

FINAL ENVIRONMENTAL IMPACT REPORT

Amargosa Creek Improvement Project

SCH No. 90010820

AUGUST 1993

Prepared for:

The City of Palmdale

38306 9th Street East • Palmdale, California 93550

Prepared by:



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DRAFT FINAL

ENVIRONMENTAL IMPACT REPORT
for the
AMARGOSA CREEK IMPROVEMENT PROJECT

SCH #90010820

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INTRODUCTION

In accordance with Sections 15088, 15089 and 15132 of the California Environmental Quality Act, the City of Palmdale has prepared the Final Environmental Impact Report (EIR) for the Amargosa Creek Improvement Project.

This Comments and Responses section combined with the Draft EIR circulated from May 5, 1993 through June 18, 1993 (90 days), make up the Final EIR.

The following is an excerpt from the CEQA Guidelines, Section 15132:

"The Final EIR shall consist of:

- (a) The Draft EIR or a revision of the draft.
- (b) Comments and recommendations received on the Draft EIR either verbatim or in summary.
- (c) A list of persons, organizations and public agencies commenting on the Draft EIR.
- (d) The responses of the Lead Agency to significant environmental points raised in the review and consultation process.
- (e) Any other information added by the Lead Agency."

This Comments and Responses section includes all of the above required components and shall be included with the revised Draft EIR text to make up the Final EIR. Each comment letter is followed by the corresponding responses. A response is provided for each comment raising significant environmental issues, as received by the City during the 90-day Draft EIR review period. Revisions to the Draft EIR text are indicated by shading for additions and ~~struck-outs~~ for deletions.

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1.0 Executive Summary

1.0 EXECUTIVE SUMMARY

1.1 PROJECT SUMMARY

The Amargosa Creek Improvement Project is located within the southern portion of the Antelope Valley within the City of Palmdale and west of the City limits within unincorporated Los Angeles County. Road improvements will extend from 20th Street West, southwest through Leona Valley along Amargosa Creek to approximately 1,000 feet west of Godde Hill Road (drainage and utilities will extend to 25th Street West). The downstream portion of the Amargosa Creek Improvement Project extends from 25th Street West northeasterly through the City of Palmdale along Amargosa Creek, ending approximately 3,950 feet north of the Antelope Valley Freeway.

The Amargosa Creek Improvement Project is necessary to reduce the frequency and severity of flooding in developing areas associated with the Amargosa Creek and was originally initiated primarily as a flood control infrastructure project. Project construction is tentatively planned to commence in early 1994. The project is tentatively planned for completion by mid 1995.

The three main components of the Amargosa Creek Improvement Project are as follows:

- widening of Elizabeth Lake Road, and realignment of the 25th Street West/Elizabeth Lake Road intersection and Godde Hill Road/Elizabeth Lake Road intersection;
- flood control improvements along Amargosa Creek; and
- provision of utilities, primarily within Elizabeth Lake Road, except between 25th Street West and the Antelope Valley Freeway, where utilities will be located adjacent to channel improvements.

The project also includes temporary construction improvements and activities. Project implementation requires right-of-way acquisition for road and flood control improvements, as well as easements for certain drainage and utility improvements and for slope maintenance.

Construction Related Elements

The project will require "staging" areas to store vehicles, equipment and construction material during the construction period. Three Borrow Areas within proposed future

development areas of Ritter Ranch have been proposed to obtain necessary fill material for the project. Detours will occur within existing and/or future limits of grading. In addition, a new temporary road ~~will~~ ~~may~~ need to be construction south of existing Elizabeth Lake Road, between 20th Street West and 30th Street West. Although it is anticipated that all permanent "dry" utilities (electricity, telephone, gas and cable) will be underground, Southern California Edison and Pacific Bell facilities will require temporary relocation to overhead poles, generally south of Elizabeth Lake Road (~~SCE Major transmission lines would remain overhead~~).

Road Improvements

The project includes the widening and realignment of Elizabeth Lake Road from 20th Street West to approximately 1,000 feet west of Godde Hill Road (providing between 2 and 6 lanes of vehicle travel), improvements to the 25th Street West/Elizabeth Lake Road intersection and the Godde Hill/Elizabeth Lake Road intersection, and installing traffic signals at 6 locations. Roads will include full improvements to City and County standards, including a raised median, landscaping, sidewalks and street lights. Improvements to several existing and proposed access roads are also included. The project includes traffic signal systems, appurtenant (accessory) facilities and intersection (lane) improvements at these locations:

- Elizabeth Lake Road/20th Street West
- Elizabeth Lake Road/25th Street West
- Elizabeth Lake Road/Bridge Road
- Elizabeth Lake Road/Ranch Center Drive
- Elizabeth Lake Road/Santa Fe Hills Drive
- Elizabeth Lake Road/Godde Hill Road (Ritter Ranch Road)

Flood Control Facilities

Stormdrain facilities include the land acquisition and construction of three permanent, flood control basins (providing a total of approximately 2,138 acre-feet of storage volume on 146 acres), inlets, outlets, stormwater channels (natural and improved) and fencing, access and maintenance roads where required. (Refer to Exhibits 3.0-3A through 3.0-3E. PROJECT OVERVIEW). Depending on phasing of this project versus the City Ranch project, the following temporary flood control basins may be constructed until the ultimate project improvements are completed: Temporary Basin "mm" and Temporary Basin "oo". Flood control basins will be constructed, owned and maintained by the City of Palmdale.

Utilities

Utilities to be installed include sanitary sewer trunk lines; water mains, including valves, cross ties and appurtenances; a water pump station; non-domestic water facilities (including a turnout from the California Aqueduct Leona Siphon), a pumping station, and pipeline; and underground dry utilities. The project also includes provisions for a multi-use equestrian and pedestrian trail along Elizabeth Lake Road connecting with existing and future Leona Valley Trails.

1.2 ENVIRONMENTAL SUMMARY

The following section provides a summary of impacts and mitigation measures and a listing of unavoidable significant impacts. Please refer to the appropriate EIR section for additional detail (some mitigation measures have been summarized).

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4.1 EARTH RESOURCES

Topography

Construction activities will result in significant landform impacts. Roadway embankment construction will result in an unavoidable significant land form impact.

4.1.1a

In addition to the following mitigation measures, compliance with the recommendations from the following sections of the Buena Engineers, Inc. Geotechnical Report, dated ~~March 29~~ May 3, 1991, is required to the satisfaction of the City Engineer (~~this report is contained in Appendix B~~): General Site Preparation; Slope Stability; Remedial Excavations; Excavations; Utility Trenches; and Preliminary Paving Sections.

Natural surface water drainage will be altered and significant grading will be necessary with construction of the proposed roadway and basins. The roadway improvement will require significant fills along the length of the project, particularly in the western portion and through narrow sketches of the canyon. Road embankment construction is an unavoidable significant landform impact.

4.1.1b

Modifications to the existing surface water flow patterns within the affected portions of Amargosa Creek and its tributaries resulting from construction activities within the project area shall be addressed and evaluated by the project design engineer and reviewed and approved by the City Engineer and other agencies having permit authority prior to issuance of grading permits.

Due to the proximity of the project to the San Andreas Fault zone, a major earthquake occurring nearby on the fault can be expected to produce extreme ground shaking, fault/ground rupture and lurching within the vicinity of the project area which may result in significant damage to the proposed roadway and drainage improvements. The potential for rock falls and landslides is considered an unavoidable significant impact.

Geology

Proposed improvements along Elizabeth Lake Road and Amargosa Creek will be impacted by the soils and bedrock along the project due to their highly variable characteristics. However, with implementation of recommended mitigation measures, impacts will be reduced to less than significant levels.

4.1.2a

If portions of the various Portal/Pelona schistose rocks are to be used for embankment fill, a City-approved geologist shall be present during rough grading in order to evaluate the expansion potential of "clay-rich" areas or zones within this

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material. Recommendations from a City-approved geologist shall be incorporated into final grading plans, to the satisfaction of the City Engineer.

4.1.2b

In order to evaluate the nature and extent of the aerial photolineaments which traverse the central portion of this project area, exploratory trenches shall be excavated across these features prior to final grading. Recommendation from a City-approved geologist shall be incorporated into final grading plans, to the satisfaction of the City Engineer.

4.1.2c

All grading and landform modification shall be carried out under guidelines set forth in Chapter 70 of the Uniform Building Code (as a minimum), state-of-the-practice design/construction standards, and or guidelines established by other responsible regulatory agencies as appropriate.

4.1.2d

Remedial grading shall be conducted along the proposed road alignment and flood control basin embankments to mitigate the effects of collapsible surficial soils. This may include complete soil removal, or other site improvement methods requiring evaluation during comprehensive geotechnical studies.

4.1.2e

Additional laboratory testing of clayey soils, where encountered during subsequent geotechnical investigations, shall be performed and where appropriate, remediation shall be implemented to the satisfaction of the City Engineer ~~prior to~~

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~~the issuance of grading permits in conjunction with project construction.~~

Faulting and Seismicity

A major earthquake occurring nearby on the San Andreas Fault zone can be expected to produce extreme ground shaking, fault/ground rupture and lurching within the vicinity of the project area which may result in significant damage. Seismic activity may induce soil liquefaction, rock falls and landslides. The potential for rock falls and landslides is considered an unavoidable significant impact.

4.1.3a

To mitigate large settlement or liquefaction potential beneath portions of the embankment underlain by loose soils, densification of soil materials in these areas shall be required during grading, as determined by the project's geologic and geotechnical consultants to the satisfaction of the City Engineer.

4.1.3b

The segment of the roadway from 40th Street West to Basin "E" shall include appropriate signage indicating rockfall hazards.

10-6 AIR RESOURCES

Short-term Construction Impacts

Short-term impacts on air quality would occur during the grading and construction activities required to implement the proposed project. These temporary impacts will include:

- Particulate (fugitive dust) emissions from grading and clearing activities onsite;
- Air pollutant emissions at the power plant serving the site, while temporary power lines are needed to operate construction equipment and provide lighting;
- Exhaust emissions from the construction equipment used onsite as well as the vehicles used to transport materials to and from the site; and

In order to reduce fugitive dust emissions and air pollutant emissions, the following measures shall be implemented during project grading and/or construction to the satisfaction of the City of Palmdale.

- The project shall comply with City, State, County, and UBC dust control regulations, so as to prevent the soil from being eroded by wind, creating dust, or blowing onto a public road or roads or other public or private property.
- Adequate watering techniques shall be employed to partially mitigate the impact of construction-generated dust particulates (at least twice daily). Portions of the

Implementation of the proposed project is anticipated to significantly increase regional air quality impacts due to additional vehicle trips accommodated by road widening. Significant local climate impacts may result from substantial additional growth accommodated by the project.

As the SEDAB is designated non-attainment for PM10 and significance thresholds are exceeded, the proposed project, in combination with other projects, would result in a significant unavoidable individual and cumulative air quality impact to PM10 levels in the Basin both during and following construction. Under cumulative conditions, the project and build-out traffic would result

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in an unavoidable significant impact to regional nitrogen oxide levels.

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project site that are undergoing earth moving operations shall be watered such that a crust will be formed on the ground surface and then watered again at the end of the day.

• SCAQMD Rule 403, as amended, shall be adhered to, ensuring the clean up on the construction-related dirt on approach routes to the site, and the application of water and/or chemical dust retardants that solidify loose soils shall be implemented for construction vehicle access, as directed by the City Engineer.

• Any vegetative ground cover to be utilized onsite shall be planted as soon as possible to reduce the amount of open space subject to wind erosion. Irrigation shall be installed as soon as possible to maintain the ground cover and minimize blowsand.

• Construction access roads shall be paved as soon as possible in order to reduce PM10 emissions.

• Speeds on unpaved roads shall be reduced to 15 miles per hour or less.

• Grading activity shall be suspended when local sustained winds exceed 25 miles per hour and during first and second stage smog alerts.

• All trucks hauling dirt, soil or other loose dirt material shall be covered and shall maintain a minimum of two feet of freeboard.

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• Exhaust emissions from the motor vehicles of the construction crew.

With the exception of PM10 emissions, short-term construction impacts would be mitigated to a less than significant level. As the Basin is non-attainment for PM10 and the SCAQMD PM10 threshold would be exceeded, the project would result in a short-term, unavoidable significant impact to local and regional PM10 levels.

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- Heavy construction equipment shall use low sulfur fuel (0.05% by weight).
- Construction activities shall be phased and scheduled to avoid high ozone days.
- Construction equipment shall be fitted with the most modern emission control devices and be kept in proper tune. Motors out of proper tune can result in emissions that vastly exceed recommended standards.

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Project Operation

Traffic from buildout of area land use in 2010 would be accommodated by the proposed project, thus resulting in long-term impacts to air quality. With the exception of PM10 emissions, this impact would be mitigated to a less than significant level through implementation of recommended mitigation measures. As the Basin is non-attainment for PM10 and significance thresholds would be exceeded, the traffic accommodated by the project would result in an unavoidable significant long-term impact to local and regional PM10 levels.

4.2.2 To limit emissions from project-related vehicle trips, the following measures shall be implemented to the satisfaction of the City of Palmdale Planning Department:

- The project shall implement applicable Tier I Control Measures contained in the Final 1991 AQMP, ~~as may be subsequently amended that are in effect prior to finalizing project design plans (that affect project design) and are in effect prior to construction (that affect construction-related emissions)~~, in order to reduce project-related motor vehicle emissions. General measures which shall be applied for the project include:
 - a. Encourage the use of alternative transportation modes by promoting public transit usage and providing secure bicycle facilities.
 - b. Provide mass transit accommodations as part of adjacent development, such as bus

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turnout lanes and bus shelters if determined necessary by the local transit authority. As final plans are developed, these features should be considered.

4.3 WATER RESOURCES

Short-term Construction Impacts

The project would result in increased sedimentation due to increased erosion where soils are exposed. Implementation of recommended mitigation measures will reduce this impact to less than significant levels.

Implementation of the proposed project will significantly alter the existing drainage patterns on the project site. Significant flood hazards will remain for several properties currently subject to flood hazards, including Lazy T Ranch. Significant cumulative water quality impacts would occur, although project design and mitigation measures will substantially reduce this impact.

Refer to Mitigation Measure No. 4.3.3.

Drainage/Flood Control Impacts

1.0-9

Potential flooding of the Lazy T Ranch and other properties is an existing hazard which will remain following implementation of the proposed project. However, the proposed project will substantially reduce this flood hazard relative to existing conditions; therefore, the proposed project will not have a significant adverse impact upon flood hazards.

4.3.2

None required. Construction of the proposed project will serve as mitigation for flood hazards related to the Lazy T Ranch and other properties in the watershed.

Project improvements will significantly impact existing drainages.

4.3.3a

Natural slope banks and/or natural materials shall be utilized to the extent feasible in order to minimize channel modification. (It should be noted that upstream detention and reduced flood projections have allowed far greater use of natural channel features.)

4.3.3b

Facilities shall be designed and constructed in accordance with the City of Palmdale Drainage Master Plan and LACFCD

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Hydrology Manual to the satisfaction of the City Engineer.

4.3.3c Flood control basin facilities shall incorporate adequate peak attenuation and storage features and safety provisions (fencing, signage), to the satisfaction of the City Engineer.

4.3.3d The City shall install stakes in Basin "B" to annually monitor deposition, and shall periodically inspect streambed areas downstream of flood control basins for excessive erosion. In the event of excessive deposition or erosion, the City Engineer shall implement appropriate available corrective measures in the interest of public safety, and with respect to limited maintenance activity permitted in the wetland mitigation portion of Basin "B", as stipulated in the project's U.S. ACOE 404 Permit.

4.3.3e The Water Quality Control Plan shall also include measures to minimize pollutant loads in Amargosa Creek, including:

- a. Periodic cleaning of paved areas (street sweeping) to remove sediments with absorbed pollutants shall be required to be implemented by the City.
- b. Controlled use of pesticides and fertilizers within common areas shall be enforced through provisions in the Landscape Plan, including frequency and type of fertilizers/pesticides to be used,

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and application by qualified persons.

Refer to Mitigation Measure Nos. 4.3.d and 4.3.5.

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Hydraulic Impacts

Erosion and deposition of streambed material is a potentially significant impact that will be rendered less than significant with implementation of mitigation measures.

Water Quality Impacts

The proposed project will not result in increased pollutant load within Amargosa Creek relative to existing conditions; however, development of surrounding properties would likely result in such an increase, creating significant cumulative water quality impacts. Implementation of the specified mitigation measures will reduce the amount of pollutants entering Amargosa Creek to less than significant levels.

4.3.5

The City shall prepare a Water Quality Control Plan prior to issuing grading permits. The plan shall indicate specific means of reducing urban pollutants and sedimentation including but not limited to the following:

- a. The project shall provide appropriate sediment traps in open channels and energy dissipators in stormwater conduits and storm drain outlets.
- b. Surplus or waste material from construction shall not be placed in drainage ways or within the 100-year floodplain of surface waters.
- c. All loose piles of soil, silt, clay, sand, debris, or other earthen materials shall be protected in a reasonable manner to eliminate any discharge to waters of the State.
- d. Dewatering shall be done in a manner so as to eliminate the

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discharge of earthen material from the site.

e. All disturbed areas shall be stabilized by appropriate soil stabilization measures by October 15th of each year. Avoid grading during the October-March rainy period.

f. All work performed between October 15th and May 1st of each year shall be conducted in such a manner that the project can be winterized within 48 hours.

g. All nonconstruction areas shall be restricted by fencing, signage or other means to prevent unnecessary disturbance.

h. During construction, temporary gravel or sandbag dikes shall be used as necessary to prevent discharge of earthen materials from the site during periods of precipitation or runoff.

i. Stabilizing agents such as straw, wood chips and/or hydroseeding shall be used during the interim period after grading in order to strengthen slopes while ground cover takes hold.

j. Impervious areas shall be constructed with infiltration trenches along the downhill edges

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to dispose of all drainage emanating from them.

- k. Revegetated areas shall be continually maintained in order to assure adequate growth and root development.
- l. Physical erosion control facilities shall be placed on a routine maintenance and inspection program to provide continued erosion control integrity.
- m. Where construction activities involve the crossing and/or alteration of a stream channel, such activities should be timed to occur during the period in which streamflow is expected to be lowest for the year, and only after obtaining a 404 Permit (Army Corps of Engineers) and a 1601/1603 Agreement (California Department of Fish and Game), as necessary.
- n. Routine cleaning of manholes and catch basins shall be performed to remove sediment and debris.

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4.4 BIOLOGICAL RESOURCES

Riparian Vegetation

The loss of natural habitat, including 57 acres of ACOE jurisdictional wetlands, is a significant project impact. Implementation of recommended mitigation measures will reduce impacts; however, due to the uncertain

4.4.1a Prior to issuance of Grading Permits, the City of Palmdale shall comply with all Federal and State regulations governing the development of wetland habitats including the U.S. Army Corps of

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success of wetland replacement and the time lag between disturbance and replacement, the impact is considered significant even with proposed mitigation.

Engineers 404 Permit and the California Department of Fish and Game 1601 Agreement processes. Compliance shall include the drafting of an Onsite Wetland Replacement and Enhancement Program to the satisfaction of the U.S. ACOE and California DFG.

4.4.1b The Wetland Mitigation and Monitoring Plan shall, at the discretion of the U.S. ACOE and California DFG, include the following mitigation measures:

- a. The creation of in-kind (or superior) replacement wetland habitat within the Flood Control Basin "B" area (and on other downstream areas if necessary).
- b. Construction of gabions within portions of the unimproved natural channel to create small wetland areas.
- c. Salvage and onsite transplantation of plant materials located within the impacted wetland areas. Special attention should be given to large cottonwood trees throughout the drainage and mountain meadow sod in Flood Control Basin "B" (sod should be salvaged in blocks where possible, as native stock for wetland Mitigation Zone "A").
- d. Removal of tamarisk trees and implementation of at least one follow-up infestation removal for recent growth.

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e. Relocation of specimen trees along the roadway.

f. The replanting of disturbed portions of the channel with additional native plant species which will benefit wildlife. Species considered should include desert elderberry (Sambucus mexicana), desert olive (Forestiera neomexicana), false indigo (Amorpha fruticosa), California rose (Rosa californica) and western blackberry (Rubus ursinus).

g. The dedication of open space conservation easements covering the areas containing natural and replacement wetland habitat to a public agency to ensure the long-term maintenance of the wetland habitat. Although Flood Control Basin "B" has been designed to allow for mature wetland growth, easements granted to flood control districts are not adequate due to conflicting land use mandates (it is common practice to "clear" vegetation in public flood control facilities).

4.4.1c All graded portions of the project site including drainage basins, the Amargosa Creek channel, and grading associated with the Elizabeth Lake Road realignment shall be revegetated with native vegetation representative of the vegetation types disrupted by the grading operations. Cuttings, seeds, or plants grown from these shall be used to

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revegetate the site, where feasible, in order to preserve the local gene pool. Where terrain or soil may prohibit sufficient coverage of native species, vegetation as approved by the City Engineer may be used.

