease rapidly with distance, collection of field data at places farther from the project site was not considered necessary. Even in the vicinity of the project, noise impacts were not found to be significant.

COMMENTS ON GILLIBRAND MINING
ENVIRONMENTAL IMPACT STUDY
Page 4

GEOTECHNICAL REVIEW

It is recommended that a geologic report be prepared in the areas where mining is planned. That report would include specific written information and maps and cross sections describing geologic conditions. These conditions should include but may not be limited to slope stability, faulting, distribution of earth materials and geologic structure. 32

The threshold values for all potential contaminates resulting from the mining operation as they relate to soil and groundwater should be identified. 33

Stockpile areas for low grade ores are planned. The DEIS should discuss and provide conclusions regarding the potential for surface and subsurface contamination due to concentration of low grade ore. Recommendations for mitigation should be provided.

a) Low grade ore stockpiles will be placed in drainages. The consultant should discuss and provide conclusions regarding the potential surface and subsurface contamination due to surface water penetration of the low grade ore stockpiles. Surface water could transport potential contaminants downstream of the stockpiles. Recommendations for mitigation should be provided. 34

The mines will be open to surface runoff. The DEIS should discuss and provide conclusions regarding the potential for surface and subsurface contamination due to surface water transporting any potential contaminant from the mine.

Stability of all proposed stockpiles is not considered by the reviewed documents. Stockpile height is limited by slope stability constraints. Instability of the stockpiles can result in very high sediment loads introduced in drainage channels that would require beyond normal maintenance. Also, instability could introduce potential contaminants to the surface and subsurface should any containment structures be defeated by slope failure. The DEIS should evaluate deep and surficial slope stability. The evaluation should include geologic information and slope stability calculations. Recommendations for grading and maximum slope heights should be provided by the consultant. 35

The reviewed documents are nonspecific with respect to the limits of the proposed mining operation. More detailed information should be provided.

Specific information regarding mine reclamation with respect to potential contaminants should be provided. Will a liner be required in the reclamation due to the potential for contamination? 36

Excavatability of bedrock within mine and proposed road cut areas should be considered. Blasting necessary for cut excavations. 37

Response to Comments

11-31 The equipment list presented in the Air Quality Sections (Table 3.2-3) of the Draft EIS is complete. Figure 3.9-1 (mistakenly identified as Table 3.9-1) is illustrative of noise levels generated by typical construction equipment. It is not meant to identify equipment on the project site. Noise levels were calculated for the equipment shown in Table 3.2-3 and are disclosed in the Noise Section (Section 3.9 of the Draft EIS).

11-32 Geology including the issues of slope stability, faulting, distribution of earth materials and geologic structure was not identified as an issue area in the scoping process for analysis in the EIS. Mitigation measures have been identified for stabilization of man-made slopes (see also response to 11-4).

11-33 Impacts from potential contaminants to soil and groundwater are discussed in Section 3.4, Water Resources (see page 3-29 of the Draft EIS).

11-34 The proposed mining activity will not change the type of contaminants which flow down the canyons in the form of debris flow and sediments. No unusual concentration of radioactive or chemical contaminants have been reported in the waters below the proposed project area. Low grade ore stockpiles will not contain any more contaminants than are found in the rocks of the project area and form part of the natural debris flow during the rainy season. (See also responses to 11-27 and 5-1.)

Haul roads will cross natural drainages. The DEIS should discuss and consider the potential for deep and surficial slope instability of the haul roads. Instability of the haul roads could result in high sediment loads being introduced into natural drainages. 38

The DEIS indicates oiling haul roads as a method to minimize dust. Contamination is a potential caused by introduction of petroleum distillates to the surface and subsurface. 39

HYDROLOGY GROUNDWATER

The hydrology conclusions that were reached are vague and inconclusive. A drainage concept was not included in the Draft EIS that shows how the increased flow is being limited to the downstream residential area.

The report states that debris is contained in the mining pits. The capacity of these pits, along with information on how the flow enters and exits, was not included in this report. Will all the debris resulting from this project be contained? 40

"Oak Spring Canyon has the highest potential for shallow flooding and increased debris flow from mining activities." (Page 3-28) What is being done to mitigate this? 41

How will the regeneration of groundwater be accomplished?

Groundwater recharge has been overlooked in this DEIS. Groundwater is considered to be limited in availability and quality, and the potential decline in groundwater level needs to be addressed. 42

TRAFFIC ENGINEERING AND TRANSPORTATION PLANNING PERSPECTIVE

The document indicates that although sand and gravel (mining by-products) would continue to be sold and hauling would occur on the present route, no additional sand and gravel truck traffic is expected to occur as a result of the proposed action. It also indicates that no change in the present levels of service (A or B on the Soledad Canyon/State Route 14 intersections and D on the freeway) is expected.

There appears to be an inconsistency in the document. It indicates that the proposed action includes "direct rail transportation." However, mitigation measures proposed include the consideration of rail as the primary transportation mode "if mineral demand permits." The document does not address an alternative mode of transportation. 43

Absent from the document are proposals for monitoring the mitigation. 44

Response to Comments

11-35 The Final Mining and Reclamation Plan gives a better description of the measures to stabilize proposed stockpiles (see Appendix C of the Final EIS).

11-36 See Final Mining and Reclamation Plan (Appendix C of the Final EIS) for the requested information. Limits of operation are defined in Figures 2.1-5 through 2.1-7 of the EIS.

11-37 Both blasting and excavation will be conducted, as necessary. Excavation alone will not be sufficient for reaching the desired ore body.

11-38 The roads will be constructed in compliance with the "Angeles National Forest Minimum Standards for Road Construction." These standards are presented in the Final Mining and Reclamation Plan (see Appendix C of the Final EIS).

11-39 Dust oiling on roads is a mitigation measure recommended under the Best Management practices (BMP's) which represent a series of watershed protection practices that were developed by the Forest Service and certified for use by the State Water Resources Control Board and approved by the EPA. The term oiling is generally used for chemical suppressants such as magnesium chloride which are approved by the EPA for dust control. The Gillibrand Company currently uses this chemical twice a year to control dust on their existing haul roads.

We believe that the aforementioned issues need to be addressed in order to provide an appropriate evaluation of the potential impacts of the project.

Attachment

JEM:MDS:hds

cc: Don Williams
Chris Kudija
Jim Van Winkle
Kit Nell

Response to Comments

11-40 Please see response to 11-5.

11-41 Mitigation measures are presented on page 3-30 of the Draft EIS. Further details are available in the Final Mining and Reclamation Plan (see Appendix C the Final EIS).

11-42 Groundwater recharge in the project area occurs naturally from annual rainfall. The Gillibrand Company shall apply all possible conservation measures to reduce water consumption by the project. See also response to Comment 3-8.

11-43 Currently, the heavy minerals are being transported both by road and railroads depending upon the demand and destination of the minerals. In the event of continuous heavy demand for ilmenite, rail transport shall be considered as the primary mode of transportation as an alternative to road transportation.

Existing lang siding of the Southern Pacific Railroad is currently being used for loading minerals onto trains. The mitigation measure (T-2 on page 3-71 of the Draft EIS) will be applied only if the mineral demand is large enough to require a custom-built siding for the exclusive use of the Gillibrand Company.

11-44 Please see response to 11-17.

Diana P. Scott
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12

File No: 211/3

March 18, 1991

VIA HAND DELIVERY

Mr. Charles McDonald
Resource and Land Management Planning
Angeles National Forest
701 North Santa Anita Avenue
Arcadia, California 91006

Re: Comments On The Draft Environmental Impact Statement For The Gillibrand Soledad Canyon Mining Operations In The Angeles National Forest

Dear Mr. McDonald:

The purpose of this communication is to comment on behalf of Griffin Homes ("Griffin") on the January 1991 Draft Environmental Impact Statement ("DEIS") for the Gillibrand Soledad Canyon Mining Operations in the Angeles National Forest (the "Project") prepared for the United States Department of Agriculture, Forest Service. Griffin is the owner and developer of residential property located directly west of the proposed Project off Sand Canyon Road, presently in the unincorporated territory of the County of Los Angeles ("County"). The comments focus on the substantive content of the DEIS and whether all necessary issues were addressed in order for the DEIS to serve as an adequate basis for Project approval.

I. BACKGROUND

A. Purpose And Background Of The DEIS.

The purpose of the DEIS is to assess the potential environmental impacts of the Project and Project alternatives and to evaluate proposed mitigation measures to minimize impacts to environmental resources. DEIS, p. 1-1. The DEIS has been

"tiered" from the Environmental Impact Statement ("EIS") prepared for the Angeles National Forest Land and Resources Management Plan. 40 C.F.R. §1502.20.[1]

A Notice of Intent to prepare the DEIS was published in the Federal Register on October 13, 1989. Federal, state and local agencies were requested to submit written comments, and a public scoping meeting was held on November 13, 1989. The public scoping period ended on January 15, 1990. The DEIS summarizes concerns expressed during the public scoping period. DEIS, pp. 1-2 through 1-3.

B. Organization Of The DEIS.

The DEIS is organized as follows: (1) Summary (pp. S-1 through S-17); (2) Purpose and Need for Action (pp. 1-1 through 1-7); (3) Alternatives Including Proposed Action and Comparison of Impacts (pp. 2-1 through 2-21); (4) Affected Environment and Environmental Consequences (pp. 3-1 through 3-126) comprised of sections on Air Quality (pp. 3-2 through 3-16), Soils (pp. 3-16 through 3-22), Water Resources (pp. 3-22 through 3-31), Biological Resources (pp. 3-32 through 3-61), Cultural and Paleontological Resources (pp. 3-61 through 3-67), Transportation (pp. 3-67 through 3-72), Visual/Scenic Resources (pp. 3-72 through 3-95), Noise (pp. 3-95 through 3-102), Recreational Opportunities (pp. 3-102 through 3-105), Land Use (pp. 3-105 through 3-113), Property Values (pp. 3-113 through 3-115), Public Health and Safety (pp. 3-116 through 3-120), Relationship Between Short-term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity (p. 3-121), Irreversible and Irretrievable Commitment of Resources (pp. 3-121 through 3-122), and Cumulative Impacts (pp. 3-122 through 3-126); (5) List of Preparers (pp. 4-1 through 4-3); (6) Bibliography (pp. 5-1 through 5-5); (7) Glossary of Terms and Acronyms (pp. 6-1 through 6-6); (8) Agencies, Organizations and Individuals to Whom Copies of the Draft Environmental Impact Statement Were Sent (pp. 7-1 through 7-4); (9) Index (pp. 8-1 through 8-3); (10) Appendix A - Notice of Intent and Responses to Notice of Intent (pp. A-1 through A-15); and, (11) Appendix B - Standards from the Angeles National Forest Land and Resources Management Plan (pp. B-1 through B-52).

II.
STANDARDS FOR AN ADEQUATE EIS

An adequate EIS must reflect that an agency has taken a "hard look" at the environmental consequences of a proposed action. The EIS must set forth a reasoned explanation for an agency's decision with respect to a proposed action and cannot simply

[1] 40 C.F.R. 1500, et seq. are the Council on Environmental Quality ("CEQ") Regulations. CEQ's interpretations of the National Environmental Policy Act ("NEPA") are entitled to "substantial deference". Andrus v. Sierra Club, 42 U.S. 347, 99 S. Ct. 2335 (1979).

assert that the action will have an insignificant effect on the environment. Marble Mt. Audubon Society v. Rice, 914 F.2d 179, 182 (9th Cir. 1990).

The Ninth Circuit applies a "rule of reason" in evaluating the adequacy of an EIS under which the court inquires whether the EIS contains a reasonably thorough discussion of the significant aspects of the project's probable environmental impacts and whether the form, content and preparation of the EIS fosters informed decision-making and informed public participation. State of California v. Block, 690 F.2d 753, 761 (9th Cir. 1982); Oregon Environmental Council v. Kunzman, 817 F.2d 484, 492-493 (9th Cir. 1987).

An EIS must be written in plain language so that decisionmakers and the public can understand it. 40 C.F.R. §1502.8. Thus, an EIS must be organized and written so that it is understood by governmental decisionmakers and by interested non-professional lay persons. Oregon Environmental Council, supra, 817 F.2d at 494.

The level of detail required in an EIS depends upon the nature and scope of the proposed action. Site specific impacts must be fully evaluated when the agency has made a "critical decision" with respect to development of the project site. State of California v. Block, supra, 690 F.2d at 761. Sufficient detail must be provided to give decisionmakers removed from the initial decision sufficient data from which to draw their own conclusions. City of Tenakee Springs v. Clough, 915 F.2d 1308, 1310 (9th Cir. 1990).

An EIS must "rigorously explore and objectively evaluate all reasonable alternatives" to a proposed action. The reasons for eliminating alternatives that are not discussed in detail must be briefly stated. Alternatives not within the jurisdiction of the lead agency must be included as must a "no action" alternative. The agency's preferred alternative or alternatives must be identified. 40 C.F.R. §1502.14. In addition, the EIS must consider the cumulative impact of the proposed action. City of Tenakee Springs v. Clough, supra, 915 F.2d at 1312.

An EIS must describe the environment of the areas that will be affected by the alternatives including the proposed action, 40 C.F.R. §1502.15, and must discuss the environmental impacts of all alternatives, including the proposed action, any adverse environmental effects which cannot be avoided should the proposal be implemented, the relationship between local short-term uses of men's environmental and the maintenance and enhancement of long-term productivity and any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented. 42 U.S.C. §4332(2)(C); 40 C.F.R. §1502.16. The CEQ Guidelines at 40 C.F.R. §1502.16 further provide that an EIS must contain discussions of the following:

(a) Direct effects and their significance.

(b) Indirect effects and their significance.

(c) Possible conflicts between the proposed action and the objectives of federal, regional, state and local . . . land use plans, policies and controls for the area concerned.

(d) The environmental effects of alternatives including the proposed action . . .

(e) Energy requirements and conservation potential various alternatives and mitigation measures.

(f) Natural or depletable resource requirements and conservation potential of various alternatives and mitigation measures.

(g) Urban quality, historic and cultural resources and the design of the built environment, including the reuse and conservation potential of various alternatives and mitigation measures.

(h) Means to mitigate adverse environmental impacts [if not fully covered under §1502.14(f)].

Finally, if there are gaps in relevant information or scientific uncertainties, the EIS must make this clear. If the information is not known and the costs are exorbitant or the means to obtain the information are not known, then the EIS must contain a "worse case analysis". 40 C.F.R. §1502.22.

III.
ANALYSIS

A. The Discussion Of Air Quality Issue Is Inadequate.

1. SIP Compliance.

The DEIS states that the Project is included in the California South Coast Air Basin. DEIS, p. 3-3. However, it contains no discussion of Forest Service actions taken 1

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to comply with the requirement that federal projects be reviewed for conformity with the Regional Air Quality Management Plan.

The boundaries for the Project encompass 780 acres. The Project itself is to be situated on approximately 300 acres. DEIS, p. 2-1. Both acreages are sufficient to subject the Project to a conformity review pursuant to the "Guidelines for Implementing 1989 SIP Conformity Procedures Related to General Development" (the "Guidelines"). The Guidelines require "regionally significant general development projects" to be reviewed for conformity with the Air Quality Management Plan/State Implementation Guidelines ("AQMP/SIP"). A mining operation with more than 40 acres is classified as a regionally significant development. Guidelines, Appendix A, p. A-3. The Guidelines state that the conformity process

> ". . . was developed to ensure that governmental actions (i.e., those of federal agencies' and instrumentalities') will help to achieve attainment of the National Ambient Air Quality Standards (NAAQS), as presented in the Federal Clean Air Act (CAA). The term 'governmental actions' is meant to include plans, actions and permit activity, as well as project approval, support, programming and funding."

Guidelines, p. 3 (emphasis added).

Conformity review is only required if the local jurisdiction has not revised its General Plan to be consistent with the AQMP/SIP. Neither the County Santa Clarita Area Plan, nor the City of Santa Clarita proposed General Plan contain an air quality element that is consistent with the AQMP/SIP. The EIS does not indicate whether the Forest Service has adopted formal or informal policies relating to the AQMP/SIP procedure and thus contains no analysis of the Project with respect to any such policies. Therefore, the Project is subject to the Inter-Governmental Review process as described in the Guidelines. It is important that the Project be subjected to this review, since the DEIS states that there will be Project-related increases in particulate matter smaller than 10 micrometers in diameter ("PM_{10}") and nitrogen dioxide ("NO_2") [DEIS, p. 3-16] and also states that the South Coast Air Basin is classified as nonattainment for both types of pollutants. DEIR, p. 3-3. If a project does not conform to the AQMP/SIP, then the project sponsors must respond to comments generated by the conformity process and mitigate non-conforming projects to the maximum feasible extent. Guidelines, p.3.

The Clean Air Act ("CAA") states "[n]o department, agency, or instrumentality of the Federal Government shall (1) engage in, (2) support in any way or provide financial assistance for, (3) license or permit, or (4) approve, any action which does not conform

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12-1 The three Conformity Criteria have been included in the revised Section 3.2.3.1 of the EIS. Compliance with these criteria are discussed with respect to the revised project. Also see response to comment 13-1.

12-2 Since there will be no significant adverse air quality impacts from the project, as now defined, no mitigation measures are now required. However, the proponent will use good engineering practices to reduce pollutant emissions from the project. See Section 3.2.3.5.

12-3 The City of Santa Clarita General Plan and its various elements were reviewed and utilized in the preparation of this EIS. References to City of Santa Clarita General Plan are made on pages 3-68 and 3-69 of the Draft EIS. The bibliographic citation on page 5-2 of the Draft EIS further identifies the elements of the General Plan which were reviewed and utilized in the preparation of the Draft EIS.

The proposed project will not impact Sand Canyon Road. There will be no through haul traffic on this road.

12-4 Road sections A, B, and C are part of an internal haul road network on the project site. These roads are not used by the public. Road Sections A and C, were constructed for the exploration of minerals in Claim Groups I and III, and are planned to be widened as primary haul roads from mining sites to the plant, all within the project boundaries. Construction of 1.5 miles of new roads mentioned on page 2-6 of the

to a plan after it has been promulgated under section 110 [the State Implementation Plan ("SIP")]." 42 U.S.C. §7506(c). This section would preclude the Project from taking place altogether if it is not in compliance with the AQMP/SIP since it would take place on land owned by the Forest Service, which is an agency of the federal government.

2. Conformity Criteria.

The Guidelines contain three Conformity Criteria all of which the Project must conform with before it can be found in conformance with the AQMP/SIP. Criterion One has two options, of which one must be satisfied. The options in Criterion One require that the project sponsor demonstrate a positive or neutral effect on the jobs/housing balance of either the subregion or the city. If the project will have a negative effect on the jobs/housing balance, then a mitigation plan needs to be considered to offset the negative impacts.