4.4.1d Revegetation efforts shall include the removal and stockpiling of topsoil from graded areas at the time of grading and later use of said topsoil during revegetation within Basin "B" and along revegetated channel and road slope areas (to avoid loss of valuable surface material).

4.4.2a Mitigation for the cumulative loss of raptor foraging habitat is beyond the scope of this project and EIR.

4.4.2b The City shall post appropriate signs on the Equestrian Trail indicating that trail users should remain on the trail, to minimize disruption of adjacent vegetation.

4.4.2c The City shall minimize disruption within slope easement and natural channel areas. To the extent possible, slope maintenance roads shall not be provided where access is available from Elizabeth Lake Road or adjacent roadways.

4.4.3 A Joshua Tree Preservation and Transportation Plan shall be approved by the City of Palmdale Planning Department prior to grading permit issuance.

Implementation of the proposed project will have significant short-term impacts upon the wetland habitat values of the Amargosa Creek drainage. It may be several years before mitigation for the loss of existing wetland can be considered successfully completed. During the interim period, the impact upon resident and migratory wildlife dependent upon these habitats will be significant. Once proposed wetland replacement and enhancement mitigation has been successfully completed, this impact will no longer be significant. The loss of raptor forage habitat is considered a cumulatively significant impact due to the regional nature of the problem. Loss of Joshua tree/Juniper woodland is significant, but can be mitigated to less than significant levels by providing for replacement and/or relocation in accordance with the City's Native Vegetation Ordinance.

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Non-Riparian Vegetation

The loss of non-riparian vegetation in conjunction with anticipated losses due to surrounding projects will result in significant cumulative impacts on raptors.

Loss of Joshua tree/Juniper woodland is significant, but can be mitigated to less than significant levels by providing for replacement and/or relocation in accordance with the City's Native Desert Vegetation Ordinance.

MITIGATION MEASURES

IMPACTS

Impacts of Channelization

Channelization will result in loss of Joshua tree woodland although this will not be significant with required mitigation.

4.4.4 Upon implementation of the project, any suitable Joshua trees that are removed shall be transplanted either on- or offsite in accordance with the City's Native Desert Vegetation Ordinance and as determined in the Joshua Tree Preservation and Transplantation Plan.

4.5 NOISE

Short-term Construction Impacts

Development of the proposed project would result in short-term construction noise impacts that would be reduced to less than significant levels with implementation of the proposed mitigation measure.

4.5.1 All construction and general maintenance activities, except in an emergency, shall be limited by the City of Palmdale Municipal Code Section 828.030 to the hours of 6:30 a.m. to 8 p.m. Monday through Saturday. The operation of any machine mechanism, device or contrivance during construction shall comply with noise limits in said municipal code section.

Noise Environment

Implementation of the proposed improvements would result in significant long-term noise impacts within the Leona Valley due to their growth-accommodating nature. These impacts will be reduced to less than significant levels with implementation of the proposed mitigation measure.

4.5.2a Future residential areas along Elizabeth Lake Road will require noise attenuation barriers similar to those presently located adjacent to arterials throughout the City of Palmdale (these barriers will be constructed by developers of future projects as a part of their development). Barriers may consist of berms, walls, increased setbacks, or any combination of techniques which sufficiently reduce noise levels. Any walls should be set back from all primary and secondary roadways and the area between the right-of-way and wall should be landscaped with shrubs and trees. These barriers will serve as buffers between noise sources and residences along these

Project implementation will accommodate significant cumulative traffic and associated noise increases in the project vicinity. The home adjacent to the knoll, west of Basin "E", will experience exterior noise levels exceeding the 65 CNEL.

MITIGATION MEASURES

roadways, consequently reducing noise to less than significant levels. Should noise levels exceed interior or exterior standards in the future due to cumulative traffic levels, future developers of these residential areas may be required to provide additional noise reduction measures.

4.5.2b Following completion of final design plans, the City shall prepare a noise assessment for any existing residential unit anticipated to be exposed to 65 CNEL or greater exterior noise levels (within the limits of project road improvements), providing noise mitigation to achieve acceptable interior noise levels.

IMPACTS

4.6 AESTHETICS/LIGHT AND GLARE

1.0 Short-term Construction Impacts

Construction of Amargosa Creek drainage facilities and Elizabeth Lake Road will produce temporary impacts to area aesthetics as a result of project grading, dust generation created by construction activities, increased truck traffic and traffic congestion due to detours. These impacts will be temporary, and are anticipated to be mitigated to less than significant levels with implementation of recommended mitigation measures during construction.

4.6.1 Following initial grading for the flood control basins and grading of the borrow areas within the project area, areas planned for future development shall receive particular attention for revegetation and/or other and erosion control measures (graded areas should not lie exposed following completion of the improvement project). This will reduce the amount of time that these graded and borrow areas lie exposed.

Implementation of the proposed Amargosa Creek Improvement Project will result in significant roadway elevation increases and associated viewshed impacts. Grading will result in the permanent loss of natural vegetation, including several riparian/wetland habitats, sage brush, and Joshua and juniper trees. The project will introduce significant new light sources into the rural area. These impacts will significantly alter the natural landscape and affect the aesthetic character of this rural area, even following implementation of available mitigation measures. Also, growth facilitated by the project will result in a significant cumulative impact on the aesthetic character of this area.

MITIGATION MEASURES

Project Impacts

The project will result a significant permanent change in the physical nature of the canyon and valley floor due to grading and road construction, and may lead to a cumulative aesthetic impact due to facilitating future development. Roadway lighting and increased lights from motor vehicles represents a significant aesthetic impact. Although mitigation measures will be implemented to reduce these impacts, they will remain significant after mitigation as a result of an overall change in the character of Leona Valley.

4.6.2a The City shall prepare a detailed Landscape Plan which shall, at minimum, address landscaping of road medians and road slopes; use replacement and retention of native vegetation within existing natural channel areas and flood control basins; and special screening techniques for aesthetically sensitive uses (including the pumping station and non-domestic water storage reservoir). Landscaping shall be compatible with native vegetation and landscape plans for adjacent developments, to the extent practical.

4.6.2b Any lights used to illuminate the road or utilities shall be designed and located so that direct lighting is confined to the necessary area. In addition to directional lighting, lighting should not be of greater intensity (wattage) than otherwise necessary for public safety.

4.6.2c To the extent feasible, removal of existing native trees and vegetation shall be minimized during project construction and grading, particularly within existing natural channels (this can be accomplished by staking sensitive habitat at the limits of grading to avoid incidental disruption).

4.6.2d The project grading plan shall clearly indicate permit limits and areas to remain. Road slope and channel bank protection ("rip rap") shall be composed of natural materials where possible and with interspersed vegetation to maintain the existing aesthetic qualities.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

MITIGATION MEASURES

IMPACTS

4.7 LAND USE

Short-term Construction Impacts

Short-term construction impacts will be significant, although mitigation measures will substantially reduce the impact.

4.7.1 Mitigation for short-term construction impacts are provided in Sections 4.2, AIR QUALITY, 4.5, NOISE, and 4.6, AESTHETICS/LIGHT AND GLARE.

Temporary construction impacts due to the magnitude of grading operations may remain significant with implementation of available mitigation measures. Land use impacts to Lazy-T Ranch and the existing homes north of Elizabeth Lake Road between Planning Area 3 and Planning Area 2 are considered significant after implementation of proposed mitigation measures. The project will result in significant land use impacts to the Amargosa Creek area due to direct physical impacts, as well as significant secondary impacts from growth facilitated by the project.

Grading impacts associated with the Borrow Areas are significant, although these impacts have been addressed in the certified Ritter Ranch Specific Plan EIR.

4.7.2 Grading in Borrow Areas shall be subject to approval of a Grading Plan by the City Planning Department, and shall only occur within areas designated for development within the Ritter Ranch Specific Plan or in areas otherwise determined appropriate for Borrow Area grading by the Planning Department. Any Borrow Area grading in areas designated "Open Space" in the Ritter Ranch Specific Plan shall not be permitted.

1.0-20

Project Impacts

Impacts resulting from right-of-way acquisition are significant, and can be substantially reduced but not eliminated by the recommended mitigation measures.

4.7.3 The City shall provide appropriate compensation to the affected landowners with respect to the following: 1) Right-of-Way Acquisition - City shall compensate property owner for all land on a per unit basis based on fair market value; 2) loss of use or structures shall be compensated for based on a fiscal impact assessment or in lieu compensation subject to agreement by the City and landowner (such as relocation or replacement of affected structures, onsite improvements or equivalent amenities).

Impacts to access roads and driveways off of Elizabeth Lake Road are not considered significant with implementation of the recommended mitigation measures.

4.7.4 Improved access to all parcels will be provided, to the satisfaction of the City Engineer.

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Project development impacts which result in conflicts with key provisions of the proposed Leona Valley Community District Standards are unavoidable significant impacts.

4.7.5 To the extent that public safety and road capacity would not be substantially affected, the City shall consider implementing the following design features for Elizabeth Lake Road, including:

- median landscaping that, when mature, will not exceed three (3) feet in height (to avoid viewshed impacts).
- consideration of native local vegetation for median and slope landscaping.
- minimum lighting while maintaining public safety.
- consideration for undergrounding of all utilities.

Project implementation will alter the existing natural character of the area, which will remain significant following implementation of the recommended mitigation measures.

4.7.6 Refer to Mitigation Measure No. 4.7.5.

4.8 RISK OF UPSET

In the event of a severe earthquake and/or flood, significant impacts associated with sewer line rupture and flood control basin failure could potentially occur. However, the proposed mitigation measures will reduce the risk of sewage release and basin failure to the lowest levels possible.

4.8.1a Pipelines shall be buried below the scour line within streambed limits.

4.8.1b Pipelines shall be encased in concrete within streambed limits.

4.8.1c Isolation valves for the pipelines shall be installed on each side of stream crossing or top and bottom of steep slopes.

4.8.1d The type of pipe and joint best suited for the construction situation shall be selected during design, to the satisfaction of the City Engineer.

Impacts associated with seismic risks will be reduced to the lowest extent possible through adherence to the most current design requirements and implementation of a monitoring program. However, in the event of a major earthquake in the immediate vicinity, or major flood, potential impacts associated with sewer line or flood control basin failure are considered significant.

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- 4.8.1e Pipeline plans and specifications shall be inspected by a corrosion engineer.
- 4.8.1f Back-up (redundant) systems and monitoring devices (telemetry and alarm system) shall be installed for utilities (such as a standby energy source, standby pump(s), provisions for operational flexibility and operational design to minimize duration of system failure(s)).
- 4.8.1g Installation of water lines will adhere to health regulations regarding placement of water pipelines in proximity to wastewater conveyance pipelines.
- 4.8.1h Construction of the flood control basins will adhere to required design standards and monitoring requirements as established by the City Engineer and/or Division of Safety of Dams.
- 4.8.1i Utilities will be regularly inspected to assure that they are functioning properly.
- 4.8.1j An emergency spill response plan will be required prior to completion of final design plans, to include the following: provisions for spilled sewage retention, spill response measures, cleanup and disinfection measures, and training and funding for implementation of the spill plan.

4.9 TRAFFIC AND CIRCULATION

Project construction will cause significant disruption to traffic flow in the area although this can be mitigated by the required traffic control plan.

Implementation of the proposed project would accommodate a significant increase in daily traffic in the project vicinity; however, the nature of the project is to accommodate growth in the area by providing additional capacity on Elizabeth Lake Road and necessary flood control protection. Elizabeth Lake Road would operate at LOS E between

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Bridge Road and 25th Street West by the year 2010. Four lanes (an additional two) would be necessary along this roadway segment to achieve LOS C.

MITIGATION MEASURES

Future Conditions - Buildout of Proposed General Plan

Project implementation would result in significant changes to the existing circulation system, though this will improve the overall circulation system and is not considered significant with implementation of the proposed mitigation measures.

4.9.2 All project road improvements shall be provided in accordance with City design standards to the satisfaction of the City Engineer, prior to issuing grading permits.

1.0 Project development would result in increased traffic, upon build-out of the area. This would produce significant safety impacts which would be reduced to less than significant levels upon implementation of proposed mitigation measure 4.9.3.

4.9.3 Where warranted by the City Engineer, appropriate safety warnings shall be placed along Elizabeth Lake road (such as identifying pedestrian and equestrian crossings).

Future Conditions at Area Buildout

4.10 CULTURAL RESOURCES

Archaeology

The project would impact several known significant sites. Available mitigation cannot offset the loss of "in situ" significant archaeological sites.

4.10.1a Individual known sites that could be subjected to impact from work in the Project area were discussed in some detail in a preceding section. The management recommendations pertinent to the individual sites are summarized in Table 4.10-1, ARCHAEOLOGICAL SITES. Other general recommendations related to the project area are:

4.10.1b CA-LAn-767: A monitoring team should monitor all ground disturbing activity in the vicinity of CA-LAn-767. It is recommended that the

Although the recommended mitigation measures will substantially reduce impacts to known significant cultural resource sites, significant impacts are considered unavoidable due to the concentration of significant sites in the project area and anticipated unintentional damage during grading and salvage operations.

MITIGATION MEASURES

monitoring team include an archaeologist and a Native American Observer. The archaeologist must be prepared to implement full crew recovery operations if discoveries warrant. The earlier component extends into the impact area. Soil removals shall be made in a manner to allow recovery of the archaeological data. An appropriate method for the removal of the soil in this part of the deposit is contained in Appendix C, and is recommended for the use at CA-LAn-767.

4.10.1c Three areas are more critical than the balance of the study area, given the known distribution of sites and isolates. Archaeological monitoring of ground disturbing activity shall be on a full time basis while work is in progress in these areas. The three critical areas are:

- a. Immediately north of archaeological site CA-LAn-949. An area about one kilometer in length centered on the site shall be carefully monitored.
- b. From a few hundred meters east of site CA-LAn-950 westward to a few hundred meters west of site CA-LAn-955.
- c. From the vicinity of site CA-LAn-1837 eastward to where the power line crosses Elizabeth Lake Road.

4.10.1d The project archaeologist, City representatives and appropriate members of the Native American Community should meet well in advance of the recommended test excavation to insure that all methodologies and strategies related to the site are understood by all parties. Early development of a strategy for recovery, scientific study and reinterment prior to grading for CA-LAn-767 will allow the project to proceed without unnecessary delay.

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4.10.2a The study area is quite sensitive from a cultural resources standpoint. Archaeological deposits may be discovered anywhere within the project area. All ground disturbing activity related to the project shall be periodically inspected by an archaeologist. The inspecting archaeologist must be prepared to document and recover any significant cultural material that may appear as rapidly as is consistent with standard archaeological field methodology. This requirement may cause some delays in grading activity, but close coordination between the archaeologist and the contractor will keep such delays to a minimum.

4.10.2b Grading monitoring shall be on a full time basis while work is underway in the Borrow Area or the Potential Borrow Areas. These areas are primarily alluvial and cultural resources may be concealed in these areas.

4.10.2c Any ground disturbing activity within the detention basins shall be monitored on a full time basis by an archaeologist. Again, the basins are alluvial areas, and cultural resources may well be concealed.

4.10.2d If destruction of any archaeological site becomes necessary due to unavoidable impacts, the site shall be salvaged using controlled methods to allow collection of the maximum amount of data. One method of controlled excavation involves the use of a small scraper to remove the cultural deposit in very thin lifts. Following each scraper pass the surface is inspected, and artifacts pin flagged, surveyed and recovered. Surface scrapes with the material passed through fine mesh are also made after each scraper pass. This provides some control for the smaller items of cultural material. Exposed features or dense artifact concentrations are excavated using standard archaeological methods. This procedure is repeated until the entire cultural deposit is removed. Experience has shown the

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Grading activities may disturb previously unknown sites, although this can be mitigated to less than significant levels.

MITIGATION MEASURES

above method to be most viable in recovering the maximum amount of data from sites that must be destroyed. However, it is proper to implement this option only if all means of preserving the site have been explored and rejected for valid engineering or design reasons.

4.10.2e The project archaeologist must coordinate with the project archaeologists of the Ritter Ranch and City Ranch projects and/or City staff to insure that the project causes no undue impact to sites on the Ritter and City Ranches.

4.10.2f The City of Palmdale shall consider developing and adopting policies and procedures for the control of illegal collecting activities. At a minimum, police patrols should be increased in areas of active excavations. Sites that are in especially vulnerable areas should be fenced during excavations and also subject to increased police patrols, both during the excavation and for an extended period of time following the excavation. It is also suggested that sensitive sites in the area be visited by City staff on a routine basis.

Palaeontology

Project construction may damage significant paleontological resources, particularly in the Harold and Anaverde/Ritter Formations. Mitigation can reduce this impact to less than significant levels.

4.10.3a A qualified paleontologist shall be retained to prepare a monitoring plan and perform periodic inspections, as directed by the monitoring plan, of excavations and, if necessary, salvage exposed fossils. The frequency of inspections, as directed by the monitoring plan, will depend on the rate of excavation, the materials being excavated, and the abundance of fossils.

4.10.3b The paleontologist shall be allowed to divert or direct grading in the area of an exposed fossil to facilitate evaluation and, if necessary, salvage.

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4.10.3c Provisions for preparation and curation shall be made before the fossils are donated to their final repository.

4.10.3d All fossils collected should be donated to a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County.

4.10.3e The material collected during the current project shall be curated at Antelope Valley College. The balance of the collections from the site other than the material in private hands is at Antelope Valley College. Curation of the collection from the current excavation at that facility will keep all site material together.

4.10.3f Material collected during the recommended grading observation shall be described in a written report and should be curated at Antelope Valley College.

No significant project impacts are anticipated, as the project provides regional circulation and utilities. However, significant cumulative and growth-inducing impacts would affect public services and utilities as discussed in Section 5.3, **GROWTH INDUCING IMPACTS** and Section 5.4, **CUMULATIVE IMPACTS**.

None required - the following measures should be implemented by the City as part of future project review processes:

4.11.1a As required by state law, the following water conservation measures will be incorporated into future projects within this area (betterment):

- Low-flush toilets and urinals
- Low-flow showers and faucets
- Insulation of hot-water lines in water recirculating systems
- All fixtures must be California Energy Commission certified

IMPACTS

4.11 PUBLIC SERVICES AND UTILITIES

Water

Implementation of the proposed project would have significant growth inducing impacts which are discussed in Section 5.3, **CUMULATIVE IMPACTS**. Impacts to water services will be reduced to less than significant levels with implementation of the recommended mitigation measures.

MITIGATION MEASURES

- Public lavatory facilities must be equipped with self-closing valves.

4.11.1b The following water conservation measures should be implemented and constructed by developments served by the project facilities, where applicable and feasible (betterment):

Interior

- Supply line pressure: Water pressure greater than 50 pounds per square inch (psi) will be reduced to 50 psi or less by means of a pressure reducing valve.
- Drinking fountains: be equipped with self-closing valves.
- Laundry facilities: water-conserving models of washers be used.
- Ultra low-flush toilets: 1-1/2 gallons per flush toilets installed in all new construction.

Exterior

- Landscape with low water-consuming plants wherever feasible.
- Minimize use of lawn by limiting it to lawn-dependent uses, such as playing fields. When lawn is used, require warm season grasses.
- Group plants of similar water use to reduce overirrigation of low-water-using landscaping.
- Provide information to project residents and tenants regarding benefits of low-water using plants and sources of additional assistance.

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MITIGATION MEASURES

- Use mulch extensively in all landscape areas. Mulch applied on top of soil will improve the water-holding capacity of the soil by reducing evaporation and soil compaction.
- Preserve and protect existing trees and shrubs. Established plants are often adapted to low-water-using conditions and their use saves water needed to establish replacement vegetation.
- Install efficient irrigation systems which minimize runoff and evaporation and maximize the water which will reach the plant roots. Drip irrigation, soil moisture sensors and automatic irrigation systems are a few methods to consider in increasing irrigation efficiency and may be feasible for the project.
- Use pervious paving material whenever feasible to reduce surface water runoff.

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Sewer

Implementation of the proposed project would accommodate a projected significant increase in wastewater service demand, which will be reduced to less than significant levels with implementation of mitigation measure 4.11.2.

Electricity

SCE facilities may require relocation and/or conversion to underground. Impacts to SCE facilities or their customers cannot be fully assessed at this time.

4.11.2 In order to accommodate new development (facilitated by the project), Sanitation District No. 20 will implement its Connection Fee Program which will take the fees collected from all new users and finance expansions to the existing Sewerage System (including lateral connecting lines and treatment plant expansion).

4.11.3 Overhead lines shall be placed underground in accordance with the City's undergrounding ordinance (betterment).

MITIGATION MEASURES

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Construction of the project will require temporary relocation of SCE facilities during construction. Currently, electrical loads of development to be served by the project are within the parameters of the overall projected load growth SCE plans to meet in the subject area. SCE facilities in the area will be adequate with tariff schedules filed with the California Public Utilities Commission.

Short-term construction impacts are expected with project implementation. However, SCE will be able to avoid any disruption of service to existing customers.

Gas

The project includes provision of a 4-inch gas main within Elizabeth Lake Road. SCG believes they can serve the project area without a major impact on overall system capacity, service to existing customers, or the environment.

None required.

Telephone

Prior to the widening of Elizabeth Lake Road, Pacific Bell will relocate their existing facilities to a temporary location. The project will actually reduce the number of above-ground utility poles, both in the short-term and ultimate condition. Once the road widening is complete, permanent telephone facilities will be placed within the Elizabeth Lake Road telecommunications easement. This impact will not be significant as future developers will be responsible for funding phone services to the project area.

None required.

Police Service

Impacts associated with theft of construction materials and equipment would be reduced to less than significant levels with implementation of mitigation measure 4.11.6.

4.11.4 Adequate fencing and security lighting will be provided around all construction material and equipment storage areas.

MITIGATION MEASURES

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4.11.5 Adequate emergency access and circulation throughout and around the Project shall be provided to the satisfaction of the Los Angeles County Sheriff's Department.

Traffic related impacts associated with project implementation would be reduced to less than significant levels with implementation of proposed mitigation measure 4.11.7.

Fire Service

Fire emergency incidence can be expected to increase as a consequence of development facilitated by the proposed project (a growth-inducing impact). Additional equipment such as a fire engine and/or rescue vehicle may be required to accommodate this expected increased workload. Personnel required to operate this equipment may also be necessary.

None required.

Schools

Short-term impacts during project construction will affect traffic, both vehicular and pedestrian, along Elizabeth Lake Road and 25th Street West. Westside Union School District schools (K-8) are presently not capable of absorbing students from project-facilitated development. Since existing schools within the school districts are overcrowded, growth-inducing impacts from the proposed Amargosa Creek Improvement Project will have a significant impact. The developer fees under AB 2926 are expected to pay approximately 30% of the cost of school construction. Additional mitigation needs will be evaluated as part of the project review process for future residential projects.

None required.

The Ocotillo School, within the Palmdale School District, may be impacted during the widening of Elizabeth Lake Road. Potential impacts can be evaluated upon receipt of construction level drawings for Elizabeth Lake Road.

Solid Waste

The project will generate a significant amount of solid waste construction debris requiring disposal at the Palmdale Landfill. Development facilitated by the

4.11.6a. Any wood products resulting from project implementation shall be recycled by the project proponent. In addition, all other recyclable

MITIGATION MEASURES

construction debris should be recycled to the greatest extent possible.

IMPACTS

project will result in a significant cumulative increase in solid waste generation, and may generate hazardous materials that would require disposal in one of the few remaining permitted Class I landfills (no project mitigation is required).

Parks and Recreation

The City of Palmdale Department of Parks and Recreation anticipates impacts to the park and recreation facilities due to the proposed project's accommodation of residential development in the Leona Valley area (a growth inducing impact). Required fees will be implemented to mitigate impacts created by residential development as a result of the proposed project.

None required.

1.3 SUMMARY OF ALTERNATIVES

The following is a summary of the project alternatives described in Section VI, **ALTERNATIVES TO THE PROPOSED ACTION** (refer to Section VI for a complete discussion of project alternatives).

"NO PROJECT" ALTERNATIVE

If the "No Project" alternative were implemented, no physical changes would occur on the site and any environmental impacts associated with development of the Amargosa Creek Improvement Project improvements would be avoided. However, substantial growth accommodated by proposed projects dependent on Amargosa Creek Phase II improvements west of 20th Street West would be significantly restricted with this alternative. The "No Project" alternative is not consistent with the City's General Plan Circulation Element and fails to alleviate significant local and regional downstream flood hazards; therefore, this alternative was rejected by the City.

"PHASE I FLOOD CONTROL" ALTERNATIVE

The "Phase I Flood Control" alternative would keep the road and utility portion of the project, but would utilize the Amargosa Creek Improvement Project (Phase I) "Sterling Basin" instead of the proposed upstream channelization and basins. This alternative could avoid proposed grading for upstream creek channelization and Basin "B"; however, grading of the Sterling Basin would require offsite disposal of excavated material which could have significant impacts. The "Phase I Flood Control" alternative would not completely avoid the need for upstream basins and would therefore not result in significant environmental benefit, would require substantial costs for land acquisition and basin excavation, and would also result in significant grading and landform modifications; therefore, this alternative is not presently being considered by the City.

"LAZY T RANCH AREA DESIGN" ALTERNATIVE

The "Lazy T Ranch Area Design" alternative, a previously considered design for the project, involves directing Amargosa Creek to flow to the north side of Elizabeth Lake Road, away from Lazy T Ranch. By directing the flow to the north, Lazy T Ranch would be removed from any potential flood hazard. The "Lazy T Ranch Area Design" alternative is not considered the environmentally superior alternative due to significant land use impacts (from flooding and land acquisition) and erosion impacts.

"REDUCED DESIGN STANDARDS" ALTERNATIVE

The "Reduced Design Standards" alternative entails limiting Elizabeth Lake Road widening to 60 feet which would allow 4 lanes, a 10 foot bike lane with sidewalk on one side of Elizabeth Lake Road raised median, and "rolled" curbs and sidewalks. Environmental impacts associated with the "Reduced Design Standards" alternative would result in a reduction in most project impacts. However, impacts to air resources would be increased as this alternative will increase congestion and idling on Elizabeth Lake Road. The "Reduced Design Standards" alternative would partially fulfill the objectives of the proposed project, although with reduced vehicle capacity and associated increased congestion. This alternative is considered to be environmentally superior to the proposed project.

ADDITIONAL DESIGN ALTERNATIVES

Numerous design variations were considered by the applicant throughout the project design and review process. Additional design alternatives are presented in a 404 Permit Application package submitted to the U.S. Army Corps of Engineers (available for review at the City of Palmdale Planning Department). Of these design alternatives, only the "Soft-Bottomed Channel Alternative" is anticipated to avoid or substantially reduce significant impacts identified for the project.

A "Reduced Basin B Grading" alternative entails a previous Basin B grading concept, which required minimal grading for Basin B. This alternative does not provide the opportunity to utilize Basin B as a major wetlands mitigation/enhancement area. The "Extension to Bouquet Canyon Road" alternative involves the extension of proposed improvements westerly to Bouquet Canyon Road. This alternative was not pursued due to land use, grading and growth-inducing impact concerns. The "No Upstream Detention (Concrete Channel)" alternative proposes to avoid Basin B grading and any detention upstream of 25th Street West. This alternative would require channelization, widening and realignment to the majority of Amargosa Creek channel west of 25th Street West. As with the "Reduced Basin B Grading" alternative, this alternative also precludes the use of Basin B as a major wetlands mitigation/enhancement area (which is achieved only by the regrading and improved hydrology proposed by the project). The "Soft-Bottomed Channel" alternative involves using a soft or semi-soft bottomed channel instead of a concrete lined channel for the portion of the project between 25th Street West and 10th Street West. This would reduce aesthetic and groundwater impacts, although greater impacts would occur to land use, biological resources, and cultural resources.

"REALIGNMENT" ALTERNATIVE

Implementation of a "Realignment" alternative was suggested by Leona Valley residents at the November 14, 1990 Scoping Meeting. This alternative would shift road widening and infrastructure to within developments requiring it, in order to avoid widening Elizabeth Lake Road and impacting Amargosa Creek. However, this alternative would not provide improvements to Elizabeth Lake Road which the City's Draft General Plan Circulation Element describes as a "regionally significant major arterial" and would not provide critically needed flood control for the project area. Also, as development within the Assessment District (Phase II portion) is primarily served by Elizabeth Lake Road, it is a logical choice for installing major infrastructure lines to service the Assessment District. Therefore the "Realignment" alternative is not being considered by the City.

1.4 AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED

The proposed Amargosa Creek Improvements Project (Phase II portion, in combination with Phase I downstream improvements) is intended to accommodate existing planned and approved development within the Assessment District area. This area is anticipated to result in approximately 22,000 "Equivalent Dwelling Units", including 21,800 dwelling units and 85 acres of retail uses by the year 2010. This projected development is considered consistent with the General Plan land use forecasts. The development facilitated by the project would contribute to significant irreversible physical and socioeconomic changes in the Leona Valley area. As a result, substantial public opposition is anticipated (and has been expressed to City staff) for the project. Reducing the roadway and infrastructure improvements to accommodate only approved projects would significantly reduce growth-inducing impacts. However, should additional density be granted (as with current plans for Santa Fe Hills and City Thrift), it would result in significant additional costs to increase the capacity of infrastructure sized for current density limits to accommodate the additional density anticipated in the eastern Leona Valley area (between 25th Street West and 80th Street West). For this reason, public agencies typically install oversized infrastructure (funded and/or constructed by developers) and rely on the planning and project review process to control the type and density of projects served by the infrastructure.

2.0 Introduction and Purpose

2.0 INTRODUCTION AND PURPOSE

2.1 PURPOSE OF THE EIR

The purpose of this Environmental Impact Report (EIR) is to review the existing conditions, analyze the potential environmental impacts and suggest feasible mitigation measures to reduce significant adverse environmental effects of the proposed project to acceptable levels. This EIR is an informational document intended to provide environmental analysis of the project based on available information (agencies must consider this EIR in discretionary actions for the project, although issuance of approvals/permits are separate from the EIR process). The EIR also provides analysis of cumulative and growth-inducing impacts, and extensive comparative analysis of alternatives that could reduce or avoid significant impacts while attaining the basic project objectives. The proposal, referred to as the Amargosa Creek Improvement Project, consists of the Amargosa Creek improvements upstream from approximately 3,950 feet north of the Antelope Valley freeway to approximately 1,000 feet west of Godde Hill Road. This EIR is intended to address all environmental aspects of project construction which includes temporary improvements, road widening, flood control improvements and extension of utilities. For more detailed information regarding the proposed project, please refer to Section 3.0, PROJECT DESCRIPTION.

The project addressed within this EIR is defined as all actions associated with development of the proposed Project including its planning, construction, and operation. This includes, but is not limited to, direct physical effects as well as indirect effects from construction and implementation of the Amargosa Creek Improvement Project. This EIR will be used by the City of Palmdale, responsible agencies, trustee agencies and interested parties to evaluate the environmental impacts of the proposed Project. Refer to Section 3.7, AGREEMENTS, PERMITS AND APPROVALS, for a list of anticipated required project approvals.

2.2 COMPLIANCE WITH CEQA

This EIR has been prepared in conformance with CEQA (the California Environmental Quality Act). The principle CEQA Guidelines Sections governing content of this document are Sections 15120 through 15132 (content of an EIR), and Section 15161 which specifies content requirements for a Project EIR. Section 15161 requires a Project EIR to focus primarily on the changes in the environment that would result from the development of the project and to examine all phases of the project including its planning, construction, and operation.

Pursuant to state and local CEQA guidelines, the City of Palmdale prepared an Initial Study (refer to Appendix A, INITIAL STUDY/NOTICE OF PREPARATION). The City determined that the project may result in significant adverse effects and therefore requires an EIR. This determination was based on a preliminary review of available project information and an Initial Study prepared by the City of Palmdale.

2.3 SCOPE OF THE EIR

An Initial Study and a Notice of Preparation for the proposed project were distributed by the City of Palmdale on February 1, 1993. The Initial Study consists of a project description, checklist and discussion of anticipated significant environmental impacts of the project (see Appendix A).

This EIR addresses potential significant impacts identified in the Initial Study. This EIR includes relevant issues raised during the 30-day Notice of Preparation review period, which occurred from February 19, 1993 through March 19, 1993. In addition, the EIR addresses relevant environmental issues identified at the November 14, 1990 Public Scoping Meeting (during which concerned residents, primarily from Leona Valley and Green Valley, raised numerous concerns including lifestyle impacts, wildlife corridors, equestrian trails, risk of earthquake damage, traffic congestion, noise, Assessment District fees, aesthetic impacts and land use impacts). Although the project was subsequently modified, a second scoping meeting was not held due to the overall scope and impact of the project being similar to or reduced from that discussed in the previously circulated Draft EIR (see Section 3.3, BACKGROUND AND HISTORY, for further details). The Initial Study identified the following topics requiring analysis within the EIR:

- Earth Resources
- Air Resources
- Water Resources
- Biological Resources
- Noise
- Aesthetics/Light and Glare
- Land Use
- Risk of Upset
- Traffic and Circulation
- Cultural Resources
- Public Services and Utilities

2.4 USE OF THE EIR

The EIR is part of the project review process for the proposed Amargosa Creek Improvement Project. As part of project review or subsequent issuing of permits or approvals (if the project is approved), this EIR should be used in conjunction with relevant socioeconomic, fiscal, engineering and community factors. It is the intent of this EIR to enable the City of Palmdale, other responsible agencies, and interested parties to evaluate the environmental impacts of the proposed project. This EIR provides measures to mitigate potential significant impacts of the project and identifies any impacts which cannot be mitigated to a less than significant level. This EIR also provides additional CEQA-mandated discussions, including cumulative impacts, growth-inducing impacts and an analysis of alternatives to the proposed project that could feasibly attain the basic objectives of the project (refer to Section 7.0, MITIGATION MONITORING PROGRAM and Section 8.0, INVENTORY OF UNAVOIDABLE SIGNIFICANT IMPACTS).

2.5 INCORPORATION BY REFERENCE

Pertinent documents relating to this EIR have been cited, in accordance with Section 15148 of the CEQA Guidelines, to eliminate the need for inclusion of voluminous engineering and technical reports within the EIR. A considerable sum of environmental information has been prepared previously which is relevant to the current project. In such circumstances, Section 15150 of the CEQA Guidelines encourages "incorporation by reference" as a means of reducing redundancy and length of environmental reports. Of particular relevance are those previous EIRs which present information regarding descriptions of environmental settings, future onsite facilities, and development-related growth and cumulative impacts. The following documents are hereby incorporated by reference into this Draft EIR (the appropriate EIR section has included relevant data); a synopsis of the scope and content of these documents follows:

City of Palmdale General Plan and EIR, January 25, 1993.

The City of Palmdale General Plan serves as the major tool for directing growth within the City and presents a comprehensive plan to accommodate the City's growing needs. The City of Palmdale General Plan provides an analysis of existing conditions in the City, including physical, social, cultural, and environmental resources and opportunities. The plan looks at trends, issues, and concerns that affect the region, includes City goals and objectives, and provides policies to guide development and change. The City of Palmdale General Plan and EIR were used primarily to analyze issues regarding traffic and land use impacts.

The Amargosa Creek Improvement Project and Assessment District Final Program EIR, SCH No. 88080303, prepared for the City of Palmdale by Michael Brandman Associates, certified June 27, 1991. This document was prepared to analyze the impacts associated with the construction of a flood control basin and inlet facilities, the lining (channelization) of a 5.15 mile segment of the Amargosa Creek in the City of Palmdale (from 25th Street West to Avenue M), construction of 10 street crossings at arterial roadways, and the realignment of the intersection of 25th Street West and Elizabeth Lake Road. Issues discussed that are relevant to the current project and assisted in providing background information include traffic/circulation, air quality, noise, public services and utilities and socioeconomic resources. The revised project includes the southern portion of the channel improvements addressed in this EIR, at a substantially reduced channel bottom width. The document is available for review at the City of Palmdale Planning Department.

Amargosa Creek Improvement Project Phase I Sanitary Sewer Line Draft Focused EIR, SCH No. 90010793, prepared for the City of Palmdale by Robert Bein, William Frost and Associates, certified December 9, 1992. This document was prepared to analyze the impacts associated with the development of the proposed sanitary sewer line which will connect to a 21" diameter sewer line at 10th Street West. The sewer line will be constructed in the south bank of the proposed Amargosa Creek Flood Control Channel to the intersection of 25th Street West and Elizabeth Lake Road, and in Elizabeth Lake Road west of 25th Street West for approximately 500 feet (to the point of the Amargosa Inlet Structure). Issues discussed that are relevant to the current project and assisted in providing background information include aesthetics, traffic/circulation, air quality, noise, public services and utilities, land use, and growth inducing impacts. The document is available for review at the City of Palmdale Planning Department.

City Ranch North Mitigated Negative Declaration, 1989. This document was prepared to evaluate potential environmental impacts associated with the City Ranch North Project located north of Elizabeth Lake Road on the east and west side of 25th Street West. The project includes the rezoning of 215.6 acres to RDF-3U(SP) prior to the annexation of the site to the City of Palmdale. The project would allow the potential construction of 647 residential units. This document is available for review at the City of Palmdale Planning Department.

3.0 Project Description

3.0 PROJECT DESCRIPTION

3.1 PROJECT LOCATION

The approximately 11.1 lineal mile Amargosa Creek Improvement Project is located within the southern portion of the Antelope Valley within the City of Palmdale and west of the City limits within unincorporated Los Angeles County (see Exhibit 3.0-1, REGIONAL VICINITY). Improvements will extend from 25th Street West, west through the eastern portion of the Leona Valley along Amargosa Creek to approximately 1,000 feet west of Godde Hill Road (see Exhibit 3.0-2, SITE VICINITY). The downstream portion of the Amargosa Creek Improvement Project extends from 25th Street West northeasterly through the City of Palmdale along Amargosa Creek, approximately 3,950 feet north of the Antelope Valley Freeway.

3.2 ENVIRONMENTAL SETTING

The Amargosa Creek Improvement Project is located in the southwest portion of the Antelope Valley basin, within the tributary Leona Valley. Ritter Ridge (to the north) and Leona Valley are regionally significant landforms. The project is within the eastern portion of rural Leona Valley (created by the San Andreas Fault Rift Zone) which extends west of the project along Elizabeth Lake Road. The northern project segment (generally north of 25th Street West), is within the broad alluvial fan portion of Antelope Valley.

The project site is bordered by the Sierra Pelona range to the south and Ritter Ridge to the north. Located between these two ridge lines is Leona Valley and Amargosa Creek. Amargosa Creek flows in an easterly direction, adjacent to Elizabeth Lake Road. Also, the San Andreas Rift Zone runs parallel to Amargosa Creek in an east/west direction. The western project area is within the relatively broad, gently sloping portion of Leona Valley. The central project area is within the relatively steep narrow canyon formed by Amargosa Creek. Amargosa Creek transitions from a narrow canyon to the extensive, relatively flat, alluvial fans of Antelope Valley. Elevations across the eastern end of the project site is relatively level while the surface gradient slopes downward northeasterly toward the Antelope Valley Freeway.

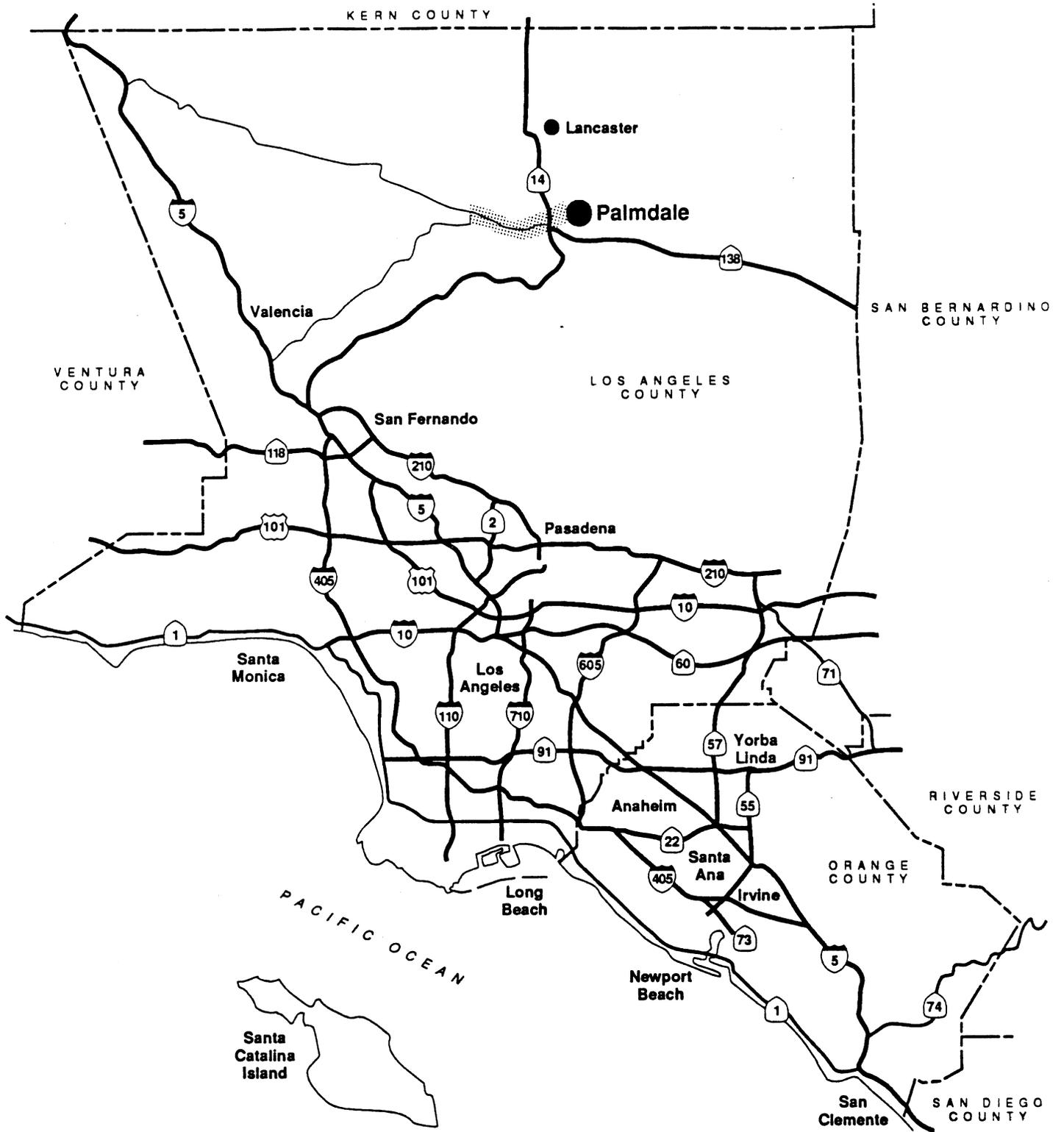
Man-made modifications to the natural topography of the area consist of localized leveling of the ground surface for single-family homes adjacent to Amargosa Creek as well as Elizabeth Lake Road. The project area includes several single-family homes, ranches and extensive open space vistas. The northernmost segment is in a developed area, with adjacent commercial and residential uses south and north of SR-14, respectively.