Criterion Two requires that the project demonstrate that it has reduced vehicle trips ("VTs") and vehicle miles traveled ("VMTs") to the greatest feasible extent. Appendix B to the Guidelines contains a list of mitigation measures acceptable to reduce both VTs and VMTs. 1

Criterion Three requires that the project's environmental document provide analyses to demonstrate: (1) that the project's impact on air quality in the long run (five years) will not be a significant negative one; (2) that transportation, land use and energy conservation control measures will be used to the fullest extent in order to mitigate the project's impact on air quality; and, (3) that the impact of the project on air quality be analyzed on a subregional or city level, depending on the option chosen for Criterion One. The impact must also be analyzed at a regional level. The DEIS does not address any of these conformity criteria, and does not provide any analysis of the conformance of the Project with the AQMP/SIP.

As a mitigation measure, the DEIS states that the Project will "[c]omply with all applicable California Air Resources Board and South Coast Air Quality Management District rules and regulations," yet it does not state what those rules and regulations are, does not provide an analysis of compliance of the Project as proposed, and admits that "maximum emissions" of both PM_{10} and NO_2 are expected from the Project. DEIS, p. 3-124. The DEIS also states that the Project "will contribute cumulatively to the degradation of local and regional air quality." DEIS, p.3-124. Yet no substantive mitigation measures are offered to counteract the air quality degradation the Project will cause, in an area in which there is already nonattainment as to PM_{10} and NO_2. The DEIS is therefore inadequate in its discussion of the impacts of the Project on air quality according to the rules and regulations of the South Coast Air Quality Management District, which the DEIS states the Project is subject to. DEIS, p. 3-3. 2

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Draft EIS also refers to the secondary haul roads within the three claim groups, not accessible to general public. These haul roads (both primary and secondary) will not result in any increased traffic on public roads.

12-5 Air quality impacts of hauling the ore from mining sites to the plant were discussed on page 3-11 and in Table 3.2-6, page 3-12 of the Draft EIS. In response to comments and with more realistic assumptions regarding the project-related operations, the air quality analysis has been substantially revised. See Section 3.2 of the Final EIS.

12-6 Since the overall production of ilmenite and sand and gravel will remain within the 1989 production levels of about 1.6 million tons, there will be no additional impacts on the roads and highways used for hauling materials to the market. Potential use of railroads for hauling up to 400,000 tons of ilmenite will further reduce project-related traffic on roads.

12-7 The Draft EIS on page 3-54 states that the Forest Service will uphold the presidential policy requiring no net loss of wetlands. Table 3.5-5 on page 3-53 shows that only trace amounts of riparian areas will be affected by the project if riparian areas are avoided or proper buffer zones are provided.

In view of the comments received on the Draft EIS, the discussion of

B. The DEIS Analysis Of Transportation Impacts Is Inadequate.

The transportation analysis in the DEIS [DEIS, pp. 3-67 through 3-72] concludes that the Project will not increase impacts on traffic and that therefore there will be no significant cumulative increase in traffic. However, while the transportation section does address the impact on specific roads, such as Soledad Canyon Road, California State Route 14 and Lang Station Road, the DEIS does not state whether the Circulation Elements of the County Santa Clarita General Area Plan and/or City of Santa Clarita proposed General Plan were studied to determine the impact of the Project on the other local and state roads which may be impacted by the Project, nor does it indicate that they were studied to determine the impact on the roads named. 3

It seems likely that the Project will cause traffic impacts on nearby Sand Canyon Road, which is already overused, however, there is no analysis in the DEIS which would tie in the previous analyses in the General Plans regarding the Project traffic impacts in the area.

It is doubtful that 400,000 tons of ilemite, for example, could be mined and hauled as proposed, and cause no traffic impacts in the area. DEIS, p.2-6. The DEIS states that the traffic generated by the Project will not increase the amount of traffic currently generated by operations already at the Project site. However, the Project as proposed entails "the widening of Sections A and C to a 48-foot double-lane standard," and another section of the road is also to be expanded. DEIS, p.2-1. If the Project will not cause traffic impacts, there should be no need for extending or widening of any roads. 4

The DEIS also states that the Project proposes 1.5 miles of new road construction which would cover approximately 25 acres. DEIS, p. 2-6. Despite the additional road construction, the DEIS states there will be no increased traffic over the amount already using the roads in the area. DEIR, p. 3-125. The DEIS is also deficient because it does not analyze the air quality impacts associated with the expanded and new roads proposed as part of the Project. An adequate analysis must address the air quality impacts of these roads based on the traffic capacity anticipated in their current design. 5

No mitigation measures are proposed in the transportation impact analysis section except a proposal to utilize rail transportation if "the mineral demand permits" it. DEIS, p. 3-71. Rail transportation would require the Project sponsor to extend the capacity of the present loading yard by construction of additional industrial siding. DEIS, p. 3-71. 6

3.5 of the Final EIS), and a determination has been made that the proponent shall apply for a Section 404 permit. An application for a Section 404 permit was made by the proponent in June 1991. No disturbance will occur prior to obtaining a valid permit (see also Mitigation B-8 in Section 3.5.3.5 of the Final EIS).

12-8 Increased sedimentation and flooding mentioned in the Draft EIS do not imply that pollutants will be discharged into the waters of the U.S. The project-related activities would not add any measurable amounts of pollutants to the natural debris flows during the rainy season. Mitigations to control sedimentation and flooding have been identified on page 3-30 of the Draft EIS.

12-9 Comment noted. The Draft EIS has been revised in response to the comments. The Forest Service believes that the changes made in the document are not substantive enough to require recirculation of the Draft EIS. The Final EIS makes full disclosure of impacts generated by the proposed project.

C. The Analysis Of Water Resources Issue Is Inadequate.

1. Army Corps of Engineers Jurisdiction Over Wetlands.

Portions of the property upon which the Project is situated are drainages into "wetlands" areas, as that terms is employed by the United States Army Corps of Engineers (the "Corps"). "Adjacent wetlands" are defined by looking at three factors: soil, hydrology and vegetation. Avoyelles Sportsmen's League, Inc. v. Marsh, 715 F.2d 897 (5th Cir., 1983) ("Avoyelles"). Isolated waters and wetlands are subject to the jurisdiction of the Corps based on a minimal connection to interstate commerce, making it necessary to obtain Corps permits prior to any dredging or filling activity. A finding of an effect on interstate commerce to sufficiently qualify as "waters of the United States" was made where a normally dry arroyo in New Mexico was occasionally connected to navigable water during periods of intense rainfall. Quivira Mining Co. v. United States E.P.A., 765 F.2d 126, 130 (10th Cir. 1985). Surely, waters in the vicinity of the Project would be considered subject to the jurisdiction of the Corps since they would be used for industrial purposes by an industry involved in interstate commerce.

Since the water in and around the vicinity of the Project would be under the jurisdiction of the Corps in order to protect it as a wetlands area, it would be subject to more than just the "approval [of the] . . . Corps of Engineers . . . to dam, divert, or alter stream flow." DEIS, p. 3-30. The objective of the protection for wetlands through the Federal Water Pollution Control Act of 1972 (33. U.S.C. 1251, et seq., "CWA"), is to "restore and maintain the chemical, physical, and biological integrity of the Nation's Waters." 33 U.S.C. §1251(a). The CWA was also intended to eliminate the discharge of pollutants into the waters of the United States.

It is necessary for the Project sponsor to obtain the requisite permits from the Corps in order to proceed with the Project, since the Corps has permit jurisdiction not only over the discharge of dredged or fill material, but also the emplacement of dredge or fill material. The redeposit of dredged material into a wetland is also subject to Corps jurisdiction. Avoyelles, supra, 715 F.2d at 923.

The DEIS does not indicate that the Corps have even been consulted regarding the Project, and the previous analysis clearly indicates that the Corps would have jurisdiction over the area as a drainage into a wetlands area. The bibliography does not indicate that any Corps documents were consulted in preparation of the DEIS. DEIS, pp. 5-1 through 5-5. Furthermore, the Corps was not even provided with a copy of the DEIS, nor was Griffin. DEIS, pp. 7-1 through 7-4. Failure to consult with an agency having jurisdiction over the Project indicates that the EIS should be revised and recirculated following such consultation.

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2. Inadequate Mitigation Measures To Rectify Potential Problems.

The DEIS states that the Project has "the potential to adversely affect the surface and groundwater resources in the project vicinity. Increased sedimentation and flooding are potential problems associated with surface mining as a result of vegetation removal and land disturbance." DEIS, p. 3-22. The DEIS also states that runoff from the infrequent storms "quickly drains downward to groundwater or flows downstream to enter the alluvial areas as baseflow." DEIS, p.3-26. The Los Angeles County Public Works Department has expressed concern since Oak Springs Canyon has the potential to inundate large areas downstream from the Project. DEIS, p. 3-26. Yet the mitigation measures do not specifically address what will be done to comply with the objective of the CWA to eliminate the discharge of pollutants into the waters of the U.S. 8

The DEIS does not indicate that the Project is required to comply with these provisions of the CWA, and despite the indication that the Project has the potential to adversely affect the water resources in the vicinity, there is no indication in the DEIS that an effort has been made to address these problems in more than a cursory manner.

IV.
CONCLUSION

The DEIS as promulgated is deficient in at least the three areas addressed above. Furthermore, the deficiencies are such that the DEIS itself must be revised and the problems addressed as argued above or there will be substantive deficiencies in the approval of the Project itself. The failure to include information in an environmental document denies the public of the opportunity to test, assess and evaluate the data and make an informed judgment as to the validity of the conclusions which would be drawn therefrom. Appalachian Mountain Club v. Brinegar, 394 F.Supp 105, 121-122 (D.N.H., 1975), I-192 Why? Association v. Burns, 517 F.2d 1077, 1081 (2d Cir., 1975). Regarding the other deficiencies noted in the above analysis, especially the absence of references to sources which should have been consulted in drafting the DEIS, a federal district court has held that: 9

> It is a truism that many things become easy to locate once the observer knows what to look for, but the omissions of this EIS are compounded by its failure to indicate what methodology it used, the sources of information on which it relied or what investigation, if any, was made. Given the significance of the information which is omitted from the 1972 Final EIS and the ease with which most of that information was obtained later, the only reasonable conclusion is that the administrators responsible for its preparation and

> review, in their anxiety to approve the predetermined route, failed to exercise the diligence which NEPA requires.

Wade v. Lewis, 561 F.Supp. 913, 945 (N.D. Ill, 1983).

The DEIS should be corrected to address the deficiencies noted herein and then should be circulated. Griffin reserves the right to offer such further comments as are necessary to achieve compliance with NEPA. 42 U.S.C. §1432, et seq.

We therefore request that the issues presented above be addressed in full before the project's approval, and that any further actions taken, notices sent or reports generated regarding this Project be forwarded to this office for the benefit of Griffin Homes.

9

Your review of this communication is respectfully requested.

Very truly yours,

Joan T. Lind

JTL:pac
cc: Mr. David Griffin, Griffin Homes

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

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26 MAR 1991

Mr. Charles McDonald
Angeles National Forest
701 N. Santa Anita Avenue
Arcadia, CA 91006

Dear Mr. McDonald:

The Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement (DEIS) for **Gillibrand Soledad Canyon Mining Operations, Angeles National Forest, California.** Our comments on the DEIS are provided pursuant to the National Environmental Policy Act (NEPA) and EPA's authorities under section 309 of the Clean Air Act.

The Gillibrand Project DEIS identifies and analyzes alternatives for open pit mining of titanium ore and related minerals and construction of roads and/or conveyors for transport of the mined material from three claim areas in the Angeles National Forest.

We have classified this DEIS as EC-2 -- Environmental Concerns-Insufficient Information (see enclosed "Summary of Rating Definitions and Follow-Up Action"). Our "EC" rating reflects our concerns regarding the proposed project's potential impacts to air and water quality and to riparian habitat. Our "2" rating reflects the fact that certain relevant information is missing from the DEIS. The final environmental impact statement (FEIS) should provide further information regarding the requirements of and project compliance with all applicable air quality standards and requisite permits, as well as proposed monitoring and mitigation measures to ensure compliance. The FEIS should also provide more information regarding mitigation of impacts to riparian areas as well as existing and potential future groundwater and surface water conditions in the project vicinity. Our detailed comments are attached.

We appreciate the opportunity to review this DEIS. Please send three copies of the FEIS to this office at the same time it

is officially filed with our Washington, D.C., office. If you have any questions, please contact Dr. Jacqueline Wyland at (FTS) 484-1584 or Jeanne Dunn Geselbracht at (FTS) 484-1576.

Sincerely,

Deanna M. Wieman

Deanna M. Wieman, Director
Office of External Affairs

91-024
001009

cc: South Coast Air Quality Management District
Regional Water Quality Control Board, Los Angeles Region

Air Quality

The South Coast Air Basin violates the National Ambient Air Quality Standards (NAAQS) for carbon monoxide, nitrogen dioxide, ozone, and particulate matter less than ten microns in size (PM10). Carbon monoxide concentrations are two times higher than anywhere else in the U.S. Ozone levels are approximately three times higher than the NAAQS, higher than anywhere else in the U.S. The average PM10 concentrations were almost 80 percent higher than the NAAQS in 1987. The Basin is the only nitrogen dioxide nonattainment area in the country.

To meet the NAAQS, the South Coast must reduce emissions in the air basin by the following approximate amounts: reactive organic gases by 85 percent; sulfur oxides by 60 percent; carbon monoxide by 40 percent; and nitrogen oxides by 65 percent. The Clean Air Act, amended in November, 1990, mandates the development of implementation plans to achieve attainment of the NAAQS. The Clean Air Act also requires that federal actions conform to these implementation plans (see conformity discussion below). The South Coast Air Quality Management District (SCAQMD) and the Southern California Association of Governments (SCAG) have developed a local Air Quality Management Plan, which has been submitted to EPA for inclusion in the State Implementation Plan (SIP). 1

1. Section 176 of the Clean Air Act prohibits any Federal agency from taking any action that causes or contributes to violations of standards, or which interferes with attaining standards or with requirements in the SIP. If the proposed mining project would interfere with attainment of national standards, it would be prohibited by the Clean Air Act unless the preferred alternative is accompanied by air quality mitigation measures sufficient to avoid such adverse effects.

2. In addition to the NAAQS, the FEIS should discuss the Prevention of Significant Deterioration (PSD) increments applicable to air quality in the project area. The FEIS should identify any Class I PSD areas located within 100 kilometers of the potential project site. PSD increments exist for sulfur dioxide, total suspended particulates, and nitrogen dioxide, and are highly protective of air quality in Class I areas. The FEIS should also discuss impacts to the NAAQS and to PSD increments outside of the non-attainment area from estimated emissions, considering the cumulative effects from all aspects of mine excavation, construction, operation, and support activities, such as vehicle traffic. In particular, impacts to Class I PSD areas, including visibility impacts, should be discussed. USFS should closely coordinate with SCAQMD regarding regulatory requirements, controls, and offsets. 2

3. The FEIS should discuss any other federal, state, or local standards that would be applicable to the proposed project. The 3

Response to Comments

13-1 The impact of the project with respect to its conformity to the State Implementation plan as defined by Section 176 of the Clean Air Act Amendments of 1990 is discussed in the revised Section 3.2.3.1 of the EIS. Conformity is discussed in terms of the revised project.

13-2 Impacts from the newly defined project on Class I PSD areas are discussed in the revised Section 3.2.3.1 of the EIS.

13-3 A New Source Review Permit would not be required because the proposed project as now defined, would not result in an increase in emissions over the current levels.

13-4 This comment is no longer applicable for the redefined proposed project because pollutant emissions will not increase above those currently emitted.

13-5 All requirements of the South Coast Air Quality Management Plan will be met since there will be no increase in pollutant emissions resulting from the redefined project.

13-6 An air quality monitoring program is now proposed under mitigation measures (see revised Section 3.2.3.5).

13-7 Section 3.4.1.5 on water quality has been revised in response to the comment. It now reads as follows: "The quality of the surface waters,

FEIS should also discuss whether a New Source Review permit is required and, if so, what it would involve. 3

4. According to the DEIS (page 3-13), the "small amounts of precursor pollutant (HC and NO_x) emissions resulting from the proposed mining activities would not cause a measurable change in the local ozone concentrations....Therefore, the overall air quality impacts from project gaseous emissions would not be significant." We disagree with the claim that projected increases are not significant, especially the 88.4-ton/year emission rate for NO_2 (a 13.4 percent increase over existing conditions). In an area which must reduce NO_x emissions very dramatically, any increase is a significant problem. It is not clear whether the proposed project would conform with the Clean Air Act. The Clean Air Act, as amended, defines conformity to mean that the activity will not "(i) cause or contribute to any new violation of any standard in any area; (ii) increase the frequency or severity of any existing violation of any standard in any area; or (iii) delay timely attainment of any standards or any required interim emission reductions or other milestones in any area." The FEIS should discuss how the project would meet the conformity requirements as defined in the Clean Air Act. 4

5. The FEIS should discuss the specific requirements of the 1989 and/or 1991 South Coast Air Quality Management Plan (AQMP), how these will be met, and how USFS will ensure that no interference occurs with attainment of standards as expeditiously as practicable. Any necessary mitigation measures beyond those already discussed in the DEIS should be discussed in the FEIS. 5

6. The FEIS should discuss the possibility of an air quality monitoring program which would be implemented to ensure project compliance with all applicable air quality standards and permits. 6

Water Quality Issues

1. According to the DEIS (page 3-26), groundwater in the project vicinity is of "fairly good quality," and "the quality of the surface waters is generally poor because of high mineral content from natural sources." The FEIS should support these statements by providing data on soils or other "natural sources" and existing water quality, and identifying water quality standards. In addition, the FEIS should discuss any potential increase in groundwater or surface water contamination that could result from contact with mining spoils and subsequent leaching either before or after they have been returned to the pit for reclamation. 7

2. The FEIS should provide more information on specific quarrying operations such as how deep the pits would be, whether dewatering would be necessary, and if so at what flow rates. In addition, the FEIS should discuss whether, upon completion of mining activities, groundwater recharge into the pits would occur. If so, at what rates and to what elevations? Would the pits become open water bodies? How would the replacement of 8

Response to Comments

which normally flow only during the rainy season, is generally poor because of high levels of total dissolved solids (from debris flow with high mineral content). These waters are not a reliable source of water supply because of the intermittent nature of the flow. Groundwater withdrawn from private wells on the Gillibrand property in the Santa Clara River alluvium is not used for drinking purposes. Hence, no testing for drinking water quality is performed. Water discharged from the plant into the ponds is regularly tested for pH, total dissolved solids (TDS), chloride, and sulfates, according to EPA methods, and results are submitted to the Los Angeles County Department of Public Works. No levels beyond the maximum allowable limits have been reported over the past 5 years. Results of the well tests conducted by the Newhall County Water District also show no unacceptable levels of contaminants".