3.3 BACKGROUND AND HISTORY

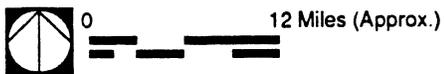
[NOTE: This Draft EIR combines the features of three previous EIRs related to Amargosa Creek, previously distinguished by "Phase I" and "Phase II" and a Focused EIR (this terminology is occasionally used to distinguish between the previous segments). The following "Previous Projects" discussion relates to the three previous separate EIRs. The projects and EIRs were combined for clarity and to address modifications in various design features (the overall scope and impact of the project is similar or reduced from the previously addressed projects).]

Previous Projects

In order to reduce the frequency and severity of flooding in developing areas associated with Amargosa Creek, the Amargosa Creek Improvement Project was originally initiated primarily as a flood control infrastructure project. The Amargosa Creek area, which extends through the project area and downstream through the cities of Palmdale and Lancaster, has a history of significant flooding. Because of the creek's potential flood hazard and the general inability of downstream flood control facilities to adequately convey the 50-year flood, land uses along the creek are presently subject to significant flood damage (several projects are pending subject to upstream Amargosa Creek improvements). Due to downstream flood control capacity limitations in Lancaster, upstream improvements in Palmdale must ensure that the 50-year Los Angeles County Capital Flood on Amargosa Creek does not exceed 6,200 cfs (cubic feet per second) at 20th Street West and 8,500 cfs at Avenue M. A Draft Environmental Impact Report (EIR) for the Amargosa Creek Improvement Project and Assessment District No. 90-1 was distributed in June, 1990 to address environmental impacts of channelizing Amargosa Creek between Avenue M and the intersection of 25th Street West and Elizabeth Lake Road (The "Phase I" portion, certified December 9, 1992). The proposed channelization project also included the construction of a regional flood control (retention) basin northeast of the intersection of Elizabeth Lake Road and 25th Street West (generally referred to as the "Sterling Basin").



 Project Area



AMARGOSA CREEK IMPROVEMENT PROJECT • EIR
Regional Vicinity

The City of Palmdale initiated the "Phase II" Amargosa Creek Improvement Project in order to avoid substantial costs of acquiring the Sterling Basin property, and in order to provide additional flood protection, road improvements and utilities for upstream existing and future development. The upstream flood control (detention) basin system is an alternative to the Sterling Basin.

In July, 1990, the City established a team to design, review and process the entire Amargosa Creek Improvement Project, as follows:

City of Palmdale Public Works Department

- Engineering Management and Design Review

City of Palmdale Planning Department

- EIR Management and Review

KWC Engineers, Inc.

- Assessment District Engineering

Sverdrup Corporation

- Project Management

BSI

- Hydrology/hydraulics review
- Flood control design (northeast of 25th Street West)

The Keith Companies (Ritter Ranch)

- Flood control design (west of 25th Street West)
- Road/utility designs (30th Street West to west of Godde Hill Road)

Psomas (City Ranch/Kaufman and Broad)

- Road improvement design (20th Street West to 30th Street West)

Brockmeier Consulting Engineers

- Water and Sewer System

Buena Engineers

- geotechnical

Utility Specialists, Inc.

- "dry" utilities

Robert Bein, William Frost & Associates (RBF)

- EIR
- 404 permit/1601 Agreement (west of 25th Street West)
- FEMA Map Revisions

Concept Plans for the original "Phase II" portion were developed in July, 1990. Based on the concept plans and available project information, the City prepared an Initial Study and Notice of Preparation for the "Phase II" project, which were distributed on August 17, 1990 (the required 30-day Notice of Preparation public review period ended September 17, 1990). A regular series of Amargosa Creek Improvement Project Design Team and Technical Team meetings have been held since mid July, 1990, to discuss a wide range of project issues (including engineering constraints, environmental issues, design alternatives and funding).

On August 22, 1990, the State Department of Water Resources, Division of Safety of Dams (DSD) issued a concept approval for the upstream flood control basin (the largest flood control basin requires DSD review and approval, due to its size and location within an active fault zone). Following DSD concept approval, Phase II preliminary engineering plans were completed on October 30, 1990 (at 1" = 100'). A public Scoping Meeting for the "Phase II" EIR was held by the City on November 14, 1990, to receive public input on environmental issues related to the portion of the project located west of 25th Street West.

Three EIRs addressing differing components or portions of the Amargosa Creek Improvement Project have been prepared (see Section 2.5, INCORPORATION BY REFERENCE). These include:

Amargosa Creek Improvement Project and Assessment District No. 90-1 Final EIR ("Phase I" portion north of 25th Street West, certified June 27, 1991).

Sanitary Sewer Line Portion Focused EIR (10th Street to 20th Street West, certified December 9, 1992).

Amargosa Creek Improvement Project (Phase II) Draft EIR (20th Street West to Godde Hill Road; circulated for public review, July, 1991).

The Environmental Impact Report for the Amargosa Creek Improvement Project and Assessment District No. 90-1 addressed channelizing Amargosa Creek between Avenue M and the intersection of 25th Street West and Elizabeth Lake Road (the City has received a 404 Permit from the Army Corps of Engineers relative to mitigation for channel construction). The Focused EIR addressed construction of a sewer line between 10th Street West and Bridge Road, along the south bank of the Amargosa Creek channel to the Bridge Road/Elizabeth Lake Road intersection (focusing on growth-inducing impacts). A third EIR (which has not been certified) was circulated for public review for the "Amargosa Creek Improvement Project (Phase II)", which involved improvements to Amargosa Creek and Elizabeth Lake Road west of 25th Street West to approximately 1,000 feet west of Godde Hill Road. Substantial public and agency comment letters were received on the previously circulated Draft EIR, and are available for review at the City of Palmdale Planning Department.

Current Project Review Process

The City of Palmdale originally prepared the three EIRs separately because they started at different times within the planning process and also to give maximum flexibility to the required work. However, several parties commented that the separate environmental process was confusing. In addition, downstream landowners questioned the use of extremely conservative (high) storm flow projections as a basis for design (higher flow projections dictated more extensive flood control measures). In response to these concerns and other factors, the City of Palmdale is now utilizing lower storm flow projections (based on the County of Los Angeles 50-year flood flows), and has consolidated all three previous projects into one project addressed in this EIR. The reduced storm flow figures have allowed for deletion of two detention basins, reduction in most pipe size diameters, and a reduced concrete channel width north of 25th Street West (in comparison to the previous projects). In addition, due to the lower design flows, the City has determined that construction of most flood control structures located north of the freeway can be deferred until development is proposed in the adjacent area. The net effect of the modified project is an overall reduction in environmental impacts as previously addressed in the three EIRs noted above.

The City of Palmdale recirculated a Notice of Preparation (NOP) for this project on February 19, 1993. The 30-day NOP public review period closed March 19, 1993. All NOP comments received are included in Appendix 12.1, INITIAL STUDY/NOP.

3.4 PROJECT CHARACTERISTICS

The Amargosa Creek Improvement Project is necessary to provide flood protection for the Amargosa Creek floodplain area, and to provide infrastructure to serve existing, approved and proposed developments west of 20th Street West (including Ritter Ranch, City Ranch, Santa Fe Hills and surrounding developments). Improvements from approximately the Antelope Valley Freeway to the intersection of 25th Street West and Elizabeth Lake Road involves the channelization of Amargosa Creek, the installation of a sanitary sewer line (from 10th Street West to Bridge Road) and construction of a nuisance water pipe in ~~Anaverde Antelope Valley~~ Antelope Valley Country Club. Improvements west of 25th Street West include roadway, flood control and utility/infrastructure facilities and will extend approximately 5.9 miles along Amargosa Creek and Elizabeth Lake Road upstream to approximately 1,000 feet west of Godde Hill Road. The project also includes minor Godde Hill Road and 25th Street West improvements.

The three main components of the Amargosa Creek Improvement Project are as follows (refer to Exhibits 3.0-3A-E, PROJECT OVERVIEW, and Exhibit 3.0-4, TYPICAL SECTIONS):

- widening of **Elizabeth Lake Road from 22nd Street West to 1,000 feet west of Godde Hill Road**, and realignment of the 25th Street West/Elizabeth Lake Road intersection and Godde Hill Road/Elizabeth Lake Road intersection;
- **flood control** improvements along Amargosa Creek from SR-14 to Godde Hill Road; and
- provision of **utilities**, primarily within Elizabeth Lake Road, west of 22nd Street West, including a sanitary sewer line along Amargosa Creek between Bridge Road and 10th Street West.

The project also includes temporary construction improvements and activities. Project implementation requires right-of-way acquisition for road and flood control improvements, as well as easements for certain drainage and utility improvements and for slope maintenance (discussed in section 4-7, LAND USE). For additional information, refer to Exhibits 3.0-3A-E, PROJECT OVERVIEW, and Exhibit 3.0-4, TYPICAL SECTIONS).

NOTE: To facilitate review of the project impacts, some discussions refer to project segments, including references to City street some of which do not yet exist (as in "30th Street West" and "40th Street West"). These segments are evident when reviewing Exhibit 3.0-2, SITE VICINITY MAP.

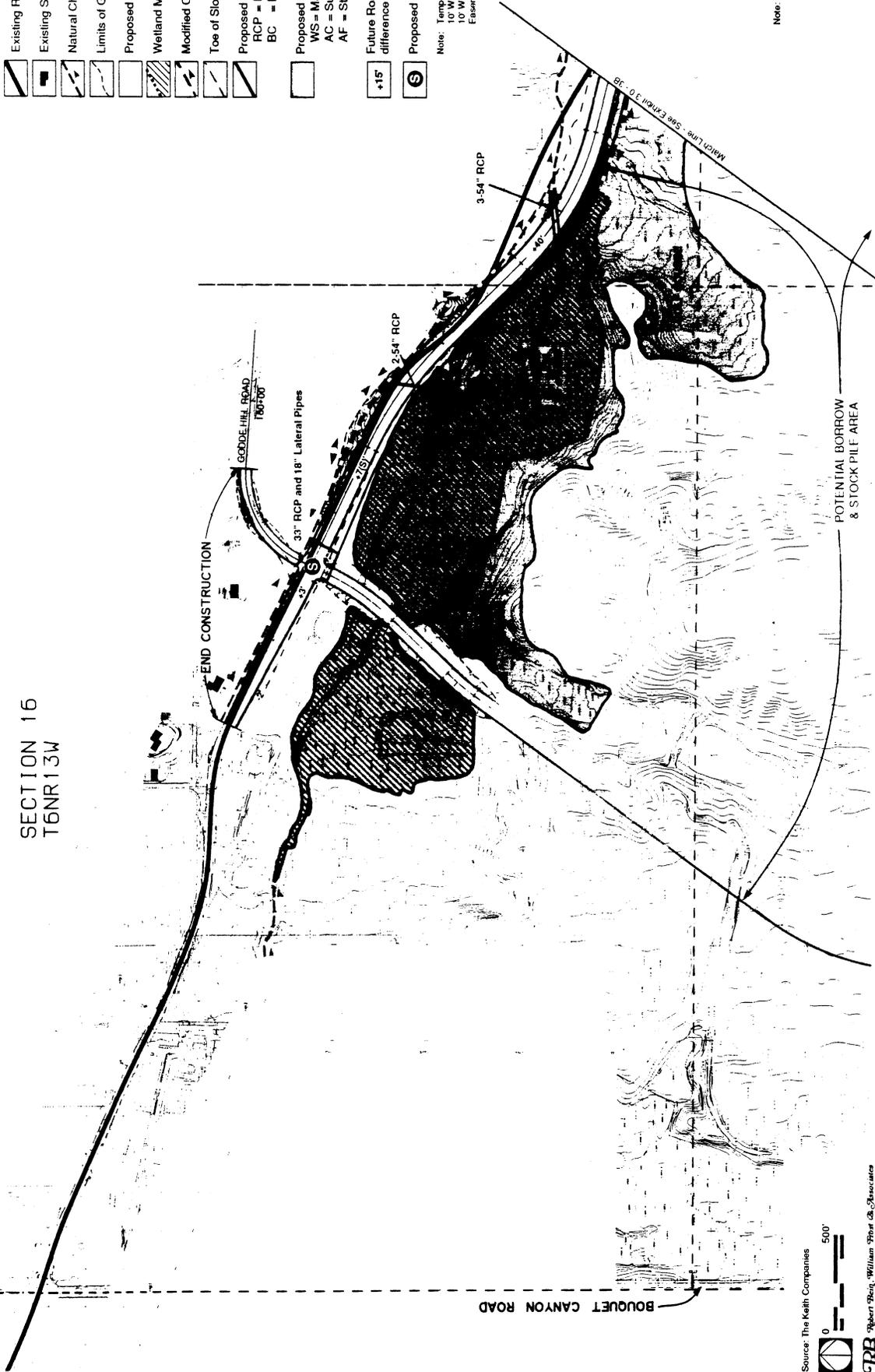
SECTION 16
 T6NR13W

-  Existing Road
-  Existing Structures
-  Natural Channel Flow
-  Limits of Grading
-  Proposed Road Improvements
-  Wetland Mitigation Area
-  Modified Channel Flow
-  Toe of Slope/Minor Collector Channels
-  Proposed Drainage Improvements
-  RCP = Reinforced Concrete Pipe
-  BC = Box Culverts
-  Proposed Detention Basin
-  WS = Max. Water Surface (Feet)
-  AC = Surface Area (Acres)
-  AF = Storage Capacity (Acre-Feet)
-  Future Road Elevation (maximum difference from exist. ground surface)
-  +15'
-  Proposed Future Traffic Signal

Note: Temporary Utility Lines, Detour Roads, 10' Wide (typical) Equestrian Trail and 10' Wide (typical) Slope Maintenance Easement are Not Shown

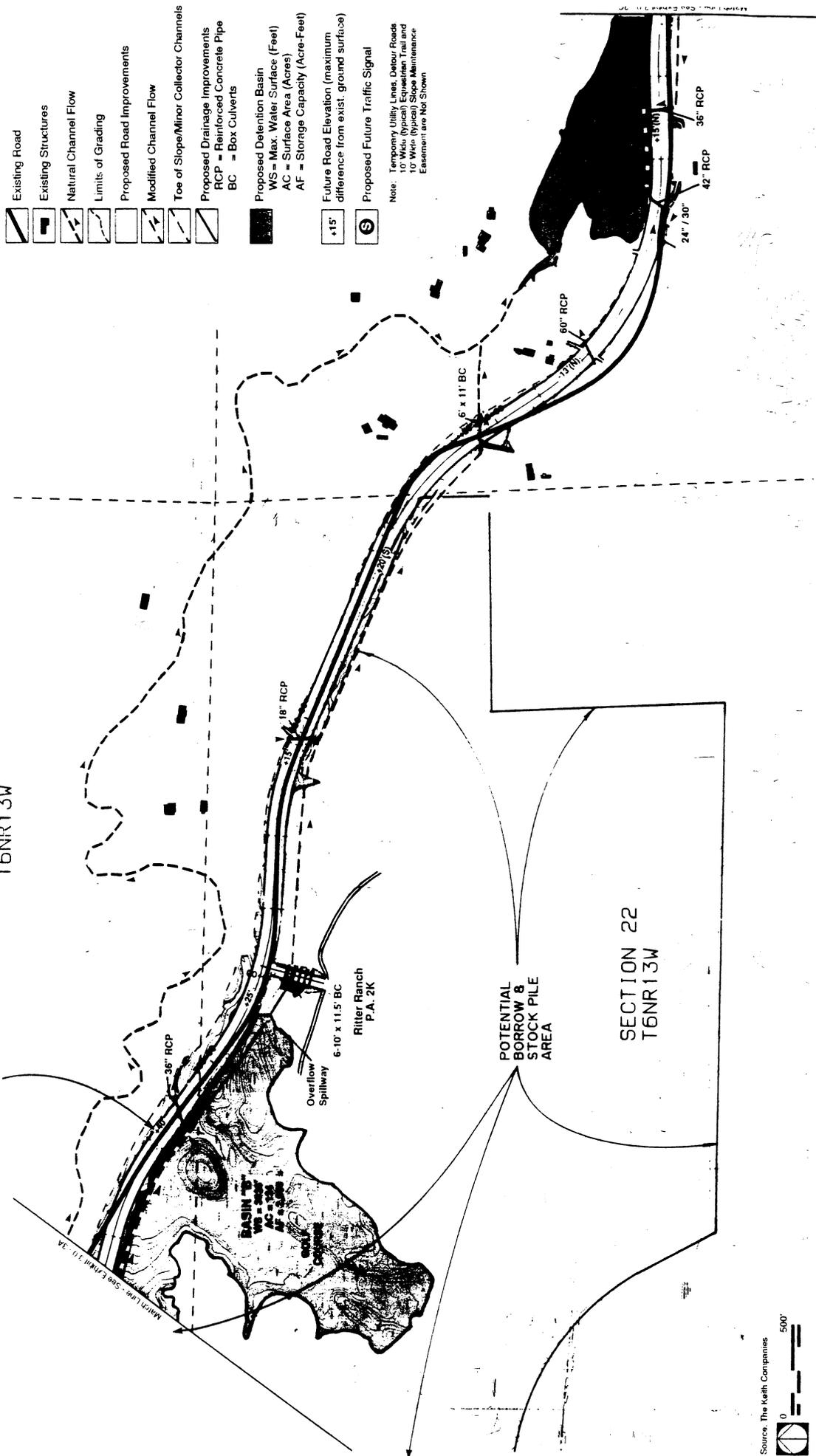
Note: Facilities shown are for illustrative purposes only. Refer to 1" = 40' engineering plans at City Public Works Department for more detail.

Exhibit 3.0-3A



SECTION 15
 T6NR13W

PROPOSED R.O.W. ELIZABETH LAKE ROAD



- Existing Road
- Existing Structures
- Natural Channel Flow
- Limits of Grading
- Proposed Road Improvements
- Modified Channel Flow
- Toe of Slope/Minor Collector Channels
- Proposed Drainage Improvements
- RCP = Reinforced Concrete Pipe
- BC = Box Culverts
- Proposed Detention Basin
- WS = Max. Water Surface (Feet)
- AC = Surface Area (Acres)
- AF = Storage Capacity (Acres-Feet)
- Future Road Elevation (maximum difference from exist. ground surface)
- Proposed Future Traffic Signal

Note: Temporary Utility Lines, Detour Roads
 10' Wide (Typical) Equestrian Trail and
 10' Wide (Typical) Slope Maintenance
 Easement are Not Shown

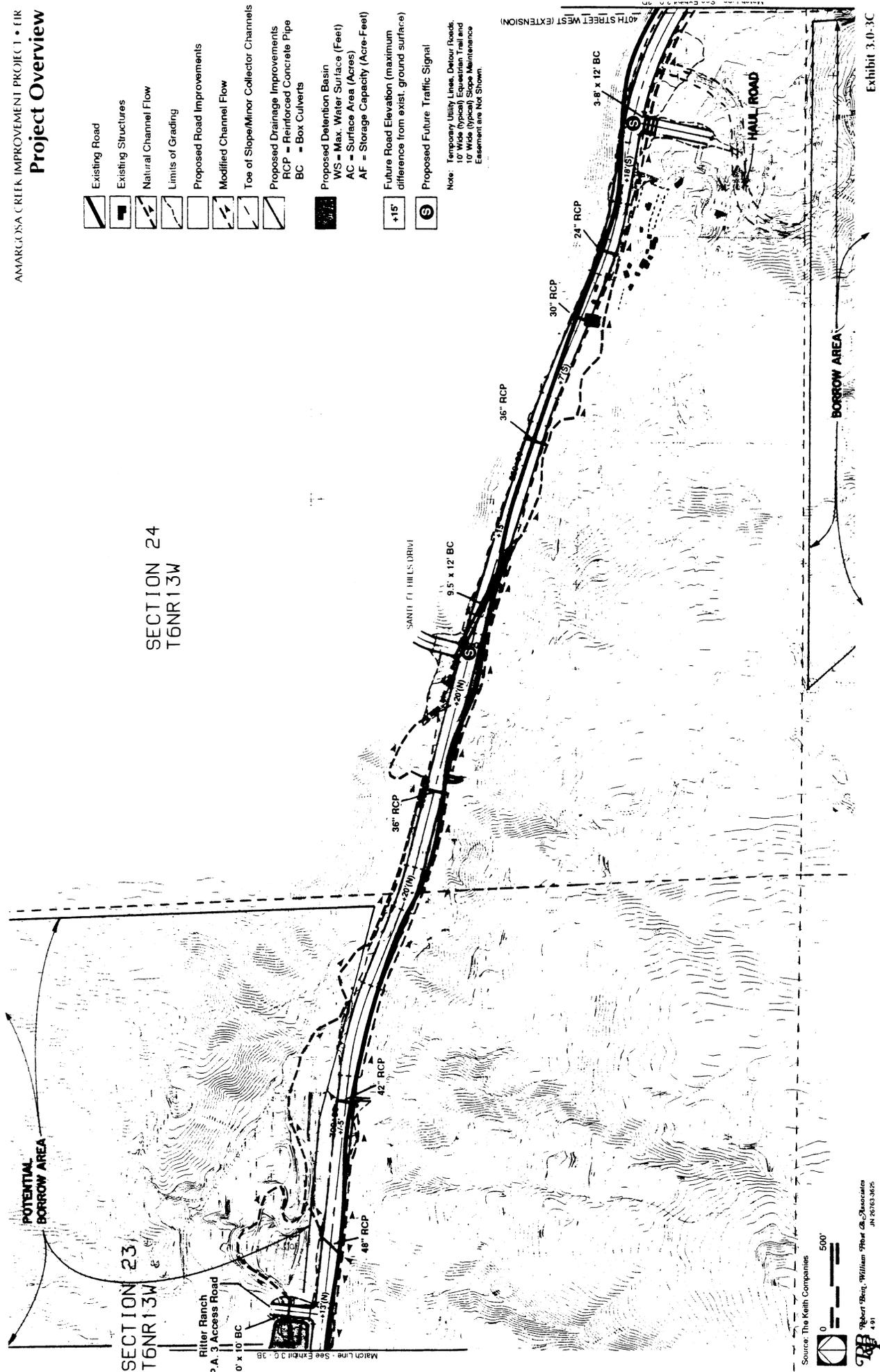
Sources: The Keith Companies

 Robert Berg, William Spier, Ch. S. Sauer, et al.
 01/27/11, Rev. 2

- Existing Road
- Existing Structures
- Natural Channel Flow
- Limits of Grading
- Proposed Road Improvements
- Modified Channel Flow
- Toe of Slope/Minor Collector Channels
- Proposed Drainage Improvements
- RCP - Reinforced Concrete Pipe
- BC - Box Culverts
- Proposed Detention Basin
- WS - Max. Water Surface (Feet)
- AC - Surface Area (Acres)
- AF - Storage Capacity (Acres-Feet)
- Future Road Elevation (maximum difference from exist. ground surface)
- Proposed Future Traffic Signal

Note: Temporary Utility Lines, Detour Roads, 10' Wide (Typical) Equestrian Trail and 10' Wide (Typical) Bicycle/Moped Maintenance Easement are Not Shown.

SECTION 24
 T6NR13W

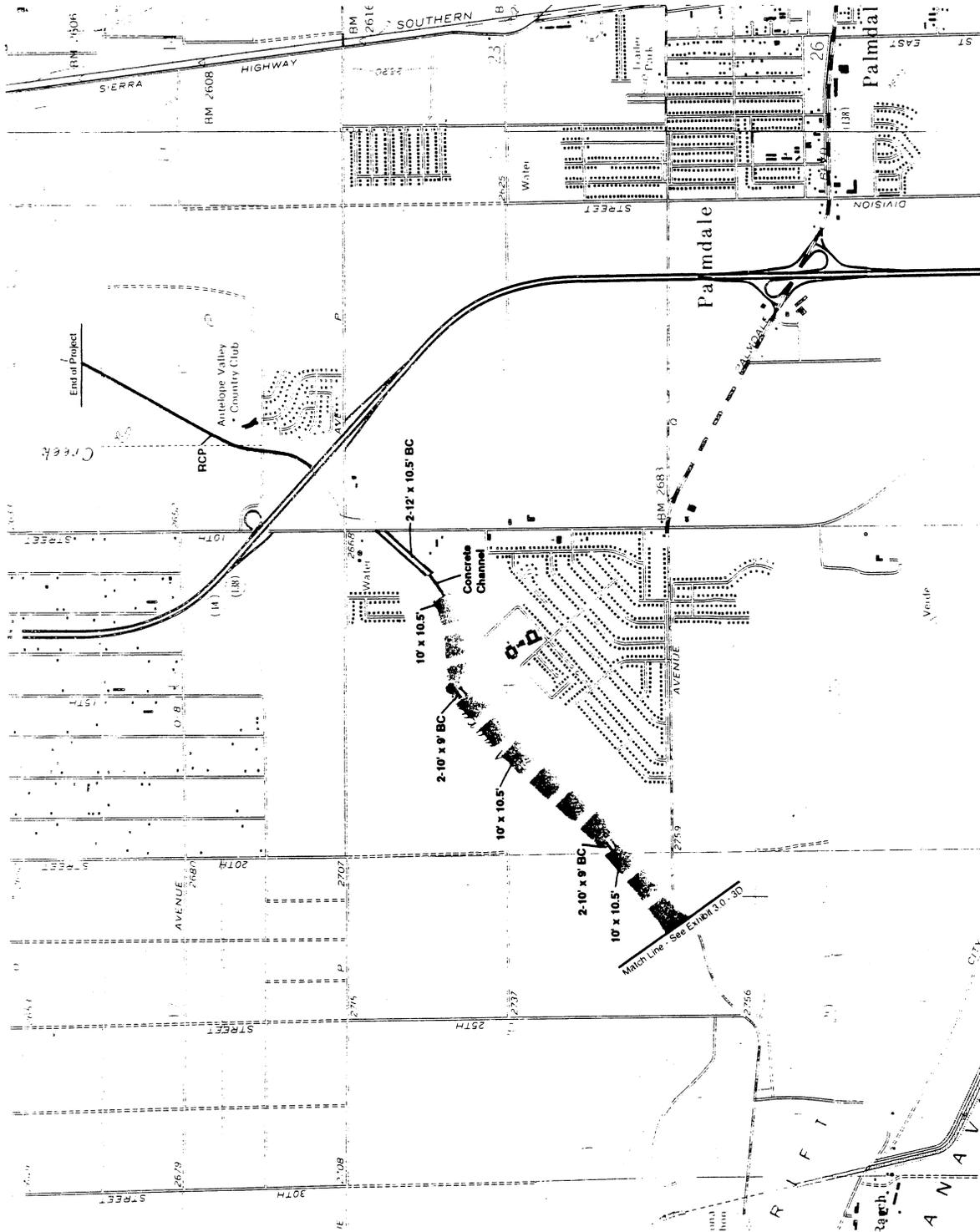


Source: The Keith Companies

0 500'

Robert Stein, William F. Row, Jr. Associates
 JAN 26/03, 3625
 4 91

-  Trapezoidal Channel
-  Proposed Drainage Improvements
- RCP = Reinforced Concrete Pipe
- BC = Box Culverts



Robert Clark, William Proff, & Associates
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 JN 26763 3625

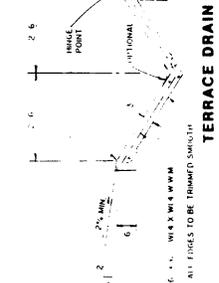
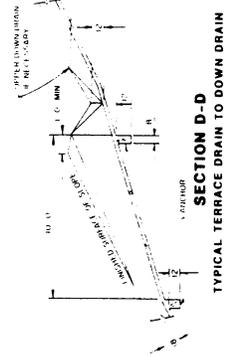
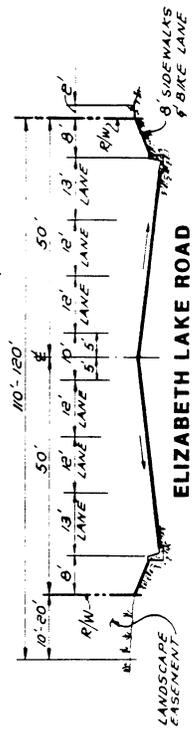
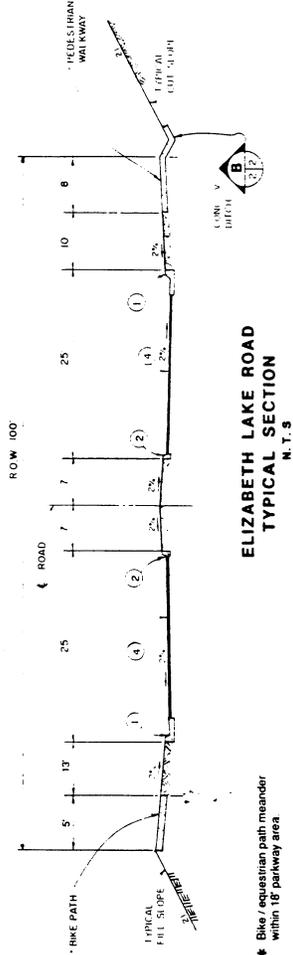
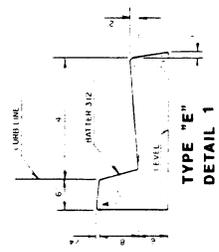


LEGEND

TOE OF SLOPE
PROPOSED C/A ROADWAY
EXISTING R.O.W.
CULVERT NUMBER
SIZE & TYPE
DRIVEWAY NUMBER
WIDTH

ABBREVIATIONS

BT CENTERLINE
SHEET
STA STATION
T/S TOE OF SLOPE
P.C. POINT OF CURVATURE
P.T. POINT OF TANGENCY
B.V.C. BEGIN VERTICAL CURVE
E.V.C. END VERTICAL CURVE
ST STREET
VERT VERTICAL
VERT VERTICAL
EXIST. EXISTING
PROP. PROPOSED
CONSTR. CONSTRUCT
BDY. BOUNDARY
R.O.W. RIGHT OF WAY



CONSTRUCTION RELATED ELEMENTS

In addition to the permanent facilities described below, the project includes several construction elements that have potentially significant environmental impacts (addressed where appropriate throughout the EIR).

Vehicle Staging

The project will require "staging" areas to store vehicles, equipment and construction material during the construction period. These staging areas are expected to be within the three designated "Borrow Areas" on Ritter Ranch property (see below) or within the limits of project grading, and adjacent to Amargosa Creek north of 25th Street West.

Borrow Areas

Due to the project requiring substantially more filling than cut, and the need for a variety of specific construction materials, three Borrow Areas have been proposed to obtain necessary material (see Exhibits 3.0-3A-E, PROJECT OVERVIEW). All three areas are within planned future development areas of Ritter Ranch (in Ritter Ranch Planning Areas 1, 3 and 5). The three nearby borrow areas will minimize construction truck traffic on surrounding roadways, although certain construction materials will require importing (hauling) to the project site. Approximately 1.40 million cubic yards will be stockpiled to Ritter Ranch Planning Area 1 (excess fill material) within a planned future development area. Specific amounts of material to be removed from each Borrow Area (for the Amargosa Creek Improvement Project) are not known, as it will depend on the nature and suitability of material within each Borrow Area. The impacts are not expected to significantly differ from the construction impacts addressed throughout the Ritter Ranch Specific Plan EIR, as Borrow Area excavation and transporting will primarily involve grading operations onsite and transporting to nearby areas requiring fill along Elizabeth Lake Road.

Elizabeth Lake Road Detours

The majority of detours will occur within existing and/or future limits of grading as shown on Exhibits 3.0-3A-E, PROJECT OVERVIEW. However, a new temporary road ~~will~~ **may** need to be constructed south of existing Elizabeth Lake Road, between 20th Street West and 30th Street West (see Exhibit 3.0-3D, PROJECT OVERVIEW).

Utility Line Relocations

Although it is anticipated that all permanent "dry" utilities (electricity, telephone, gas and cable) will be underground, Southern California Edison and Pacific Bell facilities will require temporary relocation to overhead poles, generally south of Elizabeth Lake Road. Although existing poles will be used where possible and most new poles will be 30 foot high standard "T" frames, poles that have electric and telephone lines may require higher 35 to 40 foot "T-frames". Also, five locations will require crossing Elizabeth Lake Road on higher T-frame poles (one location near Messer Ranch may require an "H-Frame" pole). Above-ground poles will be minimized by use of underground telephone conduit and "joint use" of SCE and Pacific Bell lines on SCE poles (existing above-ground lines will be consolidated, thereby actually reducing the number of above-ground poles during construction). Following construction, ~~all~~ **most** project utility lines will be underground. East of 30th Street West, approximately 8 above-ground poles will be required, each 30 feet high **(for major SCE transmission lines)**. West of 30th Street West, the temporary poles will be located generally south of Elizabeth Lake Road. It should be noted that due to the potential that improvements to Elizabeth Lake Road will be phased, some utility line relocations may occur with the second phase.

ROAD IMPROVEMENTS

Generally, the project includes widening and realignment of Elizabeth Lake Road from 20th Street West to approximately 1,000 feet west of Godde Hill Road, within a 100' right-of-way (providing between 2 and 6 lanes of vehicle travel), realignment and widening of the 25th Street West/Elizabeth Lake Road intersection within a 100' right-of-way, realignment and widening of the Godde Hill/Elizabeth Lake Road intersection within 26 feet to 40 feet of right-of-way, and installing traffic signals at 6 locations. Roads will include full improvements ~~to City and County standards~~, including a raised median, landscaping, sidewalks and street lights **(NOTE: Road design does not meet full City/County standards in all cases, in order to reflect certain rural design criteria in the Leona Valley Community Standards District, such as reduced lighting)**. Improvements to several existing and proposed access roads are also included in order to maintain access and to minimize future disruption of project facilities (these roads including existing Messer Ranch access roads and proposed Ritter Ranch and Santa Fe Hills access roads, will only be graded, requiring paving and full improvements as part of separate projects). In addition to road excavations, the road construction will require approximately 1.10 million cubic yards of fill within the Ritter Ranch site. It should be noted that, due to reduced design flows, the area impacted by

Elizabeth Lake Road widening could possibly be reduced during final design preparation by lowering the proposed roadway, thus reducing total grading width by approximately 40 feet (20 feet on each side of the roadway). However, this document will assess "worst case" conditions as originally proposed.

Road improvements include temporary detours during construction, improving access and driveways affected by road widening, the opening and widening of streets by removal of existing pavement as required, clearing/grubbing (vegetation removal), installation of pavement, curbs, gutters, sidewalks, shoulders, median, slopes and slope/road protective material as required. In addition, street improvements include minor storm drains, slope drains, landscaping (including irrigation facilities), street lights, traffic signals and utilities (flood control, traffic signals and utilities are discussed further below). The project also includes walls, irrigation and landscaping along Elizabeth Lake Road and 25th Street West, as required.

Elizabeth Lake Road (20th Street West to 30th Street West): 6 lanes

Street improvements from 20th Street West to 30th Street West, a distance of 5,300 lineal feet (1 mile) along Elizabeth Lake Road, will include intersection improvements with existing and new streets. Improvements will require a revised center line alignment along Elizabeth Lake Road in a 100 foot wide right-of-way, improved 84 feet from pavement driving edge to driving edge ("curb to curb," providing 6 lanes of vehicle travel, transitioning to 4 lanes at 30th Street West). This segment of Elizabeth Lake Road ~~will~~ **may** require construction of a temporary detour road south of the existing road (see "Limits of Temporary Grading" on Exhibit 3.0-3D, PROJECT OVERVIEW).

Elizabeth Lake Road (30th Street West to 1,000 feet west of Godde Hill Road): 2 to 4 lanes

Major street improvements will follow the basic alignment of Elizabeth Lake Road from 30th Street West to approximately 1,000 feet west of Godde Hill Road, a distance of approximately 25,600 lineal feet (4.8 miles). However, street improvements will require realignments in order to provide improved traffic conditions from existing substandard (unsafe) conditions, and resolution of drainage problems, including intersection improvements with existing and new streets. Street widths will vary between 40 feet and 64 feet within a 100 foot right-of-way (providing 4 lanes of vehicle travel from 30th Street West

to Godde Hill Road, transitioning to 2 lanes from Godde Hill Road to 1,000 feet west of the intersection).

25th Street West: 6 lanes

Proposed improvements to 25th Street West will include a revised intersection location and alignment with Elizabeth Lake Road. 25th Street West from Elizabeth Lake Road, northerly for 1,000 feet (0.20 miles), will have 84 feet of pavement from curb to curb within a 100 foot right-of-way.

Godde Hill Road: 2 lanes

The project will realign the Godde Hill Road/Elizabeth Lake Road intersection, and provide roadway improvements on Godde Hill Road to approximately 600 feet north of Elizabeth Lake Road. Improvements will vary from 40 feet at Elizabeth Lake Road to 26 feet at existing Godde Hill Road.

Traffic Signals

The project includes traffic signal systems, appurtenant (accessory) facilities and intersection (lane) improvements at these locations:

- Elizabeth Lake Road/20th Street West
- Elizabeth Lake Road/25th Street West
- Elizabeth Lake Road/Bridge Road
- Elizabeth Lake Road/Ranch Center Drive
- Elizabeth Lake Road/Santa Fe Hills Drive
- Elizabeth Lake Road/Godde Hill Road (Ritter Ranch Road)

FLOOD CONTROL FACILITIES

Stormdrain facilities include the land acquisition and construction of flood control basins (providing a total of approximately 2,138 acre-feet of storage volume on 146 acres), inlets, outlets, stormwater channels (natural and improved) and fencing, access and maintenance roads where required. The following discussion describes all proposed improvements along Amargosa Creek, beginning from the western end. Flood control basins will be constructed, owned and maintained by the City of Palmdale. Although the channels are not planned to

be fenced, nor are Flood Control Basins "B", "E" and "F" (or the three City Ranch temporary basins), fencing will be necessary for safety reasons for all inlet/outlet structures and Basin "B" spillway.¹ Basin "B" will require approximately 2.10 million cubic yards of excavation, with an additional 1,000 cubic yards of excavation for Basin "F".

Flood Control Basin "B"

[Note: There are no Flood Control Basins "A," "C" or "D" as these early concepts were dismissed, and basin names were not changed to avoid confusion with previous submittals to State and Local agencies.]

Flood Control Basin "B" will be located on the south side of Elizabeth Lake Road, from 1,400 feet west of Godde Hill Road to 4,400 feet east of Godde Hill Road (see Exhibit 3.0-3A, PROJECT OVERVIEW). The flood control basin will be approximately 800 lineal feet by 5,800 lineal feet covering 124 acres in area, with a maximum depth of 34 feet and flood control capacity of 2,050 acre-feet (one acre-foot is the volume of water one foot deep over one acre of land). Basin "B" will be excavated out (approximately 2.10 million cubic yards), and revegetated as mitigation for wetland impacts, subject to a 404 Permit from the U.S. Army Corps of Engineers and 1601 Agreement from the California Department of Fish and Game. A portion of Basin "B" will contain golf course uses of the planned Ritter Ranch Specific Plan community (signage and/or fencing will be used to separate golf uses from the wetland). Basin "B" grading will include the northern portion of Ritter Ranch Road within the basin. An outlet structure located at the middle of the flood control basin, approximately 2,270 feet east of Godde Hill Road, will consist of a three 54" reinforced concrete pipe culverts approximately 335 feet in length, located under Elizabeth Lake Road. The outlet will be designed to restrict the outflow to approximately 1,100 cfs (cubic feet per second) to the north side of Elizabeth Lake Road. An overflow spillway will be constructed at the eastern downstream end of Basin "B", releasing flows to the south side of Elizabeth Lake road in a "modified channel". The spillway is designed to carry the flow which would result from the State Division of Dam Safety requirement of 26,000 cfs as the design flow.

¹ It should be noted that the third City Ranch Temporary Basin is approximately the same as Basin F.

Channel Improvements (Basin "B" to Basin "E")

Six 10 feet high by 11.5 feet wide box culverts will be constructed under the entrance roadway to Ritter Ranch Planning Area 1K. Flows will continue within a modified channel along the south side of Elizabeth Lake Road.

An 18-inch reinforced concrete pipe (RCP) approximately 130 feet in length, located 6,220 feet east of Godde Hill Road will drain water from the north side of Elizabeth lake Road into a modified channel on the south side.

A reinforced concrete culvert, 6 feet in height and 11 feet in width, approximately 195 feet in length, located 8,160 feet east of Godde hill Road will drain water from the south side of Elizabeth Lake Road to the north side, discharging into a natural channel.