Impacts of the project on water quality were presented in Section 3.4.3.1 of the Draft EIS (see paragraph 3 on page 3-29). The text has been expanded to include the following: "The proposed operations would not result in contamination of water from leaching. The soils and low-grade stockpiles would not contain any substances that are not already present in the rock and the sediments derived from the rock. An analysis of ore samples showed concentrations of all constituents including radioactive elements to be in the normal range.

13-8 The depth of the mining pits is given in the Final Mining and

spoils and topsoil into the pits be affected by groundwater recharge? 8

3. The FEIS should expand the discussion regarding groundwater. The statement in the DEIS (page 3-24) that "[g]roundwater in the area is considered to be limited...to the alluvial reservoirs...." should be justified. Further, the FEIS should support the statement that "[d]ecline in groundwater levels are not expected to be of a magnitude that will force the abandonment or deepening of wells by other users downstream in the Santa Clara basin" (DEIS, page 3-29). Similarly, the FEIS should provide information supporting the statement that "stream water quality will not be degraded to a level that will reduce the value of the streams for other uses" (DEIS, page 3-29). Maps, detailed analyses, or references to existing literature should be included. 9

The areas of usable groundwater should be identified on a map, as should the locations of any springs. The possible contributions of fracture-fed springs to surface hydrology is ignored. The FEIS should discuss whether the proposed pits are located in recharge or discharge areas for the fractured aquifer system as well as whether surface streams gain water from or lose water to subsurface storage. If surface streams gain water from subsurface storage, drawdown of the water table associated with mine operations could impact surface flows. If water is lost to subsurface storage, degradation of surface water quality could adversely affect groundwater quality.

4. Significant soil erosion could occur if Best Management Practices (BMPs) are not implemented during road and building construction at the project site. The FEIS should specifically identify and discuss the Best Management Practices (BMPs) (mentioned on page B-5 of the DEIS) that would apply to and/or be implemented during road and building construction. 10

5. The FEIS should discuss the water quality monitoring program that would be implemented to ensure against degradation of water quality from mining operations. It should also discuss mitigation measures that would be implemented should degradation occur. 11

Wetlands and Riparian Habitats

1. EPA could find no reference to compliance with Section 404 of the Clean Water Act which regulates the discharge of dredged and fill material into waters of the United States including wetlands. The FEIS should identify the areas of waters of the United States, as delineated by the U.S. Army Corps of Engineers (ACE), which may be impacted by any project activities. If any areas are identified, the FEIS should note that the discharge of dredged or fill material into waters of the United States 12

Response to Comments

soil percolation tests would be conducted at the bottom of the pit. If the soils are permeable enough to allow natural dewatering, no draining of water would be required. If impermeable surfaces are encountered, lateral drilling of 3" holes will be done through the walls of the pits to drain the water from the pits. The flow rate will be calibrated to relieve the pits slowly. The number of drill holes will be increased or decreased depending upon the desired rate of flow.

13-9 Text on page 3-24 and page 3-29 of the Draft EIS has been revised in response to the Comment. Following text is added to the first paragraph of Sections 3.4.1.4 on page 3-24: "There is no evidence of fracture-fed large springs in the area. Some intermittent seepage may occur. The intermittent streams of the area receive their flow from direct runoff during the rainy season. For the rest of the year, the streams and canyons are generally dry." Text on page 3-29 is expanded to include: "There will be no additional drawdown of the water table in the mining area as no new wells are being planned at the mine sites. The existing wells used by the P.W. Gillibrand Company are located in the upstream portion of the Santa Clara River alluvium which is not fed by the water courses in the project area."

13-10 The Best Management practices adopted by the Forest Service for construction of roads are included in the Final Mining and Reclamation Plan (see Appendix C of this Final EIS). No building construction would occur as a result of the proposed project.

requires Section 404 approval from the ACE and must comply with EPA's 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material ("Guidelines") (40 CFR 230). It should then state how each of the project alternatives would comply with the criteria set out in the Guidelines. 12

2. According to the DEIS (page 3-54), realignment of roads may be required to avoid or eliminate adverse impacts to riparian resources. The FEIS should identify those road segments that would require realignment and discuss where and how they would be realigned. Specifically, it appears that the proposed road segment that would be constructed adjacent to the stream in Pole Canyon could have significant adverse impacts on water quality and riparian habitat. The FEIS should assess alternative alignments for this road and thoroughly discuss any avoidance or mitigation measures necessary for each alternative alignment, including the proposed alignment. 13

3. A total of three acres of riparian habitat could be adversely affected by the proposed project. The FEIS should discuss whether impacts to these areas could be completely avoided by relocation of proposed disturbed areas within the project site. 14

4. Unavoidable disturbance of riparian habitat would be mitigated by enhancement of existing riparian habitat in the project area at a ratio of five acres for every one acre disturbed (DEIS, page 3-54). The FEIS should include a thorough discussion of the riparian habitat enhancement program that would implemented. 15

5. The FEIS should discuss whether dewatering in the project site would adversely affect riparian habitat and identify any BMPs that would be implemented to ensure that it would not. If impacts to riparian habitat resulting from dewatering are not accounted for in the DEIS's assessment of adversely affected riparian areas, the FEIS should account for these areas, which should be added to the total acreage requiring enhancement offsets. 16

Response to Comments

13-11 The water quality monitoring program is described in the Final Mining and Reclamation Plan (see Appendix C of this Final EIS).

13-12 to 16 The analysis relating to riparian areas has been revised in response to these comments (see Section 3.5 of the Final EIS).

SUMMARY OF ING DEFINITIONS AND FOLLOW-UP TON*

Environmental Impact of the Action

—Lack of Objections
The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC—Environmental Concerns
The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

EO—Environmental Objections
The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU—Environmentally Unsatisfactory
The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of environmental quality, public health or welfare. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this posal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1—Adequate
EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2—Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3—Inadequate
EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or cussions are of such a magnitude that they should have full public review at a draft ge. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From: EPA Manual 1640, "Policy and Procedures for the Review of Federal Actions Impacting the Environment."

South Coast
AIR QUALITY MANAGEMENT DISTRICT
9150 FLAIR DRIVE, EL MONTE, CA 91731 (818) 572-6200

14

March 19, 1991

Mr. Charles McDonald
Angeles National Forest
701 N. Santa Anita Avenue
Arcadia, CA 91006

Dear Mr. McDonald:

Re: Comments on the Draft Environmental Impact Statement for the Gillibrand Soledad Canyon Mining Operation, Angeles National Forest

SCAQMD #LAC910108-02

The South Coast Air Quality Management District (SCAQMD) provides the following comments regarding the Draft Environmental Impact Statement (EIS) for the Gillibrand Soledad Canyon Mining Operation (GSCMO). SCAQMD staff concludes that the proposed mining operation could result in significant adverse air quality impacts, and that the Draft EIR does not adequately address these impacts.

SCAQMD is responsible for adopting, implementing, and enforcing air quality regulations in the areas under its jurisdiction which includes Los Angeles County. In addition, as a Responsible Agency, SCAQMD reviews and analyzes EIRs for projects that may generate significant adverse air quality impacts. In this capacity, SCAQMD advises the lead Agency on air quality issues.

PROJECT DESCRIPTION

The P.W. Gillibrand Company is proposing the development of mining operations for the production of titanium ores and associated minerals from three separate sites within its Soledad Canyon claims. It is estimated that existing mining operation will be increased by 400,000 tons per year for the first 10 years (an average daily volume of 1,600 tons). This will bring total mining operations to 1.6 million tons per year. The actual area to be disturbed as a result of expanding the mining operation is 92.5 acres, which will be reclaimed as the mining operation progresses.

The mining operation currently involves processing excavated raw material and is expected to yield approximately thirteen million cubic yards of raw material per year. The operation will involve topsoil and low-grade ore stockpiling; soil disposal; ore transportation and road maintenance; as well as water and land reclamation. Operations will occur 250 days a year, with an average of 4,000 tons of minerals removed per day.

1

Response to Comments

14-1 Please see response to 4-5.

PROJECT AREA AIR QUALITY SETTING

SCAQMD maintains several air monitoring stations. The stations at Lancaster and Santa Clarita are the closest ones to the proposed project. In 1989, the Lancaster station recorded exceedances of both state and federal ozone (O_3) standards on 95 and 27 days, respectively. In Santa Clarita, both state and federal O_3 standards were exceeded on 122 and 71 days, respectively. PM10 samples collected at the Lancaster and Santa Clarita air monitoring stations in 1989 record 23 (47.9 percent), and 25 (44.6 percent) of the samples, respectively, exceeded the state PM10 standard.

The Draft EIR assessment of current project area air quality is summarized in Table 3.2-2. This table should be revised to reflect 1989 air quality condition by using the SCAQMD 1989 Air Quality Data.

AIR QUALITY IMPACTS

The proposed project's air quality impacts will result primarily from soil extraction, processing and handling. The proposed mining operation has the potential to create significant air quality impacts, especially particulate emissions from equipment, vehicles, and fugitive dust.

Sensitive Receptors

The Draft EIR quantified the amount of fugitive dust generated by the proposed project. However, it does not indicate wind patterns and the approximate distance particulate emissions can be carried under prevailing wind conditions. The Final EIR should discuss dominant wind direction, amount of emissions, and potential exposure of sensitive receptors to these air pollutants. 1

According to the Draft EIR, potential risks could result from increased fuel storage, emissions from increased fuel consumption (30 to 35 percent), increases in spills and contamination of soil and groundwater. The Draft EIR states that established procedures for the existing operation would continue to be followed to minimize impacts to health and safety from these sources. The discussion, however, does not include the relative location of residents and tourists close to the mining operations. If sensitive receptors (schools, hospitals, retirement homes, etc.) are located nearby, the Final EIR should evaluate the impacts of the project-related emissions on such **receptors.**

Operation-Related Air Quality Impacts

Operation-related air quality impacts resulting from the proposed mining operation are illustrated in Table 3.2-5 of the Draft EIR. The percent increase of the proposed mining operation emissions is compared with existing mining operation emissions and is summarized in Table 3.2-3. The comparison indicates that there will be marginal increases in daily emissions. According to the SCAQMD CEQA Guidelines, these projected emissions levels do not exceed established threshold levels, except for NO_x.

The Draft EIR does not include a discussion of emissions from equipment subject to Regulation XIII - New Source Review. The Final EIR should discuss in detail the relationship between the number of pieces of equipment and the daily volume of

material extracted, hauled and/or processed. In addition, the emissions calculation should include discussion of which components of the project-related equipment are subject to SCAQMD rules, and the extent they comply with the amended Regulation XIII provisions adopted in June of 1990. SCAQMD staff recommends that a complete listing of all emission sources and quantities be included in the Final EIR. The quantification of emissions will facilitate comparison of existing and proposed project-related emissions. Excess emissions subject to the Regulation XIII provisions will require emission offsets.

In addition, the Draft EIR should include a discussion of electric power and natural gas consumption for the proposed project and the emissions associated with the production of required energy sources. The additional emissions should be included in the operational air quality impacts illustrated in Table 3.2-5.

Mobile Source Impacts:

The Draft EIR indicates that mobile source emissions are generated primarily by diesel trucks, and personnel trips to and from the mining facility. Table 3.2-5 illustrates highway truck emissions resulting from the proposed action. Additional information should be provided that discusses the amount of material hauled, the number of trips, and length of each trip associated with such activity. In addition, Section 3.7 (Transportation Issues), discusses potential increases in the carrying capacity of nearby roads. The discussion in this section further indicates that direct rail transportation of ilmenite and titanium will add one train round-trip per week carrying 8,000 to 10,000 tons of minerals. The emissions from rail transport should be quantified and discussed in the Final EIR. Rail-generated trips and associated emissions should be determined and included into the daily project-related mobile emissions. 1

MITIGATION MEASURES

Appropriate mitigation measures should be implemented to ensure that project-related impacts are substantially reduced. These measures should mitigate, to the greatest extent possible, all direct air quality impacts. Additional recommended mitigation measures are listed in the attached Table 1.

The SCAQMD appreciates the opportunity to comment on the Gillibrand Soledad Canyon Mining Operation Draft EIR. If you have any questions, please contact Connie Day, Program Supervisor, at (818) 307-4507.

Sincerely,

Mike A. Nazemi
Planning Manager

(cm/soledad/31991)

8-62

TABLE 1

RECOMMENDED MITIGATING MEASURES

The following mitigation measures are recommended to address potential project-related air quality impacts.

- o Establish tree windbreaks immediately downwind of the project area;
- o Restore vegetative ground covering to inactive or depleted sites;
- o Chemically treat unpaved road surfaces into and out of the project site;
- o Water all material stockpiles with multiple daily applications, if necessary, to assure proper dust control:

  (NOTE: The use of water should not conflict with water conservation or rationing policies);
- o Limit all extraction activities on days when the wind gusts exceed or are forecast to exceed 30 mph;
- o Require trucks to maintain at least two feet of freeboard (i.e., minimum required space between top of the load and top of the trailer); and
- o Require all trucks hauling dirt, sand, soil, or other loose materials to be covered.
- o Include plans to monitor high volume (HV) sampler for total suspended particulates (TSP) upwind and downwind.

1

9.0 FINAL ENVIRONMENTAL IMPACT STATEMENT AND RECORD OF DECISION MAILING LISTS

9.0 FINAL ENVIRONMENTAL IMPACT STATEMENT AND RECORD OF DECISION MAILING LISTS

9.1 ENVIRONMENTAL IMPACT STATEMENT MAILING LIST

Federal Agencies

U.S. Bureau of Land Management (Vern Stephens)
U.S. Bureau of Mines (Paul Hyndman and Paul Pierce)
U.S. Department of the Interior, Environmental Project Review, Washington, D.C. (Director)
U.S. Department of the Interior, Office of Environmental Affairs, San Francisco
U.S. Environmental Protection Agency, Office of Federal Activities, Washington, D.C.
U.S. Environmental Protection Agency, EIS Review Coordinator, San Francisco
U.S. Fish and Wildlife Service
U.S. Forest Service, San Bernardino National Forest (Jack Joyce)
U.S. House of Representatives (Honorable Carlos Moorhead, Bill Thomas, and Elton Gallegly)
U.S. Senate (Honorable Alan Cranston and Pete Wilson)

State of California

Department of Fish and Game (Bruce Eliason)
Office of Planning and Research (James Goodfellow)
State Assembly (Honorable Phillip Wyman)
State Clearinghouse
State Senate (Honorable Newton Russell and Ed Davis)
Transportation and Analysis Branch (Gary McSweeny)
California Regional Water Quality Control Board
The Resource Agency of California, Department of Conservation

County of Los Angeles

Agricultural Commissioner
Board of Supervisors (Honorable Kenneth Hahn, Michael Antonovich, Deane Dana, Edmund Edelman and Peter Schabarum)
Department of Public Works
Department of Public Works, Road Department (Ed Rugel)
Department of Regional Planning (Frank Kuo)
Office of the County Council (Charles Moore)

City of Santa Clarita

Department of Community Development

Organizations

California Wilderness Coalition
Forest Preservation Society (Karin James)
Golden Thunder Mining and Processing Co.
P.W. Gillibrand Co.
Newhall County Water District
Newhall Signal
Rancho Maria and Sable Ranch
Ross & Scott
Sierra Club
Small Miners of America
Soledad Canyon Property Owners' Association
(Jim Gilpin, and Boyd Chapman)
South Coast Air Quality Management District
Southern California Association of Governments
Sulphur Springs Elementary School, Parent and
Teachers Association (Judy Spencer)
Sulphur Springs School District
(Arnie Glassberg)
United General Corporation
Western Mining Council (Doris Dieteman
and Greg Ouellette)

Libraries

Public Library, Canyon County
Public Library, Newhall
Public Library, Valencia

Newspapers

Daily New, Newhall (Stacy Shaw)
Daily News, Woodland Hills (Dion Lefler)
Los Angeles Times (Steve Padilla)
Los Angeles Times (Myran Levin)

Individuals

Kelley, Ruth
Pollowy, Timothy R.
Regan, Tom
Swanson, Joanne

9.2 RECORD OF DECISION MAILING LIST

To obtain a complete Environmental Impact Statement, contact the Forest Service at the following address:

Charles McDonald
Angeles National Forest
701 N. Santa Anita Avenue
Arcadia, CA 91006
(818) 574-5257

Allen, Paul C.
Anderson, Jim
Allen, Dennis
Ashbaugh, Gary
Baker, Susan
Bertelson, Karl
Bolstad, K.
Boyer, Carl
Brown, James
Bew, Bill
Bianchi, Curtis
Bonnett, Francis
Buecheler, Robert
Burbach, George
Coleman, J.
Cosley, Mike
Crozier, Suzette
Caskey, Patricia
Cherniack, Earl
Clement, Mr. & Mrs. Robert
Clemons, Karen
Cloyd, William
Collette, Mr. and Mrs. Tom
Conlon, Ralph
Davison, Arthur L.
Denny, George
Denton, Richard M.
Dontey, Andy
Drans, Dennis
Darcy, JoAnne
Deans, Mr. & Mrs. Dennis
Demsky, Richard A.
Dennis, Jeff and Shirley
Dwork, Joel
Espinueva, Francisco J.
Fik, Ed
Findley, Vera
Fisher, Jon
Frye, Ed
Garfinkel, Arther
Gates, John
Gerlach, William G.
Glancy, Glen
Gomez, Sharilyn
Gray, Linda
Garasi, Louis
Gremillion, Jan and Pat
Hammonds, Doug
Heywood, Tom
Higby, John
Hoeptner, Fred
Haggard, Cheryl Lee
Haim, James
Harris, Bill
Heidt, Jan
Hooker, David
Jacks, J.B.
Janes, Loren
Johanson, Gary
Kaminsky, Howard
Kitch, Julie
Kreyenhagen, Diane
Leix, Fred
Lewis, Don
Loeb, Tony and Randy
Lambourne, Steve
Lane, Phillip
Lembas, Barbara
Levison, Mr. & Mrs. Mike
Linn, Mr. & Mrs. Tom
Lopez, Jess
Ludwig, T.N.
Marsic, Dave
Matukas, John S.
Mortimer, Mr.
Murphy, Michael

Mallet, Harold
Marsh, Peter B.
McCombs, Diane
McCraw, Jack
Miller, Marjorie
Morris, Georgina
Nell, Kit
Newton, John
Norton, Elaine J.
Norton, Roger
Ostrom, Dennis
Palagyi, B.
Posten, Charmaine
Pusl, Ken
Pattison, Marcy
Peck, Dave
Phillips, Rodger
Ponter, Bob
Posthmus, Jim
Prichard, Guy
Quebman, Phil
Reinitz, Doris
Rice, Teresa
Ruddell, N.
Schallert, Larry
Skipper, Peter
Spencer, Eugene
Sanders, Mr. & Mrs. Vern
Sears, Mick
Shebel, Dennis
Sheedan, Hayden
Siewart, Doug
Sorensen, Clyde
Sothwell, Mr. & Mrs. Jim
Stevenson, Lynne
Stone, Terry
Strickland, Frank
Stroup, Don
Suomisto, Lauvel
Thaustron, K.N.
Torman, William
Trenham, Tracy
Taibi, Mr. & Mrs. Fred
Tanner, Shirley
Thompson, Robin
Ungar, Maurice
Upton, Penny
Vacek, Frank
Van Alphen Mr. & Mrs. S.
Van Der Reith, R.C.
Vath, Sand
Verebach, Frank
Werner, L. Rob
Waldron, Robert
Waller, J.
Wank, Mr. Roy S.
Warner, Bob
Williams, John
Williams, Ken
Williams, Luci
Witter, L.K.
Woodson, W.
Zeldin, Max
Zimmermann, Rob

10.0 INDEX

APPENDIX A

APPENDIX A - NOTICE OF INTENT AND RESPONSES TO NOTICE OF INTENT

Notice of Intent
Published in Federal Register, Vol 54
No. 197, Friday, October 13, 1989
pp 42000-42001

[3410-11]

DEPARTMENT OF AGRICULTURE

Forest Service

Gillibrand Mining Plan of Operation

AGENCY: Forest Service, USDA.

ACTION: Notice of intent to prepare an environmental impact statement

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SUMMARY: The Forest Service will prepare an environmental impact statement for a proposal to develop a mining operation for the extraction of anorthosite ore in the Soladad Canyon area of the Tujunga Ranger District, Angeles National Forest, Los Angeles County, California. The agency invites written comments and suggestions on the scope of the analysis. In addition, the agency gives notice of the full environmental analysis and decision-making process that will occur on the proposal so that interested and affected people are aware of how they may participate and contribute to the final decision.

DATE: Comments concerning the scope of the analysis must be received by January 15, 1990.

ADDRESSES: Submit written comments and suggestions concerning the scope of the analysis to George A. Roby, Forest Supervisor, Angeles National Forest, 701 N. Santa Anita Avenue, Arcadia, CA 91006.

FOR FURTHER INFORMATION CONTACT: Direct questions about the proposed action and environmental impact statement to Mr. Charles K. McDonald, Environmental Coordinator, at the above address or phone (818)574-5257, FTS 799-0257.

SUPPLEMENTARY INFORMATION: The Angeles National Forest Land and Resources Management Plan, Final Environmental Impact Statement and Record of Decision have been issued. These documents discuss the proposed project in a general manner. This EIS will concentrate on site specific activitiy areas.
In preparing the environmental impact statement, the Forest Service will identify and consider a range of alternatives for methods of extracting the ore, access routes, and mill site locations.

George A. Roby, Forest Supervisor, Angeles National Forest, Arcadia, California, is the responsible official.

Public participation will be especially important at several points during the analysis. The first point is during the scoping process (40 CFR 1501.7). The Forest Service will be seeking information, comments, and assistance from Federal, State, and local agencies, the proponent and other individuals or organizations who may be interested in or affected by the proposed action.

This input will be used in preparation of the draft environmental impact statement (DEIS). The scoping process includes:

1. Identifying potential issues.

2. Identifying issues to be analyzed in depth.

3. Eliminating insignificant issues or those which have been covered by a relevant previous environmental analysis.

4. Exploring additional alternatives.

5. Identifying potential environmental effects of the proposed action and alternatives (i.e, direct, indirect, and cumulative effects and connected actions).

6. Determining potential cooperating agencies and task assignments.

The Forest Supervisor will hold the following public scoping meeting:

DATE: November 13, 1989

TIME: 7pm - 10pm

LOCATION: Church of the Canyons
28050 Sand Canyon Rd.
Canyon Country, Ca. 91350

The draft environmental impact statement (EIS) is expected to be filed with the Environmental Protection Agency (EPA) and to be available for public review by August 10, 1990. At that time EPA will publish a notice of availability of the DEIS in the Federal Register.

The comment period on the draft environmental impact statement will be 90 days from the date the Environmental Protection Agency's notice of availability appears in the Federal Register. It is very important that those interested in the mining operation participate at that time. To be the most helpful, comments on the DEIS should be as specific as possible and may address the adequacy of the statement or the merits of the alternatives discussed (see The Council on Environmental Quality Regulations for implementing the procedural provisions of the National Environmental Policy Act at 40 CFR 1503.3). In addition, Federal court decisions have established that reviewers of draft EIS's must structure their participation in the environmental review of the proposal so that it is meaningful and alerts an agency to the reviewers' position and contentions, Vermont Yankee Nuclear Power Corp. v. NRDC, 435 U.S. 519, 553 (1978), and that environmental objections that could have been raised at the draft stage may be waived if not raised until after completion of the final environmental impact statement. Wisconsin Heritages, Inc. v. Harris, 490 F. Supp. 1334, 1338 (E.D. Wis. 1980). The reason for this is to ensure that substantive comments and objections are made available to the Forest Service at a time when it can meaningfully consider them and respond to them in the final.

After the comment period ends on the draft EIS, the comments will be analyzed and considered by the Forest Service in preparing the final environmental impact statement. The final EIS is scheduled to be completed by November 10, 1990. In the final EIS, the Forest Service is required to respond to the comments received (40 CFR 1503.4). The responsible official will consider the comments, responses, environmental consequences discussed in the EIS, and applicable laws, regulations, and policies in making a decision regarding this proposal. The responsible official will document the decision and reasons for the decision in the Record of Decision. That decision will be subject to appeal under 36 CFR 217.

_____ _____

George A. Roby Date

Forest Supervisor

United States Department of the Interior

BUREAU OF MINES

WESTERN FIELD OPERATIONS CENTER
EAST 360 3RD AVENUE
SPOKANE, WASHINGTON 99202-1413

January 10, 1990

Mr. George A. Roby
Forest Supervisor
Angeles National Forest
701 North Santa Anita Avenue
Arcadia, California 91006

Dear Mr. Roby:

SUBJECT: P. W. GILLIBRAND CO. PROPOSAL AND PLAN OF OPERATIONS FOR THE DEVELOPMENT AND PRODUCTION OF LOCATABLE MINERALS IN THE SOLEDAD CANYON AREA, ANGELES NATIONAL FOREST

The Bureau of Mines has been aware of the P. W. Gillibrand industrial minerals plant operations for a number of years. We have evaluated the operation and have determined that Gillibrand has defined sufficient mineral resources to justify profitable development. Gillibrand performs a valuable service to local population centers by producing and making available a variety of crushed stone, sand and gravel, asphalt, and other industrial mineral products.

The Bureau is also aware that Mr. Gillibrand intends to significantly upgrade his operations to include the production of a number of locatable minerals. These include ilmenite, apatite, and magnetite. We believe the proposed Environmental Impact Statement encompasses the total spectrum of minerals production from this property.

It is our understanding that the Forest Service has an excellent operating relationship with this company and recognizes that mineral resources are one of the most important natural resources in this area. We wish you continued success in this endeavor.

Thank you for the opportunity to comment. If we can be of technical assistance in any mineral-related issues, please contact us.

Sincerely,

Paul A. Pierce

Paul A. Pierce, Geologist
Branch of Resource Evaluation

DEPARTMENT OF FISH AND GAME
330 Golden Shore, Suite 50
Long Beach, CA 90802
(213) 590-5113

January 11, 1990

George Roby
Forest Supervisor
Angeles National Forest
701 N. Santa Anita Avenue
Arcadia, CA 91006

Dear Mr. Roby:

The Department of Fish and Game (Department) has reviewed the Angeles National Forest's Notice of Intent to prepare a Draft Environmental Impact Statement (DEIS) for the extraction of anorthosite ore in the Soledad Canyon area of the Tujunga Ranger District, Los Angeles County, California. The proposed mining operation would require significant landform alteration including extensive access road construction, and therefore it has the potential to result in substantial cumulative impacts to wildlife resources. In order for the Department to evaluate project impacts, the DEIS should include the following information:

1. A complete analysis of project impacts to wildlife resources. Impact analysis should include specific quantification of direct impacts to wildlife habitat and provide an analysis of potential secondary impacts (e.g. noise, dust). Particular emphasis should be placed on identifying impacts to threatened, endangered or locally unique species. Riparian habitat and oak woodlands represent high value habitats and are of particular concern to the Department.

2. Appropriate mitigation measures and monitoring programs recommended to reduce or avoid identified impacts to wildlife resources should be included as part of the overall mining proposal. The environmental review should ultimately result in adoption of specific measures that represent an enforceable commitment to reduce or avoid impacts to wildlife resources.

3. The DEIS should include an adequate assessment of cumulative impacts to wildlife resources of the Angeles National Forest. The proposed mining activity will represent a significant cumulative impact to wildlife resources when considered with past, present and reasonably foreseeable future actions on the Forest.

Cumulative impacts are a matter of particular concern relative to long term maintenance of the deer herd as well as conservation of riparian and oak woodland habitats within the Forest. Adequate mitigation of cumulative impacts may require acquisition and/or enhancement of off-site habitat.

4. Feasibility of the mining proposal's Plan of Operation (including the mine site reclamation plan) should be examined within the DEIS. Specific revegetation plans for the mine site should be included, as well as a timetable for site reclamation. The reclamation plan should include an adequate bond and a monitoring program to assure timely reclamation of the mine site. An alternative mitigation measure should be identified if the mine site reclamation is to be delayed for a substantial period of time (e.g., until completion of mining operations).

Diversion, obstruction of the natural flow or changes in the bed, channel, or bank of any river, stream, or lake will require notification to the Department of Fish and Game as called for in the Fish and Game Code. This notification (with fee) and the subsequent agreement must be completed prior to initiating any such changes. Notification should be made after the project is approved by the lead agency.

Thank you for the opportunity to review and comment on this project. If you have any questions, please contact Jack L. Spruill of our Environmental Services staff at (213) 590-5137.

Sincerely,

Rolf E. Mall for

Fred Worthley
Regional Manaager
Region 5

STATE OF CALIFORNIA –BUSINESS AND TRANSPORTATION AGENCY GEORGE DEUKMEJIAN, Gover

DEPARTMENT OF TRANSPORTATION
DISTRICT 7, 120 SO. SPRING ST.
LOS ANGELES, CA 90012
TDD (213) 620-3550

(213)620-2376

DEC 6 1989

December 2, 1989

IGR / CEQA
US Dept. of Agriculture
Notice; Development and
Production of Locatable
Minerials
No. 2810

Mr. George A. Roby
Forest Supervisor
701 N. Santa Anita Avenue
Arcadia, Calif. 91006

Dear Mr. Roby:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above referenced project. In general, our concerns are impacts to any State facilities (SR 2 / SR 39) located in the project area. Items which the EIR should cover for the project include, but are not limited to the following:

a) Trip generation and trip distribution, including the method used to develop the percentages and assignment.

b) ADT, AM and PM peak hour volumes for both existing and future conditions. This should also include the numbers, duration, and scheduling of truck trips if applicable.

c) Any mitigation proposed should be fully discussed in the document. Those discussions should include, but not be limited to, the following:

* financing
* scheduling considerations
* implementation responsibilities
* monitoring

We look forward to reviewing the DEIR. We expect to receive a copy from the State Clearinghouse. However, to expedite the review process, you may send two copies in advance to the undersigned at the following address:

Gary McSweeney
District 7 IGR / CEQA Coordinator
Transportation Planning and
Analysis Branch
120 So. Spring Street
Los Angeles California 90012

Thank you for this opportunity to comment. If you have any questions regarding this reply contact Gary McSweeney at (213) 620-2376.

Sincerely,

Gary McSweeney
Senior Transportation Planner
IGR/CEQA Coordinator
Transportation Planning and
Analysis Branch

cc: State Clearinghouse

United States Department of the Interior

FISH AND WILDLIFE SERVICE

FISH AND WILDLIFE ENHANCEMENT
SOUTHERN CALIFORNIA FIELD STATION
Laguna Niguel Office
Federal Building, 24000 Avila Road
Laguna Niguel, California 92656

May 25, 1990

Mr. George A. Roby
U.S. Forest Service
Angeles National Forest
701 North Santa Anita Avenue
Arcadia, California 91006

Re: Endangered Species Information for the Proposed Gillibrand Mining Operation Plan near Solemint, Los Angeles County, California (1-6-90-SP-521)

Dear Mr. Roby:

This letter is in response to your letter dated January 25, 1990, and received by us on January 29, 1990, requesting information on endangered, threatened, and candidate species which may be present within the area of the subject project in Los Angeles County.

The attached list of species fulfills the requirements of the Fish and Wildlife Service (Service) under Section 7(c) of the Endangered Species Act of 1973, as amended (Act). This list includes species which are listed as endangered or threatened. We have also provided a list of candidate species.

The Federal lead agency has the responsibility to prepare a Biological Assessment if the project is a construction project which may require an Environmental Impact Statement[1]. If a Biological Assessment is not required, the agency still has the responsibility to review its proposed activities and determine whether the listed species will be affected.

During the assessment or review process, the agency may engage in planning efforts, but may not make any irreversible commitment of resources. Such a commitment could constitute a violation of Section 7(d) of the Endangered Species Act. If a listed species may be affected, the agency should request, in writing through our office, formal consultation pursuant to Section 7 of the Act. Informal consultation may be used to exchange information and resolve conflicts with respect to listed species prior to a written request for formal consultation. It should be noted that candidate species have no protection under the Act. Therefore, you are not required to perform a Biological Assessment for

candidate species nor to consult with the Fish and Wildlife Service should you determine your project may affect candidate species. They are included for the sole purpose of notifying Federal agencies in advance of possible proposals and listings which at some time in the future may have to be considered in planning Federal activities. If early evaluation of your project indicates that it is likely to adversely impact a candidate species, you may wish to request technical assistance from this office.

Should you have any question regarding the species listed or your responsibilities under the Act, please call John Hanlon at FTS 796-4270 or (714) 643-4270.

Sincerely,

for
Brooks Harper
Office Supervisor

Enclosure

"Construction Project" means any major Federal action which significantly affect the quality of the human environment designed primarily to result in the building or erection of man-made structures such as dams, buildings, roads, pipelines, channels, and the like. This includes Federal actions such as permits, grants, licenses, or other forms of Federal authorizations or approval which may result in construction.

PROPOSED GILLIBRAND MINING
OPERATION PLAN, NEAR
SOLEMINT, LOS ANGELES COUNTY, CALIFORNIA
(1-6-90-SP-521)

LISTED SPECIES

Fish		
Unarmored threespine stickleback	Gasterosteus aculeatus williamsoni	(E)

NEWS

Forest Service
United States Department of Agriculture
Angeles National Forest

701 N. Santa Anita Ave.
Arcadia, CA 91006

Contact: Marilyn Hartley
Kim Brower
818/445-1780

FOR IMMEDIATE RELEASE

NOVEMBER 6, 1989

PUBLIC MEETING ANNOUNCED FOR PROPOSED MINING OPERATION

ARCADIA, November 6--A public meeting will be held by the USDA Forest Service on Monday, November 13, to receive comments from the public concerning the proposal by P.W. Gillibrand Company to develop a mining operation in Soledad Canyon, according to George A. Roby, Angeles National Forest Supervisor.

Anyone wishing to make an oral statement regarding the project is invited to attend the meeting, which will be held from 7 to 10 PM, November 13, at the Church of the Canyons, 28050 Sand Canyon Road, Canyon Country. The statements made at this scoping session will become part of the public record, from which an Environmental Impact Statement will be developed.

Written comments can be submitted to George A. Roby, Forest Supervisor, Angeles National Forest, 701 N. Santa Anita Ave., Arcadia, CA 91006, and must be received by January 15, 1990.

For more information regarding the proposed action and the environmental statement, please contact Charles McDonald, Environmental Coordinator at (818) 574-5257.

APPENDIX B - STANDARDS FROM THE ANGELES NATIONAL FOREST LAND AND RESOURCES MANAGEMENT PLAN

The Angeles National Forest Land and Resources Management Plan published in 1987 provides the forestwide standards and guidelines and management prescription to manage forest resources. A copy of the forestwide standards and guidelines and management prescription #2 applicable to the proposed project is presented as Appendix B.

FORESTWIDE STANDARDS AND GUIDELINES

National Forest management direction, like Regional direction, must be dynamic. It must respond to variations in Forest, local, and regional needs.

These pages contain the Angeles National Forest management direction which was developed to resolve 32 issues and planning questions, plus the standards and guidelines specified in 219.11(c) of the NFMA regulations. This direction shall be used to guide Forest programs and Ranger District management, and shall apply to all lands under the administrative responsibility of the Forest Supervisor of the Angeles National Forest.

Direction contained in the Standards and Guidelines in the Regional Land and Resource Management Plan, the most current version of the Forest Service Manual, Executive Orders, and other related documents, are included in this section by reference.

Occasionally, the Forest Service Manual will be cited to emphasize or highlight specific direction. Such a specific citation does not preclude application of provisions of the entire Manual or other regulatory documents.

Introduction

The following Forestwide standards and guidelines, coupled with the more specific management prescriptions, constitute direction for the Forest. These standards and guidelines will be applied along with the appropriate prescription.

Whenever there is a disparity between the Forestwide standards and guidelines and the management area prescriptions, prescriptions will override except for the Riparian, Threatened and Endangered, and Cultural Standards and Guidelines.

Air Quality

Follow the State of California Agricultural Burning Guidelines and requirements of the Clean Air Act, as amended.

Coordinate with the South Coast Air Quality Management District to develop guidelines which will facilitate implementation of management programs on the Angeles National Forest.

Best Management Practices

The Forest Service water quality maintenance and improvement measures, called Best Management Practices (BMP), were developed in compliance with Section 208 of the Federal Clean Water Act, PL92-500, as amended. After a lengthy development and public review process from 1977 to 1979, the practices developed by the Forest Service were certified by the State Water Resources Control Board and approved by EPA. The signing of a 1981 Management Agency Agreement (MAA) resulted in the formal designation of the Forest Service as the water quality management agency for the public domain lands it administers. The BMP are the measures both the State and Federal water quality regulatory agencies expect the Forest Service to implement, to meet water quality objectives and to maintain and improve water quality. There are currently 98 practices documented, 96 of which are certified and approved as BMP. The two remaining practices are still being improved before referral to the State and EPA for certification and approval.

In a like manner, work continues on developing new management practices and evaluating the effectiveness of the existing BMP. Due to the dynamic nature of management practice development and refinement, the original Forest Service publication documenting BMP is continually being updated. The current publication reference is "Water Quality Management for National Forest System Lands in California", U.S. Forest Service, Pacific Southwest Region publication, 1979. This publication is hereby incorporated by reference into this document. Work is underway to republish the updated version of this text as a Soil and Water Conservation Handbook.

Water quality management is administered on National Forest lands through the continued implementation of BMP and through the guidance of a 1981 Management Agency Agreement with the State of California Water Resources Control Board.