A 60-inch reinforced concrete pipe with a length of 145 lineal feet and located 9,060 feet east of Godde Hill Road will drain water from the south side of Elizabeth Lake Road and discharge into the natural stream bed on the north side.

A modified natural storm flow channel is located on the north side of Elizabeth Lake Road from the outlet of the reinforced concrete pipes under Elizabeth Lake Road at Basin "B". Such modification consist of excavation, rip rap and/or other methods of slope protection improvements where required to protect the disturbed areas and/or the roadway embankment on both sides of the existing channel. Flows will then discharge into the natural stream channel and a natural rock, and concrete inlet approximately 7,100 lineal feet downstream from the outlet at Basin "B". At this point, flows will discharge into detention Basin "E".

Flood Control Basin "E"

Flood Control Basin "E", a triangular shaped basin approximately 1,800 lineal feet long by 200 feet to 660 lineal feet wide covering 13.8 acres, with a maximum depth of 15 feet, and a flood control capacity of 48 acre feet, will be located on the north side of Elizabeth Lake Road immediately west of the proposed Ritter Ranch Planning Area 3 access road. Flows will be conveyed under the access road by a 10' wide by 10' high reinforced concrete box culvert and then entering an outlet structure approximately 70 feet long (rock rip rap transition to the natural channel).

Channel Improvements (Basin "E" to "F" Basin)

From Basin "E", flows will transition from the box culverts into a modified stream channel (necessary due to excessive bends in this creek area), then into an outlet structure and a short segment of natural channel, then into a modified stream channel. In the vicinity of the proposed Santa Fe Hills access road, the Amargosa Creek flows will cross to the south side of Elizabeth Lake Road (through a 9.5' by 12' box culvert). From this point easterly to approximately 1,720 lineal feet east of the eastern Ritter Ranch access road (at the location where Amargosa Creek presently crosses Elizabeth Lake Road), Amargosa Creek will remain in essentially its existing location south of Elizabeth Lake Road, with several stream modifications where road fill encroaches into the channel. Flows will be directed under the proposed Ranch Center Drive via three 8' wide high by 12' high wide box culverts. Creek flows will transition into the natural channel north of the road via two 9' by 12' box culverts and an outlet structure.

Flood Control Basin "F"

The natural channel will transition into the Basin "F", which begins approximately 1,350 lineal feet west of the realigned 25th Street West and extends easterly to immediately west of 25th Street West. The Basin will be a maximum of 1,500 feet long and 600 feet wide. Basin "F" will cover a total of 8.5 acres, with a maximum flood control capacity of 40 acre-feet and a maximum depth of 15 feet (only grading for the adjacent road banks will be necessary). To cross 25th Street West, two box culverts, each 6 feet wide high by 11 feet high wide will be constructed, with an inlet transition from the detention basin and a rectangular channel outlet transition structure to the downstream trapezoidal channel.

City Ranch Temporary Flood Control Basins

Depending on phasing of this project versus the City Ranch project, the following temporary flood control basins may be constructed until the ultimate project improvements are completed.

- *Interim Basin "F"*

This basin would be located within the limits of the ultimate Basin "F". The interim basin would provide approximately 24 acre-feet of storage volume.

- *Temporary Basin "mm"*

This triangular basin would be located east of 25th Street West, north of the proposed trapezoidal channel, covering approximately 1.6 acres and providing 10 acre-feet of storage volume.

- *Temporary Basin "oo"*

This triangular basin would be located east of 25th Street West, between the proposed trapezoidal channel and Elizabeth Lake Road, covering approximately 1.6 acres and providing 10 acre-feet of storage volume. The basin may ultimately be used for a linear park within City Ranch.

Amargosa Creek

The improved Amargosa Creek channel will extend from 25th Street West, continuing to the Antelope Valley Freeway with an underground storm drain pipe extending approximately 3,950 feet beyond the freeway. The channel will generally have a maximum 15 foot wide bottom, 1.5:1 sloped sides, 10.5 foot depth and a 15 foot wide access road on each side, beginning 600 feet east of the centerline of 25th Street West. An underground storm drain pipe, to control nuisance water flows will be constructed under the ~~Ana Verde~~ Antelope Valley Golf Course. The storm drain will begin at the outlet of an existing reinforced concrete channel at the Antelope Valley Freeway and will extend north for approximately 3,950 feet.

Stormdrain Connections

Several local stormdrains will be required to connect existing and proposed development areas to the Amargosa Creek improvements. These stormdrains range in size from 24" to 84", and are generally located in the vicinity of 25th Street West and Bridge Road, at Godde Hill Road and at various drainage crossings.

UTILITIES

Sewer

Sanitary sewer trunk lines with diameters of 24" (9,000 feet), and 18" (17,000 feet) will be constructed from Bridge Road to approximately 3,000 feet east of Godde Hill Road, a

distance of approximately 4.9 miles. Installation of the sewer line will be within the right-of-way of Elizabeth Lake Road and will include manholes and appurtenance. East of Bridge Road, the sewer line will transition out of the roadbed easterly into an Amargosa Creek access road to 10th Street West. A short segment of 8" sewer lines for City Ranch is also proposed in Elizabeth Lake Road.

Water

Water mains (16" to 36" in diameter), including valves, cross ties and appurtenances, will be installed from 20th Street West to Godde Hill Road (a distance of approximately 7 miles) and in 25th Street West from Elizabeth Lake Road, northerly for 1,000 lineal feet. Three water pumping stations will be constructed. Pumping Station No. 1, with a proposed capacity of 20,000 gallons per minute, will be constructed to the south of the intersection of 25th Street West and Elizabeth Lake Road. Pumping Station No. 2, with a proposed capacity of 7,000 gallons per minute will be constructed to the south of the intersection of 30th Street West and Elizabeth Lake Road. Pumping Station No. 3, with a proposed capacity of 10,700 gallons per minute will be constructed to the north of the intersection of 25th Street West and Avenue O-8. Included within the proposed pumping stations will be piping, valves, control devices, telephone and power connections. The proposed Antelope Valley - East Kern Water Agency (AVEK) turnout will be constructed to the south of the intersection of 30th Street West and Elizabeth Lake Road.

Non-Domestic Water

The project includes provisions for use of untreated California Aqueduct water for use in construction and in landscape irrigation. Facilities include a 16 cfs (cubic feet per second) "turnout" from the aqueduct's "Leona Siphon" in order to obtain the water, a 7,000 gallon per minute pumping station west of the Leona Siphon, and a 24" diameter pipeline (28,700 lineal feet) from the turnout westerly to Ritter Ranch Road (within Elizabeth Lake Road), then southerly within Ritter Ranch to a 3.0 million gallon non-domestic water storage reservoir adjacent to Ritter Ranch Road (approximately 24 feet to 32 feet high).

Dry Utilities

Additional construction includes excavation and backfill, laying of cable and conduit, pulling of conduit, valve boxes and appurtenances, gas lines, valves and appurtenances, and main line laterals at intersecting streets, in Elizabeth Lake Road from 20th Street West to

approximately 1,000 feet west of Godde Hill Road and in 25th Street West from Elizabeth Lake Road, northerly for 1,000 lineal feet. Such construction will allow for the installation of electrical power lines, telephone lines, gas mains and cable television lines.

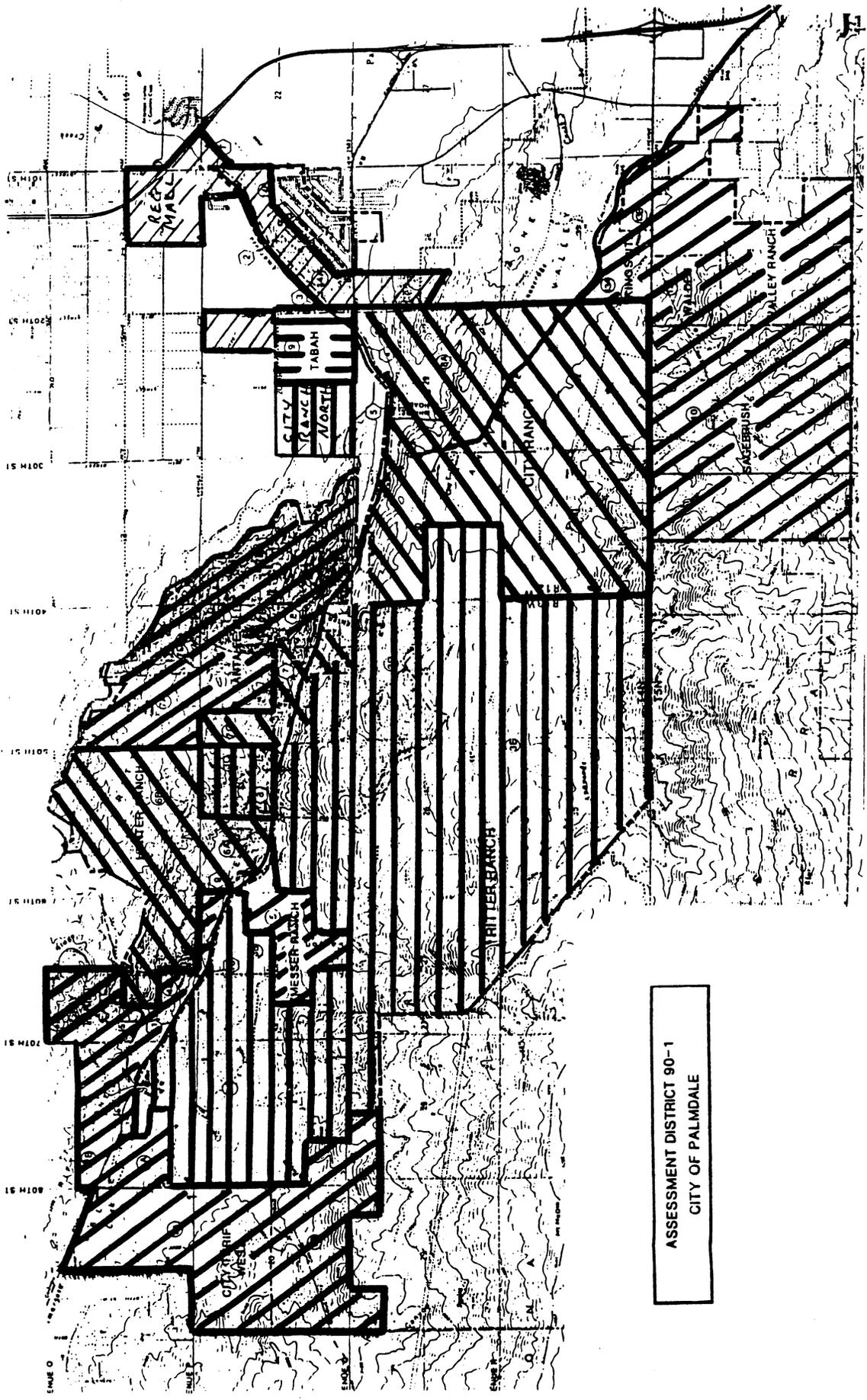
Equestrian Trail

The project will include provisions for an equestrian trail along Elizabeth Lake Road connecting with existing and future Leona Valley trails. The trail would be a multi-use equestrian and pedestrian trail, with a 10-foot minimum width. The trail is planned to run on the south side of Elizabeth Lake Road from Godde Hill Road to Bridge Road (portions may be constructed in open space areas within the proposed Ritter Ranch development).

FUNDING

The cost of the proposed project can be financed by three basic mechanisms. They include (1) developer funds, (2) City contributions, and (3) public financing districts. *Developer funds* are either cash or funds borrowed by the developer which the developer uses to directly pay for the improvements. *City contributions* include cash contributions or reductions in fees or charges normally paid to the City during construction. *Public financing districts* involve the City designating an area of land (district) which will pay for the infrastructure improvements and/or public services. In order to pay for the improvements, the City will issue bonds which will in turn be repaid by liens placed on the financing district. The bonds, and hence the costs of the improvements, are in this way paid off over a period of years by the landowners within the districts. The liens are also used to support the annual costs of providing public services. There are basically two kinds of funding districts commonly used by the City: (a) Assessment Districts, and (b) Community Facilities Districts.

- a. **Assessment Districts** may be established if the City determines, after public hearings and written notice, that the land parcels assessed will benefit specially from the improvements and/or services. In an assessment district, a lien in a fixed amount is placed against each parcel of land based on that parcel's benefit from the improvements. For example, property owners which would specifically benefit from the installation of a the proposed water mains would, over time, pay for costs of constructing the mains. Exhibit 3.0-5, POSSIBLE ASSESSMENT DISTRICT BOUNDARY, shows assessment district boundaries which may be used if this financing option is utilized.



ASSESSMENT DISTRICT 90-1
CITY OF PALMDALE

AMARGOSA CREEK IMPROVEMENT PROJECT

Possible Assessment District Boundary

Exhibit 3.0-5

- b. **Community Facilities Districts (CFD's)** differ from assessment districts in that they can finance not only basic infrastructure improvements (water, sewer, storm drains, streets, gutters, curbs and sidewalks) but also major regional improvements such as fire stations, police stations, schools, libraries, cultural centers, and parks. In a CFD, a special tax called a Mello-Roos tax (as opposed to a special assessment) is used to pay for the improvements and services. Either an assessment district or a CFD can be used to finance services, but a CFD is able to finance a broader range including police, fire, ambulance, and paramedical services. The costs of maintaining parks, parkways, and open space may also be financed by special Mello-Roos taxes.

The City of Palmdale is currently considering each of the above methods to finance the Amargosa Creek improvements.

3.5 PROJECT OBJECTIVES

The primary objectives of the Amargosa Creek Improvement Project are as follows:

- 1) Provide design consistency with the downstream flood control improvements (specifically achieve a 50-year Los Angeles County Capitol storm flow of 6,200 cfs **maximum** at 20th Street West).
- 2) Establish an equitable distribution of public improvement costs.
- 3) Provide critical infrastructure improvements for areas west of 20th Street West, including Elizabeth Lake Road improvements and utilities, in accordance with City General Plan policies and applicable design standards.
- 4) Provide flood protection of Elizabeth Lake Road and adjacent land uses, in accordance with City General Plan policies and applicable design standards.

3.6 PROJECT PHASING

Project construction is tentatively planned to commence in early 1994. As downstream creek areas cannot adequately convey the 50-year flood, construction is planned to generally proceed west to east beginning at Godde Hill Road (portions east of 25th Street West may be constructed earlier). Road, drainage and utilities would generally be concurrently constructed in a given segment. However, Elizabeth Lake Road may be constructed in

phases, with initial construction providing for an improved two or four-lane highway (ultimate improvements would be constructed when warranted by traffic demand). Although this could reduce initial grading requirements, and would therefore delay some impacts, the net ultimate impact would be the same. The project's first phase is tentatively planned for completion by mid 1995.

3.7 AGREEMENTS, PERMITS AND APPROVALS

Several agreements, permits and approvals will be required as a part of the proposed project. Following distribution of the draft EIR, a 45-day public review period is provided for public comment, in accordance with CEQA. The Final EIR will include the Draft EIR (with revisions, if necessary) as well as responses to comments formally received during the 45-day review period. Following a determination that the Final EIR is adequate and certification of the Final EIR by the City Council, a Notice of Determination will be issued by the City should the project be approved (City Council actions regarding EIR "certification" and project approval will be held at appropriately noticed public hearing(s)). The following is a list of responsible agencies and the associated approvals and permits anticipated to be required for the proposed project.

| <u>Responsible Agency</u> | <u>Approval/Permit</u> |
|---|---|
| City of Palmdale City Council | * Final EIR Certification |
| | * Project Approval - Design/Grading Plans |
| California Dept. Water Resources -Division of Safety of Dams | * Flood Control Basin "B" Design Approval Construction Application |
| Division of Land and Right-of-Way | * Encroachment Permit (Leona Siphon) |
| AVEK | * Design Approval (Leona Siphon) |

| <u>Responsible Agency</u> | | <u>Approval/Permit</u> |
|---|---|-----------------------------|
| U.S. Army Corps of Engineers | * | 404 Permit |
| California Dept. of Fish and Game | * | 1601 Agreement |
| Regional Water Quality Control Board | * | NPDES Permit |
| South Coast Air Quality Management District | * | Permit to Operate |
| State Department of Health Services | * | Design |
| California Department of Conservation Strong Motion Instrument Program | * | Seismic Facility Relocation |
| USGS | * | Stream Gage Relocation |

Description of Permit/Approval

Final EIR Certification: Indicates Council determination of CEQA compliance and adequate environmental analysis. Required prior to action on the project.

Project Approval: City Council approval of fees and improvement design plans, subject to meeting Conditions of Approval and receipt of future approvals/permits.

Flood Control Basin "B" Design Approval: Project requires DSD approval of Basin "B" design due to its size, under category of "road embankment for impounding water".

Encroachment Permit: Required for grading across the Leona Siphon portion of the California Aqueduct.

Design Approval: Required for grading plans impacting the Leona Siphon.

404 Permit: Required for grading within "waters of the United States" defined for this project by U.S. Army Corps of Engineers (ACOE) staff as the limits of desert saltgrass and active streambed areas. Requires a "riparian" vegetation mitigation plan.

1601 Agreement: Required for streambed modifications for public agency projects (also requires a riparian vegetation mitigation plan).

NPDES Permit (National Pollutant Discharge Elimination System): This permit ~~may~~ will be required for discharging water containing pollutants into national waters of the United States. It may apply to this project for any "de-watering" activity where extracted groundwater is discharged into surface water (as in high groundwater areas in Basin "B" where dewatering may be necessary during Ritter Ranch Road and Elizabeth Lake Road construction).

South Coast Air Quality Management District Permit to Operate: May be required for proposed facilities, such as ~~sewage water pump~~ pump stations, which utilize small subsurface fuel storage tanks for emergency power sources (permit required where diesel fuel may be used as an emergency power source to backup typical electrically-driven water and sewer pumps).

State Department of Health Services Design Approval: May be required for pipelines, pump stations, and storage tanks.

Seismic Facility Relocation: Required for existing seismic monitor located at Station #384+40 (as shown on March 20, 1991 design plans) approximately 40 feet south of existing Elizabeth Lake Road centerline (in the southeast portion of Basin "B").

Stream Gage Relocation: Required for existing U.S.G.S. stream gage in Basin "F" vicinity.

The project also includes the following easements:

- *Drainage*

Required where drainage facilities (including culverts and flood control basins) would cross private property.

- *Drainage Flow*

Required where the project would expose private property to the 50-year Los Angeles County Capital flood.

- *Utility*

Required by various utility companies to permit periodic facility maintenance (as with the existing major power transmission lines and the Leona Siphon portion of the California Aqueduct).

- *Slope*

Required adjacent to road slopes to permit periodic maintenance. The EIR assumes that no grading for access will occur within this area (vehicle access will be provided by the adjacent roadway).

4.0 Description of Environmental Setting, Impacts and Mitigation Measures

4.0 DESCRIPTION OF ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES

4.1 EARTH RESOURCES

The following discussion is based on the geology report prepared by Schaefer Dixon Associates, Inc. on December 18, 1990 and the geotechnical report prepared by Buena Engineers, Inc. on March 29, 1991 (the more recent, detailed Buena Engineers report is included in Appendix B, GEOTECHNICAL ENGINEERING REPORT). Information for the area east of 25th Street West was obtained from the Soil and Geology Analysis of the Amargosa Creek Improvement Project and Assessment District No. 90-1 EIR prepared by Michael Brandman Associates in 1990.

EXISTING CONDITIONS

Topography

The project area is located within the easterly portion of Leona Valley, a northwest-southeasterly trending valley through which the ephemeral Amargosa Creek flows (the southeastern portion of the Assessment District also includes Anaverde Valley, although no improvements are proposed there). The area east of the intersection of 25th Street West and Elizabeth Lake Road (as shown on Exhibit 4.1-1b, GEOLOGY), is situated along the southern margin of the valley bottom within the active flood plain of Amargosa Creek. The topography of this segment consists of a gentle northeast facing slope. The flood control basin known as "F" Basin is situated within the flood plain north of Elizabeth Lake Road.

Located westerly of City Ranch (25th Street West), the Planning Area 3 access road is in a relatively narrow portion of the valley, approximately 100 to 300 feet wide, which is bound by steep natural slopes having inclinations of about 1:1 to 3:1 (horizontal:vertical). A majority of this area is elevated above Amargosa Creek which is situated along the southern margin of the narrow valley floor.

In the Basin "E" area, the proposed road alignment is situated approximately 10 to 30 feet north of the existing roadway. This section of the road borders the southernmost margin of the valley floor, which in this area ranges from about 500 to 2,000 feet wide. Flood Control Basin "E" occupies an area of approximately 13.6 acres on the north side of the proposed roadway. West of Basin "E", the road passes through an area of low lying hills and

intervening drainage courses that are tributaries of Amargosa Creek. These tributaries emanate from the foothills of Sierra Pelona, located approximately 1/4 to one mile south of the proposed project roadway.