Implementation Process

Forest Plans are broad level planning documents that encompass the entire Forest and a multitude of different management activities. Because of the physical and biological diversity of any given National Forest (different soils, vegetation, slopes, presence of surface water, etc.) and the mixture of activities that can occur on various portions of the Forest, site specific methods and techniques for implementing the BMP are necessary to protect or improve water quality and the methods and techniques of implementing the BMP are identified at the time of this onsite, project specific assessment. In this manner, the methods and techniques can be tailored to fit the specific environment as well as the proposed project activities. There are commonly many methods available for implementing a BMP, and not all are applicable to every site. An example is BMP 2.7 Control of Road Drainage. This BMP dictates that roads will be correctly drained to disperse water runoff to minimize the erosive effects of concentrated water. There are many ways to drain a road correctly; e.g., outslope the road surface, install water bars, install French drains, inslope the road surface, and install culverts, etc. It is during the onsite environmental assessment of a specific road construction project proposal that the appropriate method or combination of methods to correctly drain the road are identified.

After the methods and techniques of implementing the appropriate BMP are identified, they are discussed by the project interdisciplinary team. As a result of discussions, the appropriate mix of implementation methods and techniques are selected and incorporated into the environmental document as required mitigation measures. These mitigation measures are then carried forward into project plans and implementation documents; e.g., contract language, design specifications, etc. to assure they are part of the project work accomplished. Implementation on the ground is assured by the Forest Service official responsible for on-site administration of the administration of the project. Supervisory quality control of BMP implementation is attained through review of environmental assessments and contracts, field reviews of projects, and monitoring the quality of the water in the project area when warranted.

There are 98 practices identified in 8 different resource categories. They are as follows:

Timber

- Timber Sale Planning Process
- Timber Harvest Unit Design
- Use of Erosion Hazard Rating for Timber Harvest Unit Design
- Use of Sale Area Maps for Designating Water Quality Protection Needs
- Limiting Operating Period of Timber Sale Activities
- Protection of Unstable Areas
- Prescribing the Size and Shape of Clearcuts
- Streamside Management Zone Designation
- Determining Tractor-Loggable Ground
- Tractor Skidding Design
- Suspended Log Yarding in Timber Harvesting
- Log Landing Location
- Erosion Prevention and Control Measures During Timber Sale Operations
- Special Erosion Prevention Measures on Disturbed Land
- Revegetation of Areas Disturbed by Harvest Activities
- Log Landing Erosion Prevention and Control
- Erosion Control on Skid Trails
- Meadow Protection During Timber Harvesting
- Streamcourse Protection
- Erosion Control Structure Maintenance
- Acceptance of Timber Sale Erosion Control Measures Before Sale Closure
- Slash Treatment in Sensitive Areas
- Five-Year Reforestation Requirement
- Non-recurring "C" Provision That Can Be Used For Water Quality Protection
- Modification of the Timber Sale Contract

Road and Building Site Construction

- General Guidelines for the Location and Design of Roads
- Erosion Control Plan
- Timing of Construction Activities
- Road Slope Stabilization (Preventative Practice)
- Road Slope Stabilization (Administrative Practice)
- Dispersion of Subsurface Drainage from Cut and Fill Slopes
- Control of Road Drainage
- Constraints Related to Pioneer Road Construction
- Timely Erosion Control Measures on Incomplete Road and Streamcrossings Projects
- Construction of Stable Embankments
- Minimization of Sidecast Material
- Servicing and Refueling Equipment
- Control of Construction in Streamside Management Zones
- Controlling In-channel Excavation
- Diversion of Flows Around Construction Sites
- Streamcrossings on Temporary Roads
- Bridge and Culvert Installation
- Regulation of Streamside Gravel Borrow Areas
- Disposal of Right-of-Way and Roadside Debris
- Specifying Riprap Composition
- Water Source Development Consistent with Water Quality Protection
- Maintenance of Roads
- Road Surface Treatment to Prevent Loss of Materials
- Traffic Control During Wet Periods
- Snow Removal Controls to Avoid Resource Damage
- Obliteration of Temporary Roads
- Restoration of Borrow Pits and Quarries
- Surface Erosion Control at Facility Sites

Mining

- Administering Terms of the U.S. Mining Laws (Act of May 10, 1872) for Mineral Exploration and Extraction on National Forest System Lands (Practice needs improvement)
- Administering Terms of BLM Issued Permits or Leases for Mineral Exploration and Extraction on National Forest System Lands
- Administering Common Variety Mineral Removal Permits

Recreation

- Sampling of Surveillance of Designated Swimming Sites
- On-site Multidisciplinary Sanitary Surveys Will Be Conducted to Augment the Sampling of Swimming Waters
- Provide Drinking Water Supplies that meet quality standards
- Documentation of Water Quality Data
- Control of Sanitation Facilities
- Control of Refuse Disposal

- Assuring that Organizational Camps Have Proper Sanitation and Water Supply Facilities
- Water Quality Monitoring Off-Road Vehicle Use According to Accounting Plan
- Sanitation at Hydrants and Faucets Within Developed Recreation Sites
- Protection of Water Quality Within Developed and Dispersed Recreation Areas
- Location of Pack and Riding Stock Facilities in Wilderness, Primitive and Wilderness Study Areas

Vegetative Manipulation

- Seed Drilling on the Contour
- Slope Limitations for Tractor Operation
- Tractor Operation Excluded from Wetlands and Meadows
- Revegetation of Surface Disturbed Areas
- Tractor Windrowing on the Contour (PRACTICE NEEDS IMPROVEMENT)
- Soil Moisture Limitations for Tractor Operations
- Contour Disking
- Pesticide Use Planning Process
- Apply Pesticide According to Label and EPA Registration Directions
- Pesticide Application Monitoring and Evaluation
- Pesticide Spill Contingency Planning
- Cleaning and Disposal of Pesticide Containers and Equipment
- Untreated Buffer Strips for Riparian Area and Streamside Management Zone (SMZ) Protection During Pesticide Spraying
- Controlling Pesticide Drift During Spray Application

Fire Suppression and Fuels Management

- Fire and Fuel Management Activities
- Consideration of Water Quality in Formulating Fire Prescriptions
- Protection of Water Quality from Prescribed Burning Effects
- Minimizing Watershed Damage from Fire Suppression Efforts
- Repair or Stabilization of Fire Suppression Related Watershed Damage
- Emergency Rehabilitation of Watersheds Following Wildfires

Watershed Management

- Watershed Restoration
- Conduct Floodplain Hazard Analysis and Evaluation
- Protection of Wetlands
- Oil and Hazardous Substance Spill Contingency Plan
- Control of Activities Under Special Use Permit
- Water Quality Monitoring
- Management by Closure to Use (Seasonal, Temporary, and Permanent)

Grazing

- Range Analysis, Allotment Management Plan, Grazing Permit System, and Permittee Operation Plan
- Controlling Livestock Numbers and Season of Use
- Controlling Livestock Distribution Within Allotments
- Rangeland Improvements

Cultural and Historic Resources

The Forest Cultural Resources Inventory will be completed according to the deadline specified by legislative or management directives and updated on an annual basis. Generally, this inventory will be done in conjunction with project work or with post-wildfire rehabilitation.

A documented Archaeological Reconnaissance Report (ARR) is required where analyses of management activities anticipate impacts to cultural resources. A reconnaissance and/or evaluation will be conducted by qualified personnel (FSM 2361.4). This will occur concurrently with initial studies for land disposal action, or any development or land use which may alter, damage, destroy, or remove from management any cultural resource (FSM 2361.1(1) R-5 Sup.).

Each fiscal year, a specific number of cultural resource properties will be targeted for initial assessment by the Forest Cultural Resource Specialist as either Class I or Class III properties.

Initially, assessed Class I properties will be formally evaluated, in consultation with the State Historic Preservation Officer, for determination of eligibility for inclusion in the National Register of Historic Places.

The Forest Cultural Resource Specialist will evaluate Class I properties in terms of present land allocation for possible conflicts, and develop management plans to alleviate any possible conflict. Site-specific management plans for all cultural resources will be developed in consultation with the State Historic Preservation Officer. These site-specific management plans will define appropriate treatment for every cultural resource site. This site-specific treatment will be based on the site's significance, its projected use, and any anticipated conflicts with other land-use allocations. These plans will serve to protect the resource from human and natural degradation as well as to provide enhancement, interpretive and scientific opportunities.

Cultural Resources and Interpretive Services will cooperate to identify, and utilize cultural resources in interpretive programs.

The Forest will identify opportunities for research programs for qualified persons or groups through the issuance of cultural resource permits and the development of cooperative agreements.

These plans will consider, but are not limited to:

- Administrative closures
- Physical protection measures
- Monitoring/Patrolling
- Impact mitigation
- Adaptive reuse
- Research
- Interpretive programs
- Special cultural resource areas or zones

Until proper evaluation occurs, all known cultural resource properties shall be classified as Class II properties and shall be afforded the same consideration as the Class I resource properties.

The Forest will maintain confidentiality of cultural resource site locations, through restricted access to files and maps, to aid in their preservation and protection.

Cultural Resources and Fire Management will coordinate during fire suppression and treatment to avoid damage to cultural resources. A program of field supervision during fire suppression and rehabilitation will be used to supplement the inventory program.

Cultural Resources and Law Enforcement will coordinate to help protect the cultural resource data base by including sensitive Class I properties and vandalized cultural resource properties within patrol routes.

Dark Sky Observation

Coordinate with the observatories to establish the zone of influence around any ground installations that are sensitive to additional light pollution and the times of year that lighting has the most impact.

Mitigate pollution from new lighting sources within the zone of influence of existing observatories.

Any planned activity which generates smoke or dust within the zone of influence of an observatory will be coordinated with that facility in advance.

Districts will coordinate with electronic permittees to eliminate unnecessary lighting at electronic sites and mitigate electronic interferences, whenever practical.

Prior to additional night skiing activities, within the zone of influence, an environmental assessment will be completed to develop appropriate mitigating measures.

Electronic Sites

Existing electronic sites will have an approved site plan completed by 1995 which will govern future development and management of facilities. Site users will be encouraged to develop portions of the environmental assessment and site plans as part of their expansion or construction applications.

Exclusive use of electronic installations and sites will be allowed only when required for national security, national defense, and public enjoyment. Building facilities may be designed to provide internal security for each of the multiple users.

Construct new facilities on existing sites only when there is no reasonable space within existing buildings or towers.

Future sites will be identified by 1995. Activities on new sites will be permitted only when site plans for existing sites have been completed, and the available space has been fully utilized.

Electronic site permittees will be encouraged to form permittee associations, with approved by-laws, to assume agreed-upon responsibilities for permit compliance, road maintenance, site security, site planning, and reduction of interference problems.

The Forest will urge installation of passive reflectors and satellite receivers outside of Forest lands.

Energy Conservation, Use and Self-Sufficiency

The Forest will emphasize efficient use of energy-generating and energy-consuming equipment. Energy conservation procedures will be considered when energy consumption is an aspect of project development. This includes, but is not limited to, wind power generation devices, solar energy equipment, and car pooling.

All existing and future special use permittees will be encouraged to implement all forms of energy conservation measures appropriate to the location of their permit.

In heavily used public recreation areas, encourage the use of mass transportation to relieve congestion, parking limitations, and to reduce gasoline consumption.

Wind Energy sites will be managed as follows:

Potential wind farm sites must be evaluated for feasibility by the proponent prior to application for site development. This data will be made available to the Forest Service.

Commercial wind farm sites will be permitted by competitive bid in accord with the sequence established by the Forest Service. Successful bidders will be required to submit a development plan for Forest Service approval. A schedule for completion will be required in the development plan. Minimum bids will be set.

An environmental analysis will be completed on any proposed wind energy development plan prior to final approval.

Wind farms will not be allowed in:

- Designated and recommended wilderness areas.
- SIAs and RNA's.
- Class I and II Cultural Resource Areas.
- San Dimas Experimental Forest.
- Critical or Essential Condor Habitat as shown in the Condor Recovery Plan.
- Sites of existing Forest Service facilities, such as, but not limited to, campgrounds, Ranger Stations, and shooting areas.

Facilities

Trailer pads will be constructed to support employee housing at appropriate locations as well as to provide for barracks and offices as replacements for deteriorating facilities.

For employee and public enjoyment, new and existing administrative facilities will have radio and/or telephone communications.

Fire and vandal-resistant materials will be used in all new construction or reconstruction of existing Forest facilities.

Construction should utilize a variety of designs and materials to simulate natural colors and textures of soil, rock and vegetation, when appropriate.

Debris basins and channel stabilization structures on National Forest land will be inspected at least every five years or after major flood events. Maintenance will be performed on structures that continue to provide significant benefits to the drainage area.

Fire Management

Wildfire Prevention

Conduct a yearlong wildfire prevention effort aimed at specific wildfire causes, as follows:

May 1 - November 30: Conduct prevention activities to reduce wildfires caused by Forest visitors. This includes hazard reduction inspections of Forest-owned and special-use facilities on the Forest, including private land within the protection area, plus contacts with recreationists, equipment inspectors, contractors, and maintenance crews. These activities would also include prevention for arsonist and smoker-caused fires.

December 1 - April 30: Conduct prevention activities designed to reduce specific human-caused fires; for example, work with grades K-3 in local schools to reduce those fires caused by children with matches.

Hazard reduction will be concentrated in high risk areas with a historically high incidence of wildfires.

Minimize the number of person caused wildfires by implementing the following actions based on changing fire danger during the year:

Campfire permits will continue to be required.

Stage I fire restrictions will be used to limit campfires and barbecues to developed recreation sites. Only portable stoves with gas, jelly petroleum, or pressurized liquid can be used outside of a developed recreation site when authorized by a permit.

Stage II fire restrictions will be used to limit all fires - campfires, stove fires and barbecues to within developed recreation sites. It will limit all use of vehicles having internal combustion engines to roads, ORV routes, and/or identified exempted areas.

Emergency closure restrictions will be used to limit visitor entry into the Forest when extreme hazardous conditions exist. Fire prevention task forces may be used to control Forest entry.

There will be no automatic annual closures. Any fire closure will be determined by the existing fire hazard conditions.

Continue to emphasize efforts to educate and inform the public about the sensitivity and hazards of living in the wildland/urban interface environment.

All new structures on National Forest land will be built with fire-resistant building materials and fire-safe construction practices.

Encourage adoption of the Fire-Resistant Environment concept on private lands adjacent to the Forest. This includes use of fire-resistant building materials, fire-safe construction practices, fire-resistant buffer zones at least 300 feet wide around residential areas in high hazard areas, and fire-resistant landscaping within residential areas. Forest management activities to enhance fire-resistant zones will be coordinated with private efforts. Special use permits may be considered for uses which would establish fire-resistant buffer zones on the Forest.

Detection

Maintain a means by which the public can easily report wildfires to the Forest, Los Angeles County, and municipal Fire Dispatchers.

Continue a detection system for rapid discovery of wildfires including patrols, observation points, and infrared flights. Wildfires should be reported within a timeframe that permits initial attack units to control the fire at a size to meet suppression objectives.

Fuel Management

Reduce fuel hazards by means of fuelbreaks and age-class management of chaparral. Activities will be scheduled through analysis of values, risks, and incidence of wildfire.

Modify fuel conditions to reduce fire behavior to a level commensurate with resource management objectives, and to protect values on and adjacent to the Forest. Fire Management Zone burned area objectives will be met during burning conditions that occur 95% of the fire season.

Develop prescribed fire guidelines for each project to meet soil, watershed and wildlife objectives. Soil moisture, slope, age of vegetation, fuel loading, aspect, fire intensity and duration, and other site-specific factors will be considered.

Sign prescribed fires conspicuously in the vicinity of the burns. The media will be informed of the timing of these burns. Objectives and results of prescribed fire will also be given to the media as opportunities arise.

Coordinate fuel management activities on the Forest with those on adjacent private land and other agencies responsible for land management or protection.

Incorporate fuel management considerations and needs into other resource program projects.

Presuppression and Suppression

Provide necessary suppression capabilities to control all wildfires at a reasonable cost to meet management objectives and to protect on-and off-Forest values. The protection policy of taking action on all wildfires and of meeting acre control objectives will be possible under most conditions after vegetative management is accomplished.

Maintain necessary initial attack, secondary reinforcements, and key yearlong fire management work force to accomplish fuel management, prevention, and suppression activities.

Use a combination of methods, including prescribed fire, to treat fuel hazards along roadsides with a history of wildfires. Treat roadsides in highly flammable areas before July each year.

Plan and conduct specialized training necessary to permit Forest Service personnel to implement the Regional direction for structural fire protection.

Fish and Wildlife

Data Acquisition

Project level data acquisition for fish and wildlife will be obtained either through field observations and/or habitat capability as estimated from maps, aerial photographs, etc., prior to project implementation. Generally, this inventory will be done in conjunction with the Environmental Analysis process.

Forestwide data acquisition for Management Indicator Species (MIS) will occur per Monitoring Plan requirements.

Evaluation

Each fiscal year, 10% of all ground disturbing activities will be selected at random to evaluate the effectiveness of standards and guidelines, prescriptions and mitigation measures on fish and wildlife habitat and/or populations.

Population trends of MIS and relationships to habitat changes will be evaluated annually and on a Forestwide basis per Monitoring Plan requirements.

Protection and Enhancement

Management plans will be developed for MIS in cooperation with the Department of Fish and Game. These plans will provide the necessary guidance to ensure the continued viability of MIS.

Fish and Wildlife Management will coordinate with Fire, Recreation and Range Management to minimize resource conflicts and maximize enhancement opportunities for fish and wildlife resources.

The Forest will identify research needs and opportunities for MIS in cooperation with the Department of Fish and Game.

Where the potential exists, maintain standing dead snags at an average of 1.5 snags per acre within oak woodland and conifer vegetation types with the following specifications:

1.2 snags per acre between 15-24 inches dbh and greater than 20 feet high;

0.3 snags per acre greater than 24 inches dbh and greater than 20 feet high.

Where the potential exists, maintain standing dead snags at an average of 5 per acre within the riparian vegetation type with the following specifications:

3 snags per acre between 15-24 inches dbh and greater than 20 feet high;

2 snags per acre greater than 24 inches dbh and greater than 20 feet high.

Emphasize retention of dead and down woody material for wildlife in forested areas. Coordinate with Integrated Pest Management needs when creating slash piles and down logs for wildlife habitat.

All newly developed or reconstructed fire cistern or range water developments on the Forest will be designed to provide 10-20% of storage capacity for wildlife utilization.

Wildlife management practices, such as transplanting, reintroduction and/or introduction of selected species will be accomplished by the California Department of Fish and Game with Forest Service cooperation.

When proposed by the Department of Fish and Game, transplants of native wildlife species into, and removal from, wilderness areas will require Forest Service approval, when the transplant is consistent with maintaining wilderness characteristics.

Threatened and Endangered Animal Species

The Forest Wildlife Biologist and appropriate District Rangers will coordinate with Recovery Teams to maintain current information in recovery plans for the California Condor, Peregrine Falcon, and the Unarmored Threespine Stickleback. Recovery plans will serve as the basis for management of these species.

The Forest will develop and implement interim habitat management plans in cooperation with the U.S. Fish and Wildlife Service and the California Department of Fish and Game where approved recovery plans do not exist for Federally listed threatened and endangered species inhabiting the Forest.

Least Bell's vireo is the only Federally listed endangered species appearing on the Forest that does not have a recovery plan at this time.

Unarmored Threespine Stickleback habitat in Soledad and San Francisquito Creeks will be managed as essential habitat.

Habitat management for the California Condor will be applied to roosting, feeding and nesting areas identified in the Recovery Plan, and not just to the land delineated as critical or essential habitat.

The Forest will establish one breeding pair of Peregrine Falcons in coordination with the U.S. Fish and Wildlife Service and the Department of Fish and Game.

All active Peregrine Falcon nest sites will have a minimum buffer zone of a 1/2 mile radius pending completion of an interim management plan.

Sensitive Animal Species

The Forest will determine the number of existing Spotted Owl pairs, and manage their habitat to maintain at least that population. Projects will be planned for minimum impact on Spotted Owl habitat.

Sensitive animal species, although not subject to the provisions of the Endangered Species Act of 1973, as amended, will receive special management to maintain viability and to prevent their placement on Federal or State lists.

Sensitive Plant Species

Sensitive plant species, although not subject to the provisions of the Endangered Species Act, as amended (1978), will receive special management to prevent their placement on Federal lists, as discussed in FSM 2670.3.

The Forest will develop species management guides for sensitive plants. These guides will function as "recovery plans", defining activity constraints in essential habitat and the need for monitoring, land allocation, and habitat manipulation.

The Forest will actively pursue status determination and long-term protection of sensitive plants.

Wildlife Emphasis

Small stands of oak or conifer, less than 40 acres in size, are very valuable as wildlife habitat. When these small patches occur in chaparral management areas, they will be managed using the appropriate oak or conifer wildlife emphasis prescription.

Integrated Pest Management

An integrated pest management approach will be used that considers a full range of alternatives, including cultural, biological and chemical methods, to be analyzed on a site-specific, project level basis. The treatment method(s) will be selected through the environmental analysis process which will consider the environmental effects, treatment effectiveness, and costs of each alternative. Monitoring and enforcement plans to implement specific measures will be determined during this site and project-specific process.

Follow currently accepted methods to reduce the potential for Fomes annosus root rot infections in conifer stands.

Do not plant conifers in known or suspected Fomes annosus infection centers. Black Oak, as well as most hardwoods, can be successfully grown in openings created by the disease.

Examine potential planting sites for the presence of pocket gophers. Take necessary control measures prior to planting, if they are present in significant numbers.

Conduct biological evaluations as needed to diagnose pest-related problems and provide management alternatives.

Lands and Non-Recreational Uses

Landownership Adjustment

Consolidate Forest lands within the Forest boundary through purchase, exchange and donation to ensure full protection and use of National Forest resources. Land acquisition priorities will be based on lands with willing sellers and willing buyers.

Identify National Forest System land administered by the Angeles National Forest that will be disposed of through exchange, transfer to other governmental agencies, or disposed of under appropriate Congressional Acts.

Exchange land in order to dispose of parcels not suitable as National Forest. Such land usually includes isolated parcels, detached parcels, or projecting narrow strips of Forest land.

Encourage donations of land which will aid in National Forest land consolidation and resource conservation, or are needed for administration or research. The Forest will not accept land donations inside or outside the Forest which do not enhance the use, management, or protection of it.

An inventory will be kept and updated every three to five years of all landowners of desirable parcels. They will be contacted to determine whether they would consider selling or exchanging land with the Forest Service.

Rights-of-Way Program

Acquire road and trail rights-of-way across non-National Forest land needed to support management activities.

Permits and easements shall conform with the appropriate local, State, and Federal laws, policies, and regulations.

Existing permits and easements will be modified to conform with the management direction for the area.

Cooperate with intermingled and adjacent landowners, and local governments in developing roads or road systems that serve the needs of all parties.

Acquire road rights-of-ways needed to widen roads and trails.

Apply the following criteria to any proposed right-of-way to determine its priority:

The right-of-way is needed immediately to resolve a management problem or for resource protection needs.

The land use is changing so that management options would be closed or acquisition costs increased, if the right-of-way is not obtained in the near future.

The right-of-way is important for coordinated efforts with adjacent jurisdictions in the development of equestrian trails, open spaces, or other related transportation planning.

There is no alternate access.

Propose condemnation as a method of acquiring a right-of-way when all other methods have failed, and right-of-way is deemed necessary for management of the National Forest.

Landline Location

Property lines and corners will be surveyed prior to constructing permanent facilities adjacent to the property lines.

All property lines surveyed will be marked, and posted to current Forest Service standards.

Occupancy Trespass

Take prompt and continued action on trespass.

Non-Recreational Special Uses

Permits or easements may only be issued for the non-recreational use of National Forest land when such use cannot be reasonably placed on private land, and such use does not conflict with management objectives for the area.

Sanitary Landfills/Sediment Placement Sites

Class I sites will not be permitted on the Angeles National Forest.

Class II and III sites will not be permitted in:

Designated wilderness areas.
San Dimas Experimental Forest
Critical threatened and endangered species habitat
Class I and II cultural resource areas
Riparian areas and floodplains
RNA's and SIA's

Forest land for Class II and III solid waste disposal sites will be permitted only if the following conditions are met:

Other reasonable sites and practical resource recovery alternatives on non-National Forest land have been exhausted.

Lands considered for sanitary landfills will be exchanged to an appropriate agency or organization only if the land is suitable and capable for this purpose. The land must meet land exchange and solid waste disposal conditions set forth in the Plan.

The existing Land Adjustment Plan (LAP) is being incorporated into the Forest Plan. The LAP will be reviewed when a site is proposed and may be changed to include land exchange of Forest Service parcels if the current LAP does not show the parcel as already identified for this consideration. This means the Forest Plan must be amended if a landfill site is to be created in an area not already identified in the LAP.

The site is part of the regional (County-wide) solid waste disposal plan, and has been through a public involvement process approved by the Forest Service.

The site is large enough to be used for 10 years or more.

Sediment Placement Sites (SPSs) will be designed for wildlife habitat, public access and recreation use. Agencies creating and managing SPSs will install and assist in maintaining the developments necessary for the SPS, (e.g. vents, drains, roads) and assist in the operation and maintenance of recreation and/or wildlife improvements.

SPSs will be open to the public.

Environmental analysis and documentation with associated mitigative measures will determine the management of SPSs.

The following sites are available for consideration as SPSs:

Twomile Point SE - (Cogswell Reservoir)
Burro Canyon - (San Gabriel Reservoir)
Lower Pacoima Canyon - (Pacoima Reservoir)
Maple Canyon - (Pacoima Reservoir)
Limekiln Canyon - (Pacoima Reservoir)
Maple Canyon - (Sawpit Reservoir)
Sycamore Canyon - (Sawpit Reservoir)
Spanish Canyon - (Sawpit Reservoir)
Mystic Canyon - (Big Dalton Reservoir)
Lewis Paul Canyon - (Big Dalton Reservoir)
Keril Canyon - (Big Dalton Reservoir)

Prior to construction and use of any of the 11 identified potential SPSs, an environmental analysis and documentation with complete public involvement must be approved by the Forest Service.

Areas potentially impacting perennial streams will not be considered for sediment placement without completion of a Forest Plan Amendment and Environmental Impact Statement.

SPSs may be permitted in intermittent stream areas, in the 11 potential sites, with appropriate mitigative measures. Mitigative measures must address an objective of no net loss of riparian acreage.

Utility Corridors

Require future utility lines to be located in existing right-of-way corridors; except that when corridors are fully utilized, future lines may be considered for location adjacent to and as near as possible to existing corridors, considering topography, reliability, environmental impacts, and technical feasibility.

Require utility companies to justify why upgrading the size of existing transmission facilities to maximum capacity within existing corridors is not feasible before new utility corridors are considered.

All new or replacement electric powerlines of 33 Kilovolts or less, and all new or replacement telephone lines and television cables, will be placed underground where environmentally feasible, unless modified by a site specific environmental analysis. Any exceptions will be analyzed on a case by case basis.

Maintain productivity of lands within corridors for other resource benefits.

Require utility companies to enter into cost-share agreements for fuel management treatment costs within and adjacent to expansion of existing utility corridors and to new utility corridors. Livestock grazing will be considered as a vegetative management technique.

Utility corridor access roads designated for ORV trail use will be monitored for impacts. When impacts or vandalism is noted, representatives from the utility company, Forest Service and ORV user groups will jointly determine the nature and extent of the potential problem and develop a joint solution, including temporary or permanent closure of the road to public use. Funding from the user groups will be considered, as appropriate, to mitigate the kinds and extent of the damage identified.

Utility companies will be responsible for maintenance of corridor access roads that serve no other purpose than to service the utility facilities.

Require utility companies to upgrade size of transmission facilities to maximum capacity within existing corridors before new utility corridors are considered.

Utility companies will adhere to the practices recommended in the document "Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1981," Raptor Research Report No. 4, or the most current version.

Withdrawals

The Angeles National Forest will assist the BLM in the analysis of the Forest Service initiated withdrawals (4708 acres of Administrative type). Section 204 of PL 94-579 (FLPMA) requires the Secretary of the Interior to review all withdrawals by October 1, 1991, and make a determination as to whether they should be modified, extended or revoked. Although not required to review congressional withdrawals, the Angeles National Forest will review the 1928 Watershed Act withdrawal and make recommendations to BLM for change. The Forest Service will also provide comment to other Federal agencies as they review their withdrawals (primarily water and/or power related withdrawals). This review can be by category or area.

Law Enforcement, Search and Rescue

Implement the Forest Law Enforcement Plan to meet Forest law enforcement responsibilities and maintain an effective law enforcement program.

Use qualified, trained, and properly equipped employees to ensure an effective law enforcement program.

Ensure that the law enforcement program is an integral part of all Forest management programs.

All wildfires within the Forest will be investigated to determine cause and to recover costs. The Forest will cooperate with other agencies on cause determination of wildfires within the mutual aid areas.

The Forest will continue to support the Counties in fulfilling their responsibility for search and rescue activities.

Minerals and Geology

Determine the location and type of access for mineral exploration and development, subject to mitigation of impacts to surface resources: Exceptions are wilderness, special area allocation, and other appropriated lands. Restrict access to the extent that the integrity of the area involved must be maintained. Access and occupancy in wilderness, special interest areas, and other appropriated lands, are subject to valid existing rights.

Access road approval on the claim areas will be covered in the operation plan. All other road access to the claims may require a permit.

Process and approve operating plans according to requirements of 36 CFR 228, giving priority to energy and strategic minerals, while maintaining protection of surface resources.

Make sources of rock, sand and gravel available to meet local construction needs to the extent possible and consistent with other land values.

The Forest will annually examine and report on all mineral claims being occupied or developed in any manner. Claims being used for purposes other than mineral development should be examined and contested, as appropriate.

Protect surface resources in operations in wilderness to maintain wilderness character for future use and enjoyment.

Analyze non-competitive oil and gas applications within 90 days, using the Land Management Plan and EIS for guidance. These documents, along with the stipulations for oil and gas leasing, will be the basis for, but not limited to, the criteria for recommending leasing or nonleasing of land for noncompetitive oil and gas applications. The Forest Plan EIS will serve as the source document to satisfy pre-lease NEPA requirements. Site-specific environmental analyses will be made on all applications for drill (SPDs), or Plan of Operations to determine impacts. Additional stipulations may be required to protect resources.

Grant authorization for mining on lands covered by other mining leases or mineral permits only when removal of the minerals will not unduly interfere with the other leases.

Give full recognition to the tendency for mass land movement, and severe watershed damage potential when implementing land management activities. All projects must assess potential impacts on geologic stability.

No facility development will be allowed in extremely unstable geologic areas. Development activities will be conducted in a manner that minimizes activation of landslides.

See Riparian Standards and Guidelines for additional direction.

Non-native Plants and Animals

Non-native plant and animal species will only be introduced when they are adaptable to the area and provide a desirable quality not available with indigenous species.

Compatibility or conflicts between non-native plants, animals, and resource values will be identified in project level analysis.

Public Affairs Program

Inform the public of the Forest Service and its role in the Federal structure and economy of the Angeles National Forest and its programs and projects, and of the services rendered to the public by the Forest and its personnel. Emphasize resource management, recreation, peace and quiet opportunities, visitor ethics, and public enjoyment. This will include the Resource Management Education Program (formerly called Environmental Education), and public involvement in Forest planning and decision making.

Range Management

The permitting of grazing by domestic livestock will be primarily in response to needs for fuel reduction and vegetation management.

Sheep will be the preferred kind of livestock for fuel reduction and vegetation management purposes since they can be herded over a given route and do not require fencing, which could interfere with recreation use.

Livestock contribution to the fuel reduction and vegetation management program will be concentrated on the major fuelbreaks of the Tujunga, Saugus, and Valyermo Ranger Districts.

Applications for domestic livestock grazing, outside the need for fuel reduction and/or vegetation management, will be considered if such use is compatible with other management objectives.

All potential grazing areas will have range analysis completed. This analysis will include interdisciplinary input and will determine which land is suitable and available for livestock use and which is not.

The suitable and available land identified through the range analysis process will be divided into range allotments. Allotment boundaries will be established based on the potential for logical operation.

Range allotments will have individual, site-specific Allotment Management Plans.

Prior to the development of Allotment Management Plans, livestock use permits will be issued where the primary purpose for grazing is for other than livestock production (ie. vegetation management, fuels reduction).

Allotment Management Plans will be formulated with input from State and Federal wildlife population and habitat managers, and specialists in soils, watershed, recreation, and fire. Specific attention will be paid to the needs of threatened and/or endangered plants and animals.

Forage produced in riparian areas will not be included in grazing capacity calculations when determining forage availiblity for livestock use.

The primary grazing season will be approximately January through June, annually. Variations in starting and ending dates will frequently occur due to variations in growing season conditions.

Livestock will not be grazed in the immediate vicinity of wildlife water developments.

Water developments for livestock will be fenced to protect the water source and provide wildlife habitat. Water for livestock will be piped away from the fenced source and out of riparian zones.

No domestic sheep will be permitted within five air miles of bighorn sheep habitat.

Dead livestock may be left in the open for raptor and carrion feeders, but not easily visible from vehicle access roads, target shooting areas, or powerlines.

Recreation

All management activities will be managed to meet the ROS setting standards as defined in the ROS User's Guide.

Administrative access for motorized vehicles of special use permittees for semi-primitive non-motorized areas may be authorized in writing. Semi-primitive non-motorized areas within wilderness boundaries are closed to all motorized vehicles.

Vegetation management objectives and prescriptions will be written for developed recreation sites. They shall consider short- and long-term visual quality, vegetation health and vigor, protection from pests, vegetation replacement, hazardous tree control, and appropriate monitoring.

Trail Systems

The Forest will provide opportunities for hiking, equestrian, bicycle, and off-road vehicle use.

Trails for motorized and non-motorized use will be separated.

Where feasible, use portions of the hiking and equestrian trail system and developed sites for cross-country skiing and snowshoeing during the winter season.

Coordinate with Federal, State and local agencies, adjacent private landowners, and user groups in planning regional trail systems. Support joint facility planning, funding, and maintenance.

All proposed trail systems will be built to specific engineering standards based on user type. This includes proper design and trail layout, utilizing trail hardening techniques, full benching of trails where necessary, adequate drainage structures, and energy dissapators at needed discharge points for the protection of the soils.

Period of use may be restricted in some areas. Closing certain trail segments during times when soil conditions are saturated will prevent severe rutting, puddling and degradation of the trail surface.

Emphasis will be placed on reconstruction and proper maintenance of existing trail systems, prior to constructing new trails.

Provide adequate monitoring of new and existing trail systems as well as having personnel patrolling trails related to law enforcement activities and resource protection.

- Hiking and Equestrian Trails

  Trailheads for equestrian and hiking trails will be provided on a case-by-case basis related to the needs of the users.

  Provide for hiking and equestrian use on the same trail, where possible.

  Trails will be posted to provide users with information about routes. Clearly post sections that are unsuitable for equestrian use.

  Eliminate sections of the trail system that are underused, have high maintenance costs, and/or have conflicts with higher priority uses.

  Provide trails through a variety of vegetative types and at various user skill levels. Provide loop trails for short day hikes, and connecting trails for longer hikes, where feasible.

  Provide trails to meet the needs of special user groups, where appropriate.

- Mountain Bikes

  Mountain bikes are recognized as a legitimate use of riding and hiking trails with the exception of the PCT and wilderness area trails. Trails may be closed to mountain bikes on a case-by-case basis to prevent user conflicts and resource problems.

- Bicycle Routes

  Provide opportunities for bicycle riding on the Forest including bicycle lanes adjacent to roads or separate trails developed exclusively for the activity.

  Coordinate with Federal, State and local agencies and user groups to provide and maintain bicycle routes.

Information Services

Make public contact and public information at District Offices, entrance stations and the Forest Supervisor's Office a high priority.

Use multilingual signs, brochures, and personnel in areas heavily used by non-English speaking populations, when appropriate.

Make "visitor ethic", and peace and quiet opportunities priority information objectives.

Maximize use of information facilities which do not require staffing.

All elements of the Interpretive Services program (signs, interpretive trails, brochures, information stations, etc.) should be in character with the Forest environment where they are found.

All interpretive programs, displays and publications should provide environmental interpretation as well as support for Forest Service resource management programs.

Organizational Camps

The Forest will require existing permittees to prepare a master development plan for their organizational camps when new facilities or major expansion is planned. The Forest will give preference to new permit applicants who plan optimum use of the camp throughout the year.

The appropriate County agencies and the Forest Service will jointly inspect camp facilities at least once every five years. This will not preclude the annual inspections normally required by other agencies. Existing permits will be amended when possible to include this requirement.

Off-Road Vehicles

All areas in the Forest will be designated open, restricted to designated routes only, or closed to vehicle use off-road.

ORV use will be permitted only on designated roads, trails, and designated open areas, as shown on the Forest ORV Map, or authorized by special use permit.

Where appropriate, provide a wide variety of ORV opportunities for specialized vehicle types, differing skill levels, and differing user groups. Skill levels will be posted for trails and areas.

Provide a comprehensive network of trails through a variety of vegetative types and terrain which connect various open areas and parking facilities.

Design trails with minimum widths and avoid location on broad ridgetops and where access is uncontrolled. This may result in locating trail segments off to the side of ridge tops (upper third of the sideslope position).

Seasonal and other off-road vehicle closures may be enforced to protect resources.