The new roadway alignment east of Basin "B" diverges south of the current roadway and into a pasture-like area where it crosses the main channel of Amargosa Creek (in the central portion of Basin "B"). Basin "B" is located on the south side of the proposed roadway, approximately 1,000 feet west of Godde Hill Road, and covers an area of about 124 acres. This basin occupies the central portion of the valley floor, which includes several tributary drainages that emanate from the foothill slopes of the Sierra Pelona to the south.

Land surface gradients vary widely throughout the area that includes the current and proposed roadway alignment and the planned flood control basins. Where the proposed roadway crosses the broad flatter portions of Leona Valley, surface gradients range from about 0.1 to 0.02 foot/foot (10 to 2 percent slope). In the areas where the topography is dominated by low-lying hills and intervening drainages, surface gradients range from about 1:5 to 3:1. In some areas, existing roadcuts are nearly vertical and up to 15 feet high.

Land surface elevations along the proposed road alignment and flood control basins range from a high of about 3,110± feet above mean sea level (MSL) near the intersection with Bouquet Canyon Road, to a low of about 2,750± feet above MSL at the intersection of 25th Street West. East of 25th Street West the surface gradient gradually slopes to an elevation of 2,650 feet at the northeastern extent of the project area. Maximum relief within the project area is about 460 feet.

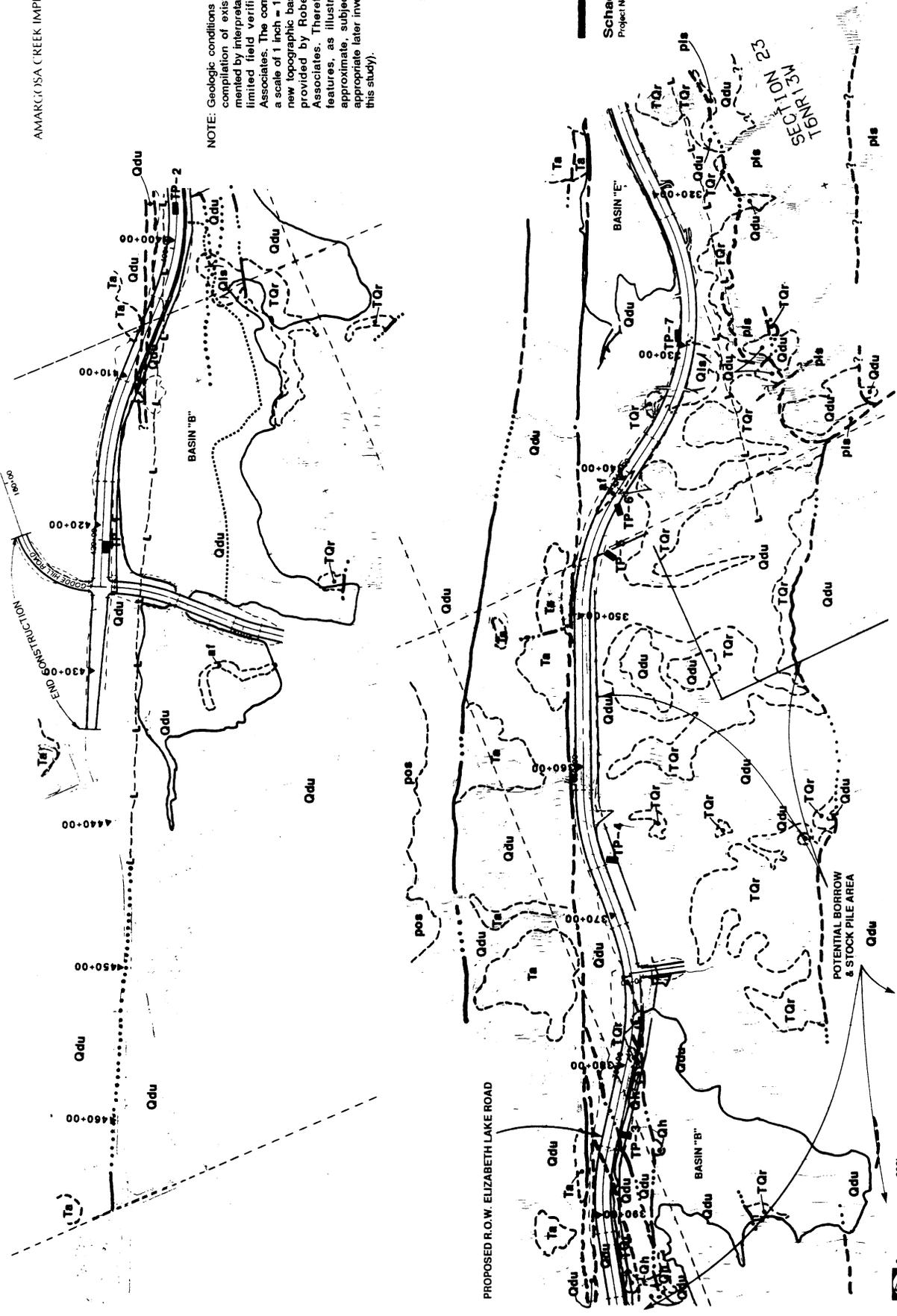
The majority of the surface drainage within the area is generally eastward, following the ephemeral Amargosa Creek stream course. The drainage trends northeasterly east of 25th Street West, and northerly north of SR-14.

Man-made modifications to the natural topography of the project area include the existing asphalt paved Elizabeth Lake and Godde Hill Roads, the cut and fill grading in the vicinity of the City Ranch, and homesites in the Basin "E" vicinity. Numerous unimproved dirt roads maintained for access to a series of high tension power lines and other portions of Ritter Ranch have also modified the topography.

NOTE: Geologic conditions illustrated herein represent a compilation of existing data by others supplemented by interpretation of aerial photographs and limited field verification by Schaefer Dixon Associates. The compilation was accomplished at a scale of 1 inch = 1000 feet, then transferred to a new topographic base map at 1 inch = 600 feet provided by Robert Beirn, William Frost & Associates. Therefore, locations of geologic features, as illustrated, must be considered approximate, subject to field verification at an appropriate later investigation stage (not a part of this study).

See Exhibit 4.1-1B for Explanation

Schaefer Dixon Associates
 Project No. AD-228



EXPLANATION

SURFICIAL UNITS

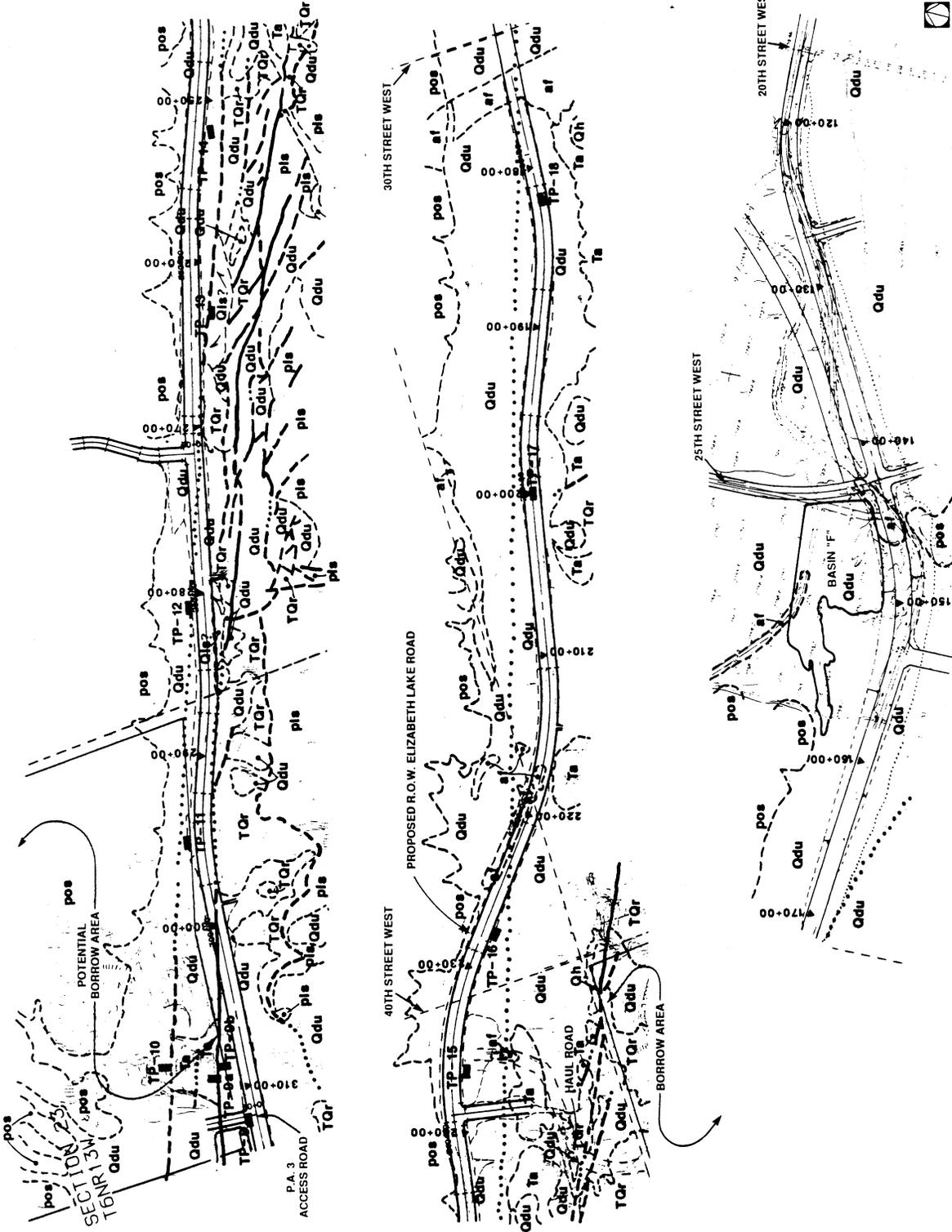
- af Artificial Fill
- Odu Quaternary Deposits Undifferentiated
- Qls Landslide Debris

BEDROCK UNITS

- Oh Harold Formation
- TOr Tertiary / Quaternary Rittler Formation
- Ta Anaverde Formation
- pls Pelona Schist
- pos Portal Schist

SYMBOLS

- Geologic Contact, approximately located, queried where inferred
- Faults, dashed where approximately located, dotted where concealed, queried where inferred
- Photolineament
- TP-18 Test Pits, approximately located
- 460.00 Road Stations, approximately located
- Landslide or Colluvial Deposit, queried where inferred
- Approximate Limits of Detention Basin



See Exhibit 4.1-1A for Notes

Schaefer Dixon Associates
Project No. A0-229

Exhibit 4.1-1B

Geology

The native earth materials exposed within the project area consist of surficial alluvial-type materials of Quaternary age (two million years old or younger), landslide deposits, older consolidated alluvial soils of Tertiary age, approximately 60 million to 2 million years old (e.g. Harold, Ritter, and Anaverde formations) and metamorphic rocks (i.e. schist and quartzite) assigned to the Pre-Tertiary Pelona and Portal Schist. The younger alluvial sediments generally occupy the topographically lower portions of Leona Valley, whereas, the more resistant Tertiary age rocks form the low-lying hills and foothill areas of Ritter Ridge and Sierra Pelona. Artificial fill soils underlie embankments constructed along portions of Amargosa Creek and the majority of Elizabeth Lake Road.

A brief description of the various geologic units encountered within the project area follow. The approximate distribution of these various soil/rock units is shown on Exhibits 4.1-1a and 4.1-1b, GEOLOGY.

Artificial Fill. The man-made fill deposits consist of locally derived sand, silt and gravel associated with construction of Elizabeth Lake Road and several earthen embankments within portions of Amargosa Creek.

Landslide Deposits. ~~Three inferred~~ ~~Several~~ landslides were identified on the north facing hillside located southwest of Sante Fe Ranch Road, and west of the Lazy T Ranch. Figure 3 of Appendix B, GEOTECHNICAL ENGINEERING REPORT, also shows the areas subject to landslide hazards. These ~~inferred~~ landslides consist of rock/soil materials derived from the Ritter Formation of Tertiary age or Pelona Schist.

Undifferentiated Quaternary Age Sediments. This undifferentiated group of sediments generally consists of accumulations of sand to gravel size particles with a clay and silt matrix. These materials are found throughout the lower portions of Leona Valley and include: 1) slopewash and alluvial fan materials, which have accumulated at the mouths of major drainages emanating from the ridges; 2) recent stream channel deposits or alluvium within Amargosa Creek; and 3) older alluvium which typically occurs as elevated deposits above Amargosa Creek and Elizabeth Lake Road.

Based on the results of observations made within exploratory backhoe pits, the upper five to 12 feet of the younger alluvial deposits vary from dry to moist, contain roots and rootlets, are loose to medium dense, crudely stratified (layered) and range from slightly to very porous. Site specific studies regarding the engineering properties of these various soils

indicate these deposits have a negligible to high potential for hydroconsolidation and/or collapse.

Quaternary-Age Harold Formation. Partially consolidated alluvial rock units of the Harold Formation are exposed primarily on the northerly facing slopes easterly of Ranch Center Drive. This formation consists of poorly indurated silts, sands and sandy gravels which are typically clayey and contain abundant calcium carbonate filled fractures and carbonate coated clasts.

Quaternary/Tertiary Age Ritter Formation. Rock units of the Ritter Formation are widely exposed on the northerly facing slopes and low-lying hills south of Elizabeth Lake Road. These rocks are characterized by interbedded sandstone, siltstone and conglomerate. Sandstone beds are moderately to severely weathered and friable (easily crumbles).

Tertiary Age Anaverde Formation. Rock units of the Anaverde Formation are sporadically exposed north and south of Elizabeth Lake Road. These rock units consist of well consolidated sedimentary rocks including varicolored sandstone, sandy conglomerate, siltstone and clay shale. Due to the proximity of the active San Andreas fault (zone), the siltstone and clay shale rock units are typically folded/contorted, whereas the more resistant sandstone beds are fractured and jointed.

Pre-Tertiary Portal and Pelona Schists. The Portal and Pelona Schists rock units are exposed on the north and south sides of the San Andreas fault (zone), respectively. The Portal Schist comprises a majority of Ritter Ridge, located northerly of Elizabeth Lake Road. The ~~Portal~~ Pelona Schist is exposed primarily within the upper elevations of the project area on the south side of Elizabeth Lake Road between Lazy T Ranch and Basin "E". Both rock units consist of metamorphic rocks composed of schist, quartzite, and vein quartz that are layered, folded and sheared to varying degrees (from fault activity). The near surface exposures of these schistose rocks are typically moderately to severely weathered, soft to moderately hard, and form resistant outcrops within incised drainage courses on the flanks of the prominent ridges.

- *Geologic Constraints*

Slope Stability. The overall structural characteristics of these schistose rocks are represented by a strongly pervasive northeast trending, northerly to southerly dipping layers. Exceptions to this "regional trend" occur locally as the result of folding and shearing,

presumably resulting from tectonic activity associated with movement on the San Andreas and other local faults during the last several million years.

Expansion Potential. Although the site specific engineering properties have not been evaluated, studies in adjacent areas indicate that material existing within clay zones (presumably fault/fracture zones) in the schistose rocks may have a medium or higher expansion potential. Based on the structural fabric of these rocks, they are prone to landsliding where foliation (layering) planes are unsupported or "daylighted" at the surface. Overall, the Portal and Pelona Schists are expected to possess relatively good engineering strengths, except where highly sheared or fractured, such as in the vicinity of the San Andreas Fault (zone).

Faults (also see "Faulting and Seismicity", below). The entire alignment extending from the intersection with the California Aqueduct to Bouquet Canyon Road is bound and/or transected by the San Andreas Fault zone. A discussion of the fault zone as it relates to the project area is presented below under Faulting and Seismicity. Additionally, several photolineaments transect the central portion of the project area where no known previous fault trenching studies have been performed (photolineaments are linear features visible on aerial photographs, and may be geologic, seismic or physical in nature, as in a geologic formation contact, fault trace or fence line, respectively). These photolineaments are based upon a review of old (1928) aerial photographs of the site and vicinity. These photolineaments are subparallel to the existing San Andreas Fault zone, and may represent fault splays or other geologic discontinuities within this zone.

Land subsidence is not known to have affected the study area.

Mud/debris flow potential is considered to be moderate to high within the active channel of Amargosa Creek and at the confluence of the larger drainages within the hillside areas. In addition, the potential for seismically induced rockfall is considered to be highest along the steep, southerly-facing slopes of the north side of Leona Valley.

Mineral exploitation of the alluvial units and the Portal Schist is not documented. However the potential sand and gravel resource from the various alluvial units is considered to be low due to the amount of fine grained materials and schistose rocks associated with these deposits. No evidence of mining for metallic or non-metallic minerals was observed. However, small scale mining prospects for actinolite-talc, and presumably gold, have been reported in nearby areas within rocks similar to the Portal Schist.

- *Soils*

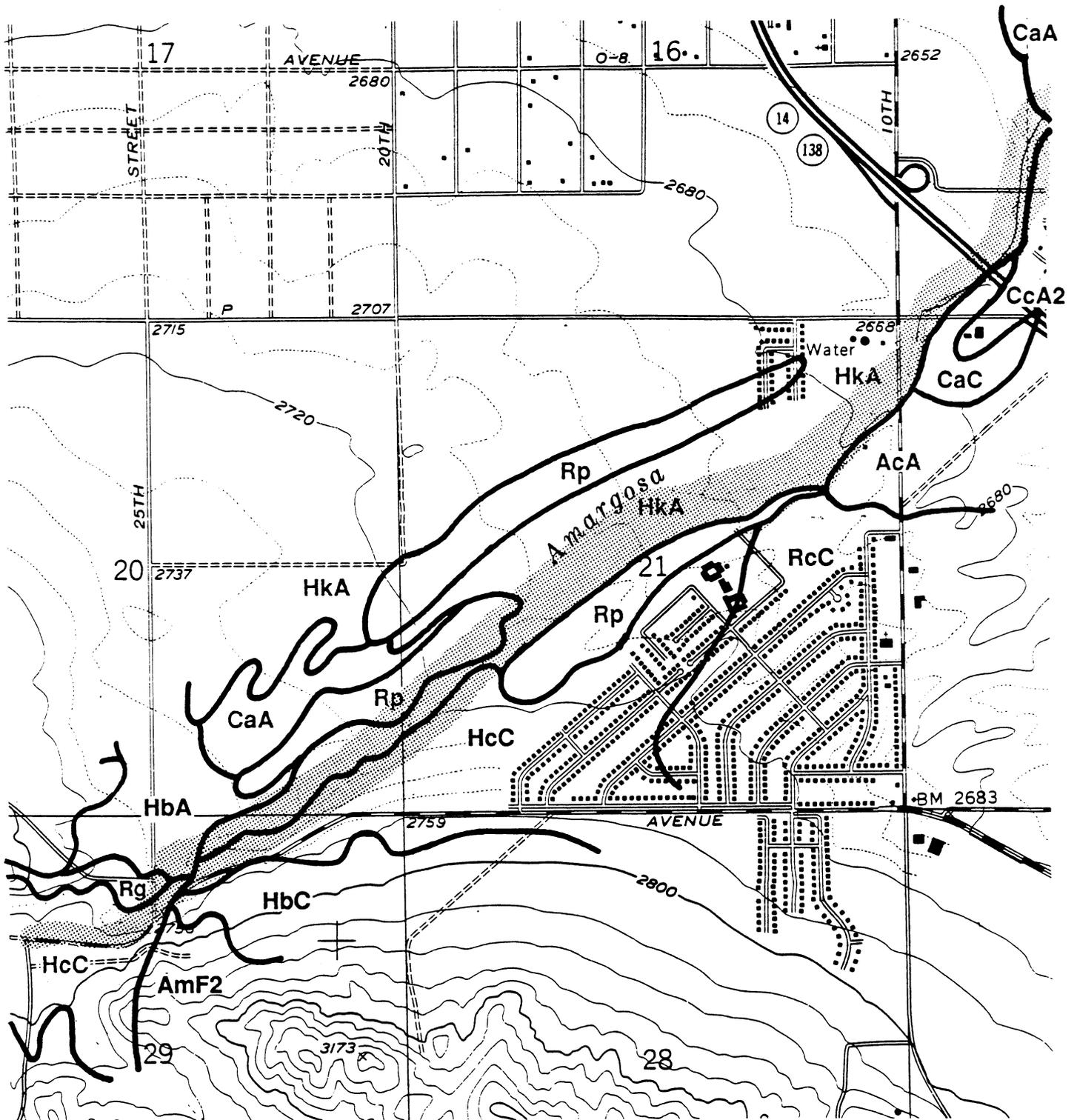
Surface soils within the project area have been identified by the Soil Conservation Service (SCS) as belonging to the Godde, Gaviota, and Hanford soil series. Gaviota soils overlie the majority of Tertiary age Anaverde and Ritter formations (see Exhibits 4.1-1a and 4.1-1b, GEOLOGY). These soils are classified by the SCS as a loam which is moderately expansive with moderate strength and low corrosivity potential. Hanford soils overlie the Quaternary age sediments (Exhibits 4.1-1a and 4.1-1b, GEOLOGY). The SCS classifies these soils as coarse to fine sandy loam, and gravelly loamy coarse sand. According to the SCS, these soils are relatively non-expansive with moderate strength and low corrosivity potential. In their natural state, portions of these soils are considered to be subject to collapse upon placement of structural loads (e.g. fill). In addition, portions of these soils are also subject to hydroconsolidation upon saturation. Mining potential (i.e. economic value) of these various soils has not been documented, however, on the basis of data evaluated thus far, it is considered to be low due to the amount of fine-grained materials and schistose fragments.