Designated trails and open areas shall be located to minimize conflicts with existing or potential recreation sites, private property, wildlife habitat, special uses, or administrative areas. Trail location and design should conform to Regional ORV trail guidelines.

Coordinate Forest off-road vehicle planning and funding with Federal, State and local recreation agencies.

Temporary permits for competitive events may be issued in open and restricted areas.

Off-road vehicle areas may be operated as commercial ventures under special use permits.

Ranger District ORV management plans will be reviewed and updated annually. The public will be kept informed of the status of areas and routes for availability for use on a seasonal or year-round basis. All changes would be consistant with the plan.

Off-Road Vehicles operating on National Forest land will comply with the State of California noise standards, and have a Forest Service approved muffler or spark arrester.

Selected sections of powerline utility roads may be open, designated and managed as ORV travel routes. The road maintenance standards are set by the utility companies. If conflicts occur between the ORV users and powerline reliability, the utility company may request closure to routes by the public and/or request offsetting funds from users. (See Utility Corridors S & G.)

Trailheads for ORV trails will be constructed on a case-by-case basis related to the need of the users.

Cooperate with the State and other agencies and user groups to identify, and where compatible with forest plan management objectives, develop segments of trail that supports the concept of a statewide trail system connecting use areas, and providing the opportunity for long distance trail touring.

Recreation Residences

No new recreation residence tracts or lots will be approved.

Improvements associated with recreation residences (i.e., gates, fences, out buildings) will be removed, if they obstruct public access to developed or dispersed recreation areas.

Recreation residents within a 100-year floodplain will be notified that their residence is in a dangerous area, and that no additions will be permitted to existing structures that encroach on the floodplain. (Permits will contain a 50% damage clause.)

Non-compliance deficiencies will be resolved in accordance with Forest Service policies prior to issuing a permit to a new owner. County building inspections will be the responsibility of the permittee, and county codes will be met.

Permittees within each tract or combination of tracts will be encouraged to form associations for the purpose of resolving problems, and to provide and operate common improvements serving all permittees. These associations may assume responsibility for tract inspections and other agreed upon items when operating under by-laws approved by the Forest Service.

A recreation residence will not be used as a domicile or legal residence. Therefore, it may not be used as a place where the permittee's domestic activities are centered.

Prior to issuance of term permits (expire 1990), the Forest shall review tracts, or portions thereof, in accordance with Forest Service policy to determine if they are serving the highest public use of the area, or if hazards exist to the user or public. If the review indicates there is potential for higher public use, or hazards exist, an annual permit will be issued until a suitable study is completed. If the review shows tracts are serving the highest public use and there are no unacceptable hazards, a term permit may be issued without conducting a future use assessment or other study.

When studies are to be done, the following priority sequence shall be used:

Mt. Baldy District

San Dimas
Ice House
North Fork San Gabriel (Lower Portion)
Bear Canyon

Arroyo Seco District

Millard
Idlehour - Deer Park Branch
Santa Anita
West Fork

Tujunga District

Big Tujunga Canyon

Saugus District

Bouquet Canyon
Lake Hughes
San Francisquito

Valyermo District

Big Rock
McClellan Flat

These studies will determine whether the entire tract or individual lots within the tract are for serving the highest public need, and are consistent with maintaining the health, enjoyment, or well being of the permittee or the public.

Recreational Target Shooting (not including hunting)

Recreational target shooting will be allowed only within designated target shooting areas. These areas will be managed by Forest Service personnel, or administered under special use permits as commercial ventures.

All target shooting areas will have designated boundaries. Target shooting will be the only use, except for grazing and prescribed fire to reduce fire hazard.

Target shooting area management will include:

- controlled vehicular access for law enforcement and trash removal purposes;
- provision for parking, fire hazard reduction, fire prevention, sanitation, trash facilities, and signs;
- posted boundaries of target shooting areas.

Signs shall be provided along major Forest access routes identifying nearest designated target shooting areas.

Materials of the targets will be established by Forest Supervisor Order. No glass targets will be allowed in any area.

Resorts

The Forest will conduct a Future Use Determination study of resorts prior to issuing new permits when existing facilities are sold; a new termination date is determined; or three years prior to the expiration of existing term permits. Permittees will be notified in writing of these requirements.

Appropriate County agencies and the Forest Service should jointly inspect facilities at least once every five years. New permits will require the permittee to have County agencies inspect the facilities at least once every five years. Existing permits will be amended, when possible, to include this requirement.

Cross-Country Skiing

Cross-country ski facilities may be operated as a commercial venture under special use permit.

The Forest Service may sign, but is not required to maintain, cross-country ski trails in campgrounds and along trails and roads that are closed in the winter.

Moto-cross Area

Currently, Forest Service policy does not allow moto-cross sites within the National Forest. If a private concessionaire applies for a special use permit, an exception to this policy would have to be obtained from the Chief of the Forest Service. There also must be full consideration of placement on private lands, and completion of an environmental analysis with full public involvement.

The Bedsprings Flat area in Section 1, T. 4N, R. 12W, S.B.M. is designated as a potential moto-cross site. It would only be developed and operated as a commercial venture under special use permit.

Developed and Dispersed Management

Developed Recreation Sites and Dispersed Areas of the Forest will be managed at Standard or Low Standard Management Levels.

Developed Sites - Campgrounds and Picnic Grounds

Inspection - Standard and Low Standard: Pre-opening and hazard inspection completed. Will work to eliminate hazards prior to opening or after identification. All sites must be inspected.

Grounds - Standard: Grounds maintained to provide attactive setting for enjoyment. Area clear of trash, bottles, cans, glass, and other litter.

Grounds - Low Standard: Grounds maintained for user enjoyment.

Litter - Standard: Containers (cans or bins) in sufficient number to handle average weekend volumes, emptied at least every seven days. Containers clean on outside and leak-proof.

Litter - Low Standard: Pack-in/Pack-out Program primarily used for trash removal. Containers may be used, and will be emptied when full, or every 14 days.

Water Systems - Standard: Hand pumps, hydrants and fountains free of residue, secure, and drip free. All fixtures meet applicable standards. Systems comply with all health and water quality standards. Catch basins free of debris. Water quality monitoring meets frequency standards.

Water Systems - Low Standard: If provided, systems comply with health and water quality standard. Monitoring frequency met.

Tables - Standard: Tops and seats free of dirt, grease, and large carvings. Under table cleaned to remove spider webs and dirt accumulation. Free of splintered areas.

Tables - Low Standard: Tops and seats cleaned at least once a month, as needed.

Fireplaces Standard: Fireplaces included all facilities installed for cooking or warming purposes. All components in satisfactory condition and functional. Fireside area cleaned as needed. Ashes removed periodically.

Fireplaces - Low Standard: Fireplaces cleaned as time allows. Generally free of large food particles and fire-safe.

Toilets - Standard: Toilet bowls, risers, seat cover, urinals and lavatories free of surface deposits. Building interiors free of dirt, graffiti, insects (dead or alive) and spider webs, etc., for a pleasing appearance.

Toilets - Low Standard: Toilet generally clean inside and out. May become dirty between cleanings. Vaults pumped when full.

Public Contact - Standard: Provide a level of presence commensurate with assuring public enjoyment and resource protection. Provide coverage during anticipated high crime and violation periods. Provide on site attendants or hosts at sites occupying a signed unit at the site..

Public Contact - Low Standard: Key on basic public enjoyment and resource protection. Attendant hosts where possible.

Bulletin Boards - Standard: Balanced, attractive layout. Contains up-to-date information on opportunities and services available. Required signing mandatory. Paper signs and posters are fresh and up-to-date.

Visitor Centers and Unstaffed Information Sites - Standard: Staffed sites are operated during use season. Evening and special programs may be offered. Unmanned sites have displays and exhibits, interiors and exteriors kept in clean and neat condition.

Visitor Centers and Unstaffed Information Sites - Low Standard: Staffed sites are operated for less than full day or week-long tours. Unsupervised volunteers may be used. Evening and special programs are by volunteers only. Unstaffed sites provide limited information only.

Signs: Directional, Warning and Regulatory - Standard: All signs straight, bright, and secure. Free of holes, blemishes, random nails, etc. Posts straight, clean in appearance. Replace if damaged.

Signs: Directional, Warning and Regulatory - Low Standard: Minimum signing to Forest Service standards. Replaced when missing.

Dispersed Areas

General Undeveloped Areas - Standard: In concentrated use areas, provide litter facilities, empty when full or at least every seven days. Grounds clear of trash, bottles, glass and other litter.

General Undeveloped Areas - Low Standard: Area provides for user enjoyment. Occasional litter pickup, as needed.

ORV Areas - Standard: All boundaries are signed according to manual direction. Trail networks are well marked. Trail tread is maintained for drainage and travel. Impassible ruts, rock or debris are cleared from trail tread. Information and regulations are up-to-date and readily available at District Offices, entry stations and ORV areas. Sanitation and parking areas have litter pickup and sanitary. ORV Patrolmen are present on heavy use days during use season for public contact. Noise and spark arrester requirements are enforced.

ORV Areas - Low Standard: All boundaries are signed to meet legal requirements. Only maintenance measures to prevent unacceptable resource damage or for public enjoyment are done. Sanitation and parking areas are maintained to provide for user enjoyment.

Shooting Areas - Standard: Boundaries of all shooting areas are signed and signs are adequately maintained. Regulations are enforced in regards to proper targets and public enjoyment. Any accumulation of trash is removed monthly or as needed. USFS personnel are present on heavy use days. Sanitation is provided, if needed. Public information is provided on site and at public contact points which identifies the shooting areas; gives rules and regulations regarding shooting and litter; gives safety tips and guidelines; and maintain public contact to achieve compliance with rules and regulations, to provide for public enjoyment, including capacity limits.

Shooting Areas - Low Standard: Shooting area locations are identified on the ground. Litter is removed periodically using volunteers. Shooting rules and regulations enforced.

Shooting Areas - Closure: Shooting areas will be closed when unacceptable public hazards cannot be corrected.

Signs: Directional, Warning and Regulatory - Standard: All signs straight, bright, and secure. Free of holes, blemishes, random nails, etc. Posts straight, clean in appearance. Replaced if damaged.

Signs: Directional, Warning and Regulatory - Low Standard: Minimum signing for public enjoyment. Replace when missing.

Research Natural Areas

Defer establishment of geologic, aquatic, and chaparral research natural areas on the Forest, pending identification of National needs. Inventory and evaluate areas that may meet RNA criteria.

Soils

When implementing ground disturbing activities that may cause surface erosion, compaction, mass wasting, or reduce the productivity of the land, the Best Management Practices given in Water Quality Management for National Forest System Lands in California will be implemented.

All areas of degraded watershed condition identified in the Watershed Improvement Needs (WIN) inventory will be treated in a cost-effective manner.

The highest priority improvement treatments will be designed for compatibility with management objectives of other resources and targeted for completion in two decades.

Field verification of the third order Soil Resource Inventory will be done for project level planning purposes, as a see by see basis.

Timber and Wood Products

Timber management on the Angeles National Forest will strive to maintain a healthy, vigorous forest which will support the following goals:

Maintain an attractive forest for recreational use and enjoyment.

Prevent and provide protection from unacceptable pest-caused damage.

Provide favorable conditions for maintenance of water yield and water quality.

Reduce the potential for loss of forested areas to uncontrolled fire.

Maintain or enhance wildlife and fisheries habitat, and provide necessary protection for areas designated as critical habitat for threatened and endangered species.

Use the residue from Forest stand treatments for fuelwood, posts, poles, sawlogs, or other useful forest products.

Overall, timber stands will be managed to provide a recreation forest. The elements of forest structure which are important in meeting this Forest's goals are:

- an all aged or irregular sized structure
- old growth trees retained as long as possible
- controlled stocking levels
- mixed species composition
- healthy, vigorous trees
- near natural appearance

Stand-specific prescriptions will be prepared and/or approved by a certified Silviculturist.

Tree planting projects will be undertaken only when long-term multiple resource benefits are identified.

Control of competing vegetation will be accomplished prior to establishment of plantations.

Plantations, once established, will be protected and maintained in a vigorous, healthy condition. Competition from brush, grass, and other trees will be controlled as needed.

Regeneration should be provided in recreation areas for aesthetics, screening, and to supply replacement trees. The need for additional regeneration should be evaluated at least every five years by District personnel.

Consider practices that increase the fire resistance of the stand when applying silvicultural treatments.

Maintain hardwoods as a component of conifer stands wherever they naturally occur.

Management practices in existing or historical bigcone Douglas-fir stands will include protection and regeneration of the species.

Make existing fuelwood available to potential users.

Wood should be sold for both individual and commercial use as it becomes available, giving high priority to individual use.

Include timber and vegetation management displays and treatment demonstration areas, at information stations and along interpretive trails, where appropriate.

Transportation

Provide and maintain a transportation system that ensures cost-effective support to resource protection management and makes travel enjoyable to users of the system.

Encourage Los Angeles County to designate Forest roads as part of the County road system.

Operation and maintenance responsibilities will be contained in a memorandum of understanding, or cooperative agreement between the Forest Service and other agencies for roads that are on both systems.

New roads should be located away from sensitive wildlife areas.

Forest Service roads will generally remain open. Roads will only be closed to prevent resource damage, or control problems that threaten the public or Forest Service employees. Administrative access may be maintained on closed roads.

Manage roads open to public use consistent with established ROS classes.

Maintenance levels are maximum target levels for that ROS class. Lower levels of maintenance may occur on a case-by-case basis.

Maintenance levels 4 and 5 are generally paved roads which provides access for all types of vehicles. Level 2 and below are generally accessible by four-wheel drive and high clearance vehicles.

ROS Classification	Road Management Objectives
Primitive	Closed to public motorized use.
Semi-Primitive Non-Motorized	Open only for administrative and permitted traffic.
Semi-Primitive	Generally open intermittently or seasonally to public for high clearance vehicles.
Roaded Natural	Generally open seasonally to public for general traffic.
Rural	Generally unrestricted and maintained for all vehicle classes.

Road system design should take advantage of natural barriers to facilitate possible closure needs.

Roads should be signed and maintained to accommodate traffic.

Cost/benefit ratio (economic efficiency) must be considered as part of road closure criteria.

Coordinate with California State Department of Transportation (CALTRANS) and Los Angeles County Department of Public Works to snowplow existing turnouts and access roads for snowplay and cross-country skiing trailheads.

Encourage CALTRANS, and Los Angeles County Department of Public Works, and other agencies to develop mass transit opportunities for access to the Forest.

Encourage cooperative efforts with State, County, other governments, organizations, groups, and individuals to reduce litter accumulation along all roads within the Forest by implementing preventative programs, litter pickup campaigns, and roadside hazard reduction.

Minimize land allocation to roads (Forest development roads or others). Any road proposals on National Forest land should be located to best accommodate all anticipated uses. New roads or trails will not be constructed in areas where the number of miles of roads exceeds three miles/square mile without site-specific environmental analysis.

Maintain an up-to-date Memorandum of Understanding with Air Force to provide opportunities for training and testing needs as appropriate with Forest management and National interests.

Vegetation Management

See prescriptions for site-specific standards, guidelines and management direction by vegetative type.

Diversity

Diversity of plant and animal communities will be achieved by providing a threshold level of vegetation types and seral stages found within the Forest.

At a minimum, 10% of each timber, hardwood, and chaparral vegetation type in early, middle and late successional stages will be maintained.

If a given vegetation type/seral stage combination is below the long-term minimum level (as defined above), manage to achieve the required amount as soon as possible, but within the planning horizon.

Diversity will be measured Forestwide. Vegetation types and seral stages (total acres) will be distributed in proportion to their current acres on the Forest.

To address species viability criteria as specified in Wildlife Habitat Relationship models, the size and distribution of vegetation associations and seral stages will be determined by specialists in wildlife, fire, range, and silviculture.

Riparian Areas (See page 3-24 for definition and discussion)

- General Direction for all Activities

  The Riparian Standards and Guidelines apply to the Aquatic, Wetland, and Upland riparian zones whether mapped or not.

  Special attention shall be given to land and vegetation for approximately 100 feet from the edges of all perennial streams, lakes, and other bodies of water. This area shall correspond to at least the recognizable area dominated by the riparian vegetation.

  A secondary zone of potential riparian vegetation has been identified in association with intermittent streams. This secondary zone will be considered "riparian" until such time as field investigation has shown that on-site conditions do not warrant management under these Riparian Standards and Guidelines.

  Riparian Standards and Guidelines apply only to areas above the high water mark of lakes and reservoirs.

  Management activities can occur in riparian areas. However, these activities will be compatible with the needs of the riparian dependent resources. Resource conflicts must be mitigated in favor of the dependent resources.

  Avoid new construction in riparian zones unless there is no practical alternative, and there is a demonstrated need to implement the action. Construction and reconstruction of existing facilities can occur in a riparian zone only when any unacceptable conflicts or impacts will be mitigated, and riparian-dependent resources can be protected.

  Practices and all necessary management activities will be applied to these areas that will prevent detrimental changes to water quality, aquatic flora and fauna, and/or hydrophytic vegetation within these areas, and adverse riparian area changes in water temperature, chemistry, sedimentation, and channel blockages, and riparian-dependent resources.

  Any activities shall not result in more than 30% reduction in the potential ground cover vegetation at any given time. The 30% reduction may be adjusted downward if significant decline occurs in indicator wildlife populations.

  Mitigating measures may include one or more of the following with the objective of no net loss of acreage:

Restricted entry
Revegetation
Replacement of lost habitat
Maintenance of wildlife corridors
Public information and contact
Visitor Capacity Management
Relocation of incompatable facilities

Coordination with Federal, State, and local agencies will be done on a continuing basis to ensure that all activities are carried out in an environmental, social, and economically acceptable manner.

- Fire Suppression

Minimize use of fire retardents in live stream courses.

Minimize use of earth-moving equipment in riparian wetlands and aquatic zones. Resource advisors will be used on fire suppression teams when riparian values are at risk.

- Fish and Wildlife

Manage riparian areas to meet habitat requirements of dependent wildlife and fish species according to Habitat Capability Models for management indicator species.

Retain a minimum of five snags per acre unless determined to be excess or a safety hazard.

Retain naturally occurring debris in stream channels, unless it is a threat to life and property, because certain amounts of stream debris are beneficial to help provide needed pool/riffle ratios. (Guidelines to determine the need for stream channel clearance and minimize impacts on the stream environment are found in the Habitat Capability Models.)

Protect and manage fishery resources in cooperation with California Department of Fish and Game. Habitat maintenance should be the primary objective wherever possible.

Mitigate conflicts when monitoring indicates unacceptable site deterioration or a downward trend in management indicator species populations.

- Floodplain Management

A floodplain analysis will be completed by 1990, to identify the 100-year floodplains.

Avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy, and modification of floodplains. Avoid development on floodplains wherever there is a practical alternative.

Avoid or mitigate adverse environmental impacts of any development in a floodplain.

Avoid or reduce the risk to property and human life from flooding.