The surface soils in the project area east of 25th Street West are primarily sandy and include younger alluvium with small (up to 1/2 inch) gravel at shallow depths. The deeper soils include sandy silt with some clay and coarse sand and up to 3/4 inch gravel. The soil types include Hanford coarse sandy loam (HbA), Rosamond loam (Rp), Hesperia fine sandy loam (HkA), Adelanto coarse sandy loam (AcA), and Ramona coarse sandy loam (RcC) (Exhibit 4.1-1c, SOILS AND GEOLOGY).

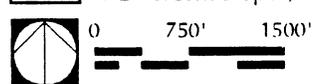
Groundwater

Groundwater within the project area is contained primarily within the Quaternary and Tertiary age sediments, with presumably lesser amounts within fractures in the Portal and Pelona Schists. Groundwater occurs under static conditions within Amargosa Creek, and under confined conditions within the older Quaternary and Tertiary age sediments. The majority of groundwater used in the study area is derived from wells which penetrate the younger Quaternary age sediments.

Based on field reconnaissance, discussions with local homeowners in the Leona Valley study area, and information from a geotechnical report prepared for adjacent parcels, depth to groundwater in the project site and vicinity varies from two to 40 feet below the existing ground surface. Due to complexity of active faulting in the area, depth to groundwater can vary widely over short distances.



| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|--|-------------|---|------------|--|------------|--|-------------|---|---|------------|---|------------|---|------------|--|------------|--|---|------------|--|-----------|-----------|-----------|-------------------------|---|--------------|
| <table border="1"> <tr><td>AcA</td><td>Adelanto Coarse Sandy Loam 0 - 2 Percent Slopes</td></tr> <tr><td>AmF2</td><td>Amargosa Rocky Coarse Sandy Loam, 9 - 55 Percent Slopes, Eroded</td></tr> <tr><td>CaA</td><td>Cajon Loamy Sand 0 - 2 Percent Slopes</td></tr> <tr><td>CaC</td><td>Cajon Loamy Sand 2-9 Percent Slopes</td></tr> <tr><td>CaA2</td><td>Cajon Loamy Fine Sand 0-2 Percent Slopes, Hummocky</td></tr> </table> | AcA | Adelanto Coarse Sandy Loam 0 - 2 Percent Slopes | AmF2 | Amargosa Rocky Coarse Sandy Loam, 9 - 55 Percent Slopes, Eroded | CaA | Cajon Loamy Sand 0 - 2 Percent Slopes | CaC | Cajon Loamy Sand 2-9 Percent Slopes | CaA2 | Cajon Loamy Fine Sand 0-2 Percent Slopes, Hummocky | <table border="1"> <tr><td>HbA</td><td>Hanford Coarse Sandy Loam 0 - 2 Percent Slopes</td></tr> <tr><td>HbC</td><td>Hanford Coarse Sandy Loam 2 - 9 Percent Slopes</td></tr> <tr><td>HcC</td><td>Hanford Sandy Loam 2 - 9 Percent Slopes</td></tr> <tr><td>HkA</td><td>Hesperia Fine Sandy Loam 0 - 2 Percent Slopes</td></tr> </table> | HbA | Hanford Coarse Sandy Loam 0 - 2 Percent Slopes | HbC | Hanford Coarse Sandy Loam 2 - 9 Percent Slopes | HcC | Hanford Sandy Loam 2 - 9 Percent Slopes | HkA | Hesperia Fine Sandy Loam 0 - 2 Percent Slopes | <table border="1"> <tr><td>RcC</td><td>Ramona Coarse Sandy Loam 5 - 9 Percent Slopes</td></tr> <tr><td>Rg</td><td>Riverwash</td></tr> <tr><td>Rp</td><td>Rosamond Loam Fine Sand</td></tr> <tr><td></td><td>Project Site</td></tr> </table> | RcC | Ramona Coarse Sandy Loam 5 - 9 Percent Slopes | Rg | Riverwash | Rp | Rosamond Loam Fine Sand |  | Project Site |
| AcA | Adelanto Coarse Sandy Loam 0 - 2 Percent Slopes | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AmF2 | Amargosa Rocky Coarse Sandy Loam, 9 - 55 Percent Slopes, Eroded | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| HbA | Hanford Coarse Sandy Loam 0 - 2 Percent Slopes | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HbC | Hanford Coarse Sandy Loam 2 - 9 Percent Slopes | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HcC | Hanford Sandy Loam 2 - 9 Percent Slopes | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HkA | Hesperia Fine Sandy Loam 0 - 2 Percent Slopes | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| RcC | Ramona Coarse Sandy Loam 5 - 9 Percent Slopes | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rg | Riverwash | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Rp | Rosamond Loam Fine Sand | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | Project Site | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Soil Conservation Service:
Soil Survey Antelope Valley Area

AMARGOSA CREEK IMPROVEMENT PROJECT • EIR

Geology

Groundwater flow directions generally follow the direction of surface water flow. In the case of the Leona Valley area, groundwater presumably flows to the southeast, paralleling the Amargosa Creek.

Groundwater movement within the Portal and Pelona Schists moves along fractures, joints and foliation planes, discharging into the various sedimentary units which surround these rocks.

Groundwater recharge to the project site is supplied by precipitation and surface-water runoff from the adjacent mountainous areas, and from saturated alluvial areas located upgradient (westerly) of the project area in Leona Valley. Under natural conditions, groundwater presumably discharges into the deep alluvial sediments in the adjacent Antelope Valley. An existing seep is located in the northeast portion of Basin "B", and high groundwater occurs throughout the upper portions of Amargosa Creek in the project area. According to discussions with several homeowners whose homes are supplied with groundwater from wells, groundwater in Leona Valley is suitable for domestic and irrigation uses. However, groundwater in the vicinity of the San Andreas fault can be very "hard" or brackish.

Groundwater east of 25th Street West is contained within the Antelope Valley Groundwater Basin. Due to conversion of agricultural uses to less water-intensive uses, groundwater levels have risen over the past several years (see 4.11, PUBLIC SERVICES AND UTILITIES).

Faulting and Seismicity

The majority of the proposed new alignment for Elizabeth Lake Road lies within the seismically active San Andreas Fault zone. Portions of the planned alignment are bounded, straddle or transected by active fault traces and "photolineaments" (linear features visible on an aerial photograph). The photolineaments could possibly represent the trace of a previously unrecognized active fault. The estimated surface traces of these features are shown on Exhibits 4.1-1a and 4.1-1b, GEOLOGY).

The San Andreas fault is readily apparent in the study area with numerous fault features, such as aligned ridges and valleys, and offset drainage being exhibited. The San Andreas rift zone contains a number of fault traces, and is up to 2,000 feet wide in areas. The main fault traces are easily identified on the surface and on aerial photographs by the closed depressions, linear ridges, narrow troughs, and aligned topographic saddles on the ridges.

Active fault traces also transect Flood Control Basin "B" (see Exhibit 4.1-1a, GEOLOGY). The portion of the project east of 30th Street West is located outside of the San Andreas Fault zone; however, the proximity to the zone would subject this portion of the project to strong ground shaking in the event of a major seismic event along the San Andreas Fault zone.

The San Andreas Fault (zone) is the best known of all California faults due mainly to its known historic seismic activity and destructive capabilities. The central section of the fault (Choalame to San Bernardino) is known for infrequent great earthquakes.

Other major faults that may influence seismicity in the project area include the Garlock fault, Big Pine fault, White Wolf fault, Sierra Madre/Cucamonga fault and San Jacinto fault. These faults are believed to be capable of producing maximum magnitude earthquakes in the range of M6.5 to M7.2 on the Richter Scale. The maximum magnitude earthquake on the San Andreas fault in the vicinity of the project site is commonly reported to be M8.25 (M7.0 is considered a major earthquake).

Attachment A of Appendix 12.2, GEOTECHNICAL ENGINEERING REPORT, presents a compilation of documented active faults within a 60-mile radius of the project site and shows historic seismicity from 1900 to 1988 for earthquakes with magnitudes greater than M4.0.

IMPACTS

Topography

Significant Impacts

- 4.1.1 Construction activities will result in significant landform impacts. Roadway embankment construction will result in an unavoidable significant land form impact.

Construction will require significant grading for a detour road between 20th Street West and west of Bridge Road. Minor grading will be necessary for utility line relocations to temporary poles, although this is not considered significant. Excavation of Borrow Areas and stockpiling within the Ritter Ranch is considered a significant landform modification (although the grading would occur within proposed Ritter Ranch development areas). Road

embankment construction is an unavoidable significant land form impact, as discussed further below.

Modifications of the existing topography will occur during grading for the proposed roadway. These modifications will consist principally of earthwork excavation involving removal of near surface soils within the flood control basins and borrow areas to be used for roadway embankment fill, and removal and recompaction of unsuitable soil beneath the proposed roadway and embankment structures to establish proposed design grades. The majority of excavations will occur in Basin "B", requiring approximately 2.10 million cubic yards of excavation (10 to 20 foot deep cuts throughout Basin "B"). Minor excavations will be required for the Basin "F" and drainage facilities. Several small knolls will be graded significantly. The roadway improvement will require significant fills along the length of the project, particularly in the western portion and through narrow stretches of the canyon. Several drainages will be filled, modified and/or realigned. Based on the proposed grading plans, the project will result in maximum depth of cut and fill slopes of approximately 25 feet and 35 feet, respectively. Maximum height of cut/fill slopes will be approximately 60 feet (refer to Exhibit 3.0-1a-e, PROJECT OVERVIEW, and to preliminary engineering plans available for review at the City of Palmdale).

Natural surface water drainage will be significantly altered with construction of the proposed roadway and basins (due to diverting, modifying and/or filling portions of Amargosa Creek and other local drainages).

Utilities. Relatively minor grading will be necessary for above-ground utilities (the pump stations and reservoir). This is not considered significant.

East of 25th Street West. The Amargosa Creek Improvement Project and Assessment District Draft Final Program EIR (certified 1991) has identified no significant impacts related to topography due to channelizing the Amargosa Creek east of 25th Street West, because excavation of a previously estimated 395,280 cubic yards of soil and relocation were considered minimal. The design storm flow for the channel has since been reduced from a flow of 24,500 cfs to 12,800 cfs, resulting in the downsizing of the trapezoidal channel from 51'(w) x 12'(h) to 10'(w) x 10.5'(h) at 25th Street West. The smaller channel size will therefore require even less excavation and soil transport. The proposed sewer line will require a less than significant amount of additional grading since sewer line grading will occur within the channel access road and road embankment areas to be graded as part of the channelization project. Additional grading for the sewer line is only expected to require excavation of a trench approximately 10 to 15 feet deep and 5 feet wide. The impact of the

line will be minimal, since areas excavated during construction will be filled upon completion of the sewer.

Geology

Significant Impacts

- 4.1.2 Proposed improvements along Elizabeth Lake Road and Amargosa Creek will be impacted by the soils and bedrock along the project due to their highly variable characteristics. However, with implementation of recommended mitigation measures, impacts will be reduced to less than significant levels.

Engineering characteristics of the soils and bedrock along the proposed road and channel realignments are highly variable. Most of the alluvial soils have acceptable compaction and expansion characteristics. However, oversize material (greater than six inches size) is relatively common in the Nadeau Gravel, Harold Formation, and stream channel deposits.

Localized areas or beds of expansion material may be encountered within fault zones, the Anaverde clay shale, the Harold Formation, and younger alluvial deposits.

Portions of the Quaternary age sediments may be subject to collapse and/or hydroconsolidation upon placement of embankment loads and/or saturation by water, and could significantly impact proposed development. In addition, portions of the alluvial soils within the main Amargosa Creek drainage and tributary drainages may be susceptible to liquefaction. Either of these conditions could lead to significant road damage and public safety hazards if not mitigated.

Clay-rich portions of the Portal Schist are considered to have medium or higher expansion potential and could impact the design/construction considerations of portions of the proposed project.

- *Landslides*

Natural or man-made cut slopes which expose unsupported geologic structure, such as foliation and bedding planes, are considered to be potentially unstable. Landslides located on the south side of Elizabeth Lake Road between the power line easement and Lazy T Ranch could fail (move) during a major earthquake on the local trace of the San Andreas

Fault. The effects of future landslides on Elizabeth Lake Road would include limiting the access to Leona Valley from Palmdale. Most landsliding would result as secondary effects of local seismic activity. Much of the roadway in this area will be constructed on fill, which would result in loading the toe area of these slides, providing increased stability in the area. To achieve a 1.5 safety factor, reconstruction or stabilization would be required. Standard stabilization measures would require grading of native woodland and steep hillsides and would also affect power line towers and associated easements. Therefore, implementation of such measures would not be feasible for the project. The proposed realignment of Elizabeth Lake Road will provide some positive affects on the stability of the landslides. As the existing conditions will be improved, further mitigation of the landslides along Elizabeth Lake Road is not anticipated to be necessary dependant upon the risk assessment and government acceptance of maintenance liability.

- *Soils*

All surficial soil materials within the project area are generally considered to be subject to various amounts of collapse and/or hydroconsolidation upon placement of structural loads and/or saturation. If these soil materials were to be left in place, the structural integrity of the proposed roadway, utilities and other facilities could be significantly impacted. Settlement of underlying road alignment soils due to construction of the proposed road embankment is estimated to be approximately one inch. Settlement of the fill is expected to be on the order of 0.2% to 0.4% of the fill height. This will be allowed for in the project construction.

The potential impacts due to corrosiveness of the onsite soils is considered to be low, based on data compiled by the Soil Conservation Service.

Groundwater

Increased groundwater recharge within the floodwater flood control basins will likely result during periods of prolonged rainfall and/or flooding (this is a positive impact).

Groundwater levels are expected to temporarily decline or rise during construction of the project. Temporary groundwater level declines can be expected where unsuitable soil removals require dewatering for excavations (as near Ritter Ranch Road and Elizabeth Lake Road crossings). A temporary increase in subsurface water levels is expected in the vicinity of surface water discharge areas from dewatered excavations, and within the areas

in and around the flood control basins during prolonged rainfall/flooding (this is not considered a significant impact).

No significant impacts to the chemical quality of groundwater within the project area are anticipated, provided construction waste (i.e. oil, grease, etc.) from earthmoving equipment, maintenance vehicles, etc. is not dumped on the ground. The project includes non-domestic water facilities, although use of this water will be subject to Regional Water Quality Control Board approval (see 4.3, WATER RESOURCES).

Faulting and Seismicity

Significant Impacts

- 4.1.3 A major earthquake occurring nearby on the San Andreas Fault zone can be expected to produce extreme ground shaking, fault/ground rupture and lurching within the vicinity of the project area which may result in significant damage. Seismic activity may induce soil liquefaction, rock falls and landslides. The potential for rock falls and landslides is considered an unavoidable significant impact.

It is anticipated that the project area will be affected by moderate to strong ground shaking due to earthquakes on one or more active faults in the region. Due to the proximity of the project to the San Andreas Fault (zone), a major earthquake occurring nearby on the fault can be expected to produce extreme ground shaking, fault/ground rupture and lurching within the vicinity of the project area. Differential movement across the fault of approximately 15 feet is anticipated, with associated major damage. The occurrence of an earthquake and fault rupture along this fault within the next 50 years is considered high. It should be noted that if the San Andreas Fault were to experience ground surface rupture, Elizabeth Lake Road in its current and proposed configuration would be damaged at several locations between Palmdale and Lake Hughes. Access would be severely restricted along this roadway due to the ground surface fault rupture. Other secondary seismic hazards that are the direct result of the vibratory motion or crustal deformation associated with faulting include, but are not necessarily limited to, settlement and liquefaction. Please refer to Section 4.8, RISK OF UPSET, for a discussion of potential hazards of utility line rupture in the event of severe seismic activity. Other significant active and potentially active fault systems in the project vicinity include the: Cemetery, Little Rock, Clearwater, San Jacinto, San Gabriel, San Fernando-Sierra Madre, and Garlock Faults.

It cannot be assumed that ground rupture will only occur on the presently mapped fault traces. It is probable that other fault/shear zones, some of which may not be apparent on the ground surface, could experience sympathetic movement during an earthquake on either the San Andreas or North Branch of the San Andreas Fault.

It has been assumed that the proposed roadway and Flood Control Basin "B" embankment could be damaged in the event of ground surface rupture along the San Andreas Fault and related subsidiary faults. Differential movement across the fault of approximately 15 feet should be anticipated, as well as major damage to Elizabeth Lake Road. While the probability of occurrence of an earthquake (along the San Andreas fault zone) within the next 50 years is considered high, the probability of an earthquake and associated ground surface rupture occurring while flood waters are detained in Flood Control Basin "B" is considered low. The roadway and basin culverts will be designed per Division of Safety of Dams (State Department of Water Resources), and will include "crack stop" material and extra rip rap.

Due to the relatively shallow depths to groundwater in Leona Valley (two to 40 feet below ground surface), soil liquefaction may occur within saturated portions of the unconsolidated Quaternary age sediments. The dense nature of the older Quaternary and Tertiary age sediments (as in the eastern project area), makes the potential for seismically induced liquefaction within saturated portions of these materials remote; however, if not mitigated, liquefaction could result in road damage, damage to proposed culverts, and public safety hazards. Implementation of the recommended mitigation measure requiring densification of soil materials will reduce the hazards to less than significant levels.

The potential for seismically induced rock falls and landslides is considered to be high along the relatively steep slopes adjacent to the proposed and existing road alignment. In the remaining area of the site, the potential is considered to be moderate to low. The potential for seismically induced rock falls and landslides during construction grading operations and prior to reestablishment of slope vegetation will be increased relative to existing conditions. Adherence to standard construction safety and required erosion control practices will reduce this potential. However, this is still considered an unavoidable significant impact. The potential for seismically induced rockfalls and landslides following project completion will be similar to the existing potential, therefore no significant project impacts are anticipated following project completion.

Due to the location of the California Aqueduct, the easternmost segment of the project area could be affected by seismically induced seiche. There is no available means to mitigate this

potential impact; however, the relative small volume of water conducted by the aqueduct nullifies the potential for significant impact.

MITIGATION MEASURES

Topography

- 4.1.1a In addition to the following mitigation measures, compliance with the recommendations from the following sections of the Buena Engineers, Inc. Geotechnical Report, dated ~~March 29~~ **May 3**, 1991, is required to the satisfaction of the City Engineer (~~this report is contained in Appendix B~~): General Site Preparation; Slope Stability; Remedial Excavations; Excavations; Utility Trenches; and Preliminary Paving Sections.
- 4.1.1b Modifications to the existing surface water flow patterns within the affected portions of Amargosa Creek and its tributaries resulting from construction activities within the project area shall be addressed and evaluated by the project design engineer and reviewed and approved by the City Engineer and other agencies having permit authority prior to issuance of grading permits.

Geology

- 4.1.2a If portions of the various Portal/Pelona schistose rocks are to be used for embankment fill, a City-approved geologist shall be present during rough grading in order to evaluate the expansion potential of "clay-rich" areas or zones within this material. Recommendations from a City-approved geologist shall be incorporated into final grading plans, to the satisfaction of the City Engineer.
- 4.1.2b In order to evaluate the nature and extent of the aerial photolineaments which traverse the central portion of this project area, exploratory trenches shall be excavated across these features prior to final grading. Recommendation from a City-approved geologist shall be incorporated into final grading plans, to the satisfaction of the City Engineer.
- 4.1.2c All grading and landform modification shall be carried out under guidelines set forth in Chapter 70 of the Uniform Building Code (as a minimum), state-

of-the-practice design/construction standards, and or guidelines established by other responsible regulatory agencies as appropriate.

- 4.1.2d Remedial grading shall be conducted along the proposed road alignment and flood control basin embankments to mitigate the effects of collapsible surficial soils. This ~~may include complete~~ soil removal, or other site improvement methods requiring evaluation during comprehensive geotechnical studies.
- 4.1.2e Additional laboratory testing of clayey soils, where encountered during subsequent geotechnical investigations, shall be performed and where appropriate, remediation ~~shall be~~ implemented to the satisfaction of the City Engineer ~~prior to the issuance of grading permits in conjunction with project construction.~~

Faulting and Seismicity

- 4.1.3a To mitigate large settlement or liquefaction potential beneath portions of the embankment underlain by loose soils, densification of soil materials in these areas shall be required during grading, ~~as determined by the project's geologic and geotechnical consultants, to the satisfaction of the City Engineer.~~
- 4.1.3b The segment of the roadway from 40th Street West to Basin "E" shall include appropriate signage indicating rockfall hazards.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Natural surface water drainage will be altered and significant grading will be necessary with construction of the proposed roadway and basins