- Mining

A plan of operation will be required for all mining activities in riparian zones that could result in significant resource disturbance.

For mining operations within riparian zones, the plan of operation will specifically require minimizing damage to the riparian zone and mitigating damage that does occur by requiring all reasonable actions and timing with the objective of no net loss of riparian acreage.

- Range Management

Range analyses will identify and map riparian areas as part of the allotment mapping process.

Forage produced in riparian areas by incidental and occasional use will not be included in grazing capacity calculations when determining forage availability for livestock use.

Utilization cages will be employed in riparian zones within grazing allotments in order to monitor incidental use by livestock. If livestock use in any one year exceeds 30% of that year's herbaceous production, the annual management plan or the Allotment Management Plan itself will be re-evaluated.

Water developments for livestock will be fenced to protect the water source and provide wildlife habitat. Water for livestock will be piped away from the fenced source and out of riparian zones.

- Recreation

Management plans will be developed for heavily used riparian areas. These plans will establish human capacity and development capability based upon critical environmental factors specific to the area.

Current high use areas are:

San Gabriel Canyon
Big Tujunga Canyon
Littlerock Drainage
Bouquet Canyon
Piru Creek
San Francisquito Canyon
Big Rock Canyon
Big Santa Anita Canyon

When no alternative exists for locating outside the 100-year floodplain, appropriate mitigation and flood protection measures will be followed.

ORV staging areas and new ORV trails will be located outside riparian areas. Trail crossings will be kept to a minimum. Existing ORV trails within riparian areas will be relocated outside these sensitive areas, where practical.

Seasonal closures may be required to minimize "sensitive" wildlife disturbance/loss during critical breeding seasons where relocation is not possible. Resource damages will be mitigated and restoration implemented as needed.

Encourage appropriate agencies to make existing reservoirs available for public recreation including Morris, San Gabriel, Cogswell, Bouquet, Big Tujunga, and Pacoima to help redistribute visitors now impacting sensitive riparian areas and meet public needs for water based recreation.

- Road Construction

Culverts or other in-channel structures in existing viable fishery streams will be designed and installed according to specifications developed by resources and engineering staffs using guidelines in "Fish Migration and Fish Passage, A Practical Guide to Solving Fish Passage Problems", USDA, R-5, Forest Service, 1980, as revised. The standards relating to water velocities, depths, and barriers shall be incorporated into such designs.

- Streamside Protection

Maintain a permanent vegetative cover to protect streambanks and aquatic resources, where practical.

In areas where streambanks or channels exhibit excessive erosion, or are otherwise damaged by overuse or other unnatural factors, actions will be taken to reinforce or otherwise stabilize such areas to return the bank to a near natural and stable state.

Emphasize retention of dead and down woody material for instream stabilization and fish and wildlife habitat maintenance and enhancement.

Design road and motorized trail crossings and alignments within riparian zones so that the minimum possible area is affected.

Sensitive Plant Species

Sensitive plant species, although not subject to the provisions of the Endangered Species Act, as amended (1978), will receive special management to prevent their placement on Federal lists, as discussed in FSM 2670.3.

The Forest will develop species management guides for sensitive plants. These guides will function as "recovery plans", defining activity constraints in essential habitat and the need for monitoring, land allocation, and habitat manipulation.

The Forest will actively pursue status determination and long-term protection of sensitive plants.

Visual Resource

Management activities will comply with adopted Visual Quality Objectives (VQO).

Management activities should result in a final visual condition that reflects the intent of the Visual Quality Objectives and is in conformance with planned landscape character.

Insure visual variety through random mosaic patterns by varying:

a. vegetation densities
b. age-classes
c. distribution of treatments

Visual impacts will be mitigated, if possible, in accord with the following standards:

R - Immediate action for impact reduction
PR - Action within 1 year for impact reduction
M - Action within 1 year or meet regional guidelines
MM - Action within 5 years for impact reduction

Forest Supervisor's approval will be required for management activities that exceed the duration of impact standards for any particular VQO category.

Vegetative treatments should provide natural appearing mosaics, patterns and shapes that repeat natural occurrences.

Emphasize dominant ridge tops, canyon bottoms and the foreground areas of Retention and Partial Retention zones when shaping vegetative mosaics.

Simulate natural edge and provide openings with random spacing:

Visual Quality Objective	Edge Treatment
Retention and Partial Retention	Feather and vary edge density
Modification	Feather only
Maximum Modification	Edge treatment not necessary

Consider varying edge density and feathering on a case-by-case basis at the project level.

Maintain a variety of island sizes.

When practical, retain existing isloated stands of oaks, conifers, and hardwoods that are scattered throughout the chaparral vegetation.

Prescribed fire treatments should correspond to the adopted VQO.

Project level management activities will provide rehabilitation and enhancement of the visual resource, when appropriate.

Areas should be rehabilitated where the existing visual condition does not meet the adopted VQO.

Enhancement should occur where the existing visual condition may appear monotonous when there is a cost-effective opportunity to create visual variety in the landscape through planting or vegetation manipulation.

Consult the National Forest Landscape Management handbooks for specific direction regarding mitigation concepts for any management activity that will require manipulation of:

a) land and water form
b) vegetation
c) facilities and structures

Scenic corridor foregrounds and middlegrounds will be managed for the visual quality objectives of retention and/or partial retention for the following travel routes:

a) Officially Designated State Highways, which include Highway 2.

b) Eligible State Highways not officially designated, which include Highway 39 and I-210 (Pasadena to I-5)

c) First priority County proposals which include Big Pines Highway, Elizabeth Lake Road, Pine Canyon Road, and the Old Ridge Route.

Maintain Visual Quality Objective (VQO) levels compatible with Recreation Opportunity Spectrum (ROS) classes.

The fuelbreak system should strive to achieve a VQO of partial retention, unless in an area assigned modification.

Water

Water Quality and Quantity

Water yielded from National Forest lands must meet the Federal and State standards, and local water quality objectives under normal conditions. Best Management Practices (BMPs) will be implemented to meet water quality objectives and maintain and improve the quality of surface water on the Forest. (See pages 4-23 through 4-27.)

The Oil and Hazardous Substances Pollution Contingency Plan, as updated, will be used to guide reporting and action requirements for accidental spills of toxic hazardous materials on the Forest.

Watersheds providing a source of water to municipalities and communities will be identified and considered as domestic supply watersheds. Limit increases in sediment to no greater than 10% above current conditions in domestic supply watersheds and to no greater than 20% above current conditions in other watersheds.

No water diversion, withdrawals, or other unnatural routing or dispersing of surface waters shall remove quantities of water beyond that needed for maintaining beneficial instream uses by aquatic organisms. Water quality will not be reduced below that required by such aquatic organisms.

Cumulative Watershed Effects

The term watershed is defined in Probable Peak Discharge and Erosion Rates from So. California Watershed. Rowe, et. al., 1949, or any sub-watershed considered important on a case-by-case basis. Reasons for subdividing a watershed might be occurrence of:

A significant riparian area/zone
A debris basin or reservoir
A domestic watershed (public water supply)
Significant downstream values (housing, agriculture, etc.)
A logical management area.

Management activities will not reduce water quality below the legal water quality standards and objectives. Prescribed burning will not cause more than 40% of the chaparral in a watershed to be less than 5 years old at any one time. No additional land disturbance or vegetation manipulation can take place until the next 5 year period. No more than 20% of the chaparral in a watershed will be manipulated during any one year. Watershed determination will include only that area above the Forest boundary. Inclusions of private land within the Forest boundary enter into the total watershed area. Prescribed burning of these lands by others would also enter into the rule and may preempt out-burning in the same year/period. Wildfire occurrence would affect the schedule in the same way. The best available technology will be implemented to restore damaged watersheds. Project environmental assessments will evaluate the cumulative effects on the associated watersheds.

Water Rights

The Forest will provide water to users in the name of the United States of America. Management of the water resource will consider prior appropriations and downstream water needs. Water will be developed and used in accordance with Federal and State laws.

The Forest may reserve water rights for specific uses in accordance with existing law. All Forest use of water not identified in the Reservation Doctrine, shall be made available in accordance with appropriate State law. When Forest control of water cannot be obtained by the application of law, consider purchase of water rights. The Forest will maintain an updated inventory record and maps of all water uses on the Forest.

Careful attention will be given to determining present and future water requirements for management of Forest land when making environmental assessments and preparing reports on water resource development projects. Notification will be made to the State as to the water uses on the Forest.

A statement of protest will be made to the State agency responsible for recording water rights where the granting of a water right to private parties may now, or in the future, conflict with Forest water uses or needs. The Forest will secure water rights for existing and future Forest Service consumptive and nonconsumptive needs and quantify nonconsumptive uses and needs during evaluation of projects that may reduce quantities of water.

MANAGEMENT PRESCRIPTION #2 (Age-Class Diversity in Chaparral)

PRACTICE	MANAGEMENT DIRECTION	STANDARDS
IRE MANAGEMENT		
uel Management	Construct and maintain the primary fuelbreak system through prescribed fire, grazing, mechanical means and herbicides or a combination thereof, and maintain the fuelbreak support systems of helibases, cisterns, and access roads.	Maintain fuelbreaks at a minimum 300' width with no more than two tons of flammable fuel per acre.
ire Suppression		Specific fire suppression objectives have been developed in support of fire management plans considering on- and off-site values, and documented in the Appendix.
ANGE MANAGEMENT		
ange dministration	Develop and maintain Allotment Management Plans (AMP) according to fuel management priorities. Base allotments on existing fuelbreaks and grasslands. Incorporate prescribed burns and wildfire areas adjacent to fuelbreaks into the AMP. Issue Livestock Use Permits until range analysis and an AMP are completed for a given allotment, then consider Term Permits.	
	Permit livestock grazing generally on slopes less than 60%.	Annual range livestock utilization should leave approximately 900 lbs. per acre of residual dry matter in all chaparral types, and approximately 500 lbs. per acre on fuelbreaks.
ange mprovement	Prescribed burning and grazing will be used on selected areas to rejuvenate decadent chaparral and slow shrub regrowth.	Except for fuelbreaks, a given area should not be burned more than once every 10 years.

PRACTICE	MANAGEMENT DIRECTION	STANDARDS
	New areas will be provided only where livestock access is available. Construction of roads solely for the purpose of livestock access will not be permitted.	
	Develop new water sources where needed, and maintain all existing water developments.	Provide at least 10% of all developed water for wildlife.
RECREATION		
Rehabilitation of Existing Developed Sites	Return designated sites to design standards. Provide site protection and resource treatments.	Rehabilitate all existing sites, condition Class 2 or 3 to condition Class 1 in the next 10 years.
Interpretive Services	Provide public information for environmental interpretation and management needs, where required, including consideration of unstaffed information stations.	
Management of developed sites and dispersed areas	Manage developed sites and dispersed areas at standard service level. If funding is inadequate, sites may be managed to low standard. See S&Gs for a description of service levels. Sites not operated to low standard will be closed. Sites not operated for more than 1 year, or which cannot be operated cost effectively, may be closed or removed.	
	Reduce vandalism and provide public enjoyment through use of entrance stations, gates, and law enforcement.	
	Manage existing campgrounds and picnic areas to recommended ROS design capacity.	Recommended ROS capacity guidelines for campgrounds and picnic areas.

ROS CLASS	USE CAPACITY DEVELOPED PORTION
S-P Non-Motorized	4-12 PAOT/Acre
S-P Motorized	4-12 PAOT/Acre
Roaded Natural	13-25 PAOT/Acre
Rural	25-75 PAOT/Acre

MANAGEMENT PRESCRIPTION #2 (Age-Class Diversity in Chaparral)

PRACTICE	MANAGEMENT DIRECTION	STANDARDS
Target Shooting	There are no shooting areas on lands covered by this prescription.	
Dispersed Recreation ORV Use	Maintain designated ORV road and trail system.	Existing 4-WD and motorcycle trails that are in conflict with wildlife needs such as deer fawning and bird of prey nest sites, will be relocated to minimize conflicts.
	Trail tread maintained for enjoyable ORV travel.	
	Provide for resource protection along designated routes as needed.	Protect vegetation along trail corridors during prescribed burning.
		Suggested ROS Capacity Guidelines - ORV Trails.
		ROS CLASS — PAOT/MILE S-P M — 0-10 Roaded Natural — 10-20 Rural — 20+
	Provide patrols along trail routes as needed.	
	Enforce spark arrester and noise requirements.	
Driving for Pleasure	Recognize and enhance opportunities for increased public enjoyment and benefits derived from driving for pleasure on State, County and Forest road systems. Coordinate maintenance and litter pickup with State and County road departments.	
Recreation Trails	Maintain existing trails system. Allow for improvement of existing system by new construction and/or elimination of existing segments. Recommended ROS capacity for existing trails.	Maintain the Pacific Crest Trail and National Recreation Trails at a minimum of Level 3, and all others at a minimum of Level 2.
		ROS CLASS — USE CAPACITY/MILE S-P Non-Motorized — 5-10 PAOT/Mile S-P Motorized — 5-10 PAOT/Mile Roaded Natural — 10-15 PAOT/Mile Rural — 15-20 PAOT/Mile

MANAGEMENT PRESCRIPTION #2 (Age-Class Diversity in Chaparral)

PRACTICE	MANAGEMENT DIRECTION	STANDARDS
General Undeveloped (Including Rivers and Streams)	Provide litter cleanup, sanitation, public enjoyment and law enforcement contact as directed in annual work program.	ROS Class Guidelines for Rivers and Streams. ROS CLASS — USE CAPACITY FOR MILE S-P Non-Motorized 1.5-4.5/Mile S-P Motorized 4.5-15/Mile Roaded Natural 15-100/Mile Rural 100-200/Mile
Administration of Special Uses - Resorts and Org. Camps	Maintain and administer special use permits to meet requirements.	

VEGETATION MANAGEMENT

A minimum of 40% of the chaparral in age-class DIVERSITY emphasis areas will be managed to targeted age-classes by the end of the 50 year planning period.

Age-class Management	Coastal Sage and Chamise
Utilize prescribed burning as the primary tool to accomplish age-class diversity. A maximum of 60% of any chaparral vegetation can be managed for random age-classes.	Treat at least 40% of the coastal sage scrub to establish a 0-12 year age-class mosaic, and chamise chaparral in a 0-25 year age-class mosaic. The resultant pattern is a randomly distributed mosaic of age-classes throughout this vegetative type, with an age-class mix as follows: Coastal Sage 10% early seral stage 0-3 years age-class 20% intermediate seral stage 4-9 years age-class 10% late seral stage 10-12 years age-class

MANAGEMENT PRESCRIPTION #2 (Age-Class Diversity in Chaparral)

PRACTICE	MANAGEMENT DIRECTION	STANDARDS
Openings and Edges	Create openings and edges in a mosaic pattern.	Retain islands of cover at least 1 acre in size on slopes less than 60%
VISUAL	Design and implement management activities to provide a visually appealing landscape. Provide or enhance more viewing opportunities and increase vegetation diversity in selected areas.	Do not exceed the Visual Quality Objective (VQO) as shown on the adopted VQO map. Arterial and collector roads and trails are Sensitivity level 1.
	Exceptions will be considered but will require Forest Supervisor's approval. Exceptions should require a trade of like acres to be upgraded through rehabilitation or enhancement. As feasible, minimize the visual effects of management activities.	See adopted VQO map.
WATERSHED		
Watershed Protection	Maintain water quality and soil productivity to comply with applicable laws and regulations.	No more than 40% of the vegetation in any watershed, as defined by project level delineation, should be less than five years old at any one time. In any given year no more than 20% of the chaparral cover will be manipulated. Except on fuelbreaks, do not burn or otherwise bare the soil more than once in 10 years.
	Reduce watershed and ecosystem damages that are caused from detrimental cumulative impacts.	Limit mechanical treatments to less than 60% slopes.
Water Resource Improvements	Evaluate existing watershed conditions for improvement of water yield and consider: fuelbreak construction which would allow for maximum protection, and benefit water yield;	

PRACTICE	MANAGEMENT DIRECTION	STANDARDS
	water and sediment impoundments, and flow timing measures, such as check dams, reservoirs, debris basins, and retaining walls, to increase useable water quantities and reduce sediment damage;	
	age-class management which would allow for early successional stages of vegetation, without causing irreparable damage to the watershed or ecosystem;	
	fuelbreak construction which would allow for maximum protection and benefit water yield; and	
	cooperation with other agencies on water impoundments, and flow timing measures to increase useable water quantities.	
WILDLIFE		
Wildlife Habitat Improvement	Provide desirable habitat conditions to maintain populations of Management Indicator Species (MIS) and species diversity.	Management Indicator Species for this vegetative type are the following: mule deer, bighorn sheep, Chaparral Bird Assemblage, and Riparian Bird Assemblage (where appropriate).
	Minimize mechanical disturbances of soils to reduce the impact of habitat manipulation on small mammal communities.	
	Care will be used in selection and application of pesticides, with special consideration given to the impacts on wildlife, especially birds of prey (raptors).	
Water Developments	Design man-made water developments, and maintain existing sources, for ecological requirements of wildlife species.	Provide, where needed and practical, man-made water sources in the form of impoundments, ponds, potholes, freshwater marshes, horizontal wells, or other methods in suitable areas.

MANAGEMENT PRESCRIPTION #2 (Age-Class Diversity in Chaparral)

PRACTICE	MANAGEMENT DIRECTION	STANDARDS
WOOD PRODUCTS	Utilize Forest products that become available as a result of stand treatments. Dead material in excess of wildlife needs may be utilized.	

MANAGEMENT PRESCRIPTION #2 (Age-Class Diversity in Chaparral)

PRACTICE	MANAGEMENT DIRECTION	STANDARDS
		Chamise Chaparral 10% early seral stage 0-5 years age-class 20% intermediate seral stage 6-15 years age-class 10% late seral stage 16-25 years age-class. Mixed & Semi-desert Chaparral Treat at least 40% of this cove type to establish a 0-45 year age class mosaic. The resultant con dition is a randomly distribute mosaic pattern of age-classe throughout this vegetative type wit at least: 10% early seral stage 0-10 yea age-class 20% intermediate seral stage 11-3 year age-class 10% late seral stage 35-45 years age-class.
Planting Vegetation	Plant native trees and shrubs to maintain wildlife species diversity and emphasize vertical structure. Consider planting shaded fuelbreaks to enhance wildlife and aesthetics.	Reestablish oaks or conifers on suitable sites that may have once supported tree cover.
Protect Valuable Plant Species	Avoid burning or otherwise damaging intermingled hardwood or conifer stands, and reseed or reforest as necessary. To the extent feasible, retain existing isolated stands of native conifers, oaks, and other hardwoods scattered within the chaparral vegetation types.	

APPENDIX C - FINAL MINING AND RECLAMATION PLAN

The full text of Appendix C has been bound separately as a companion volume to the Final Environmental Impact Statement. The table of contents for the Appendix C is included here.

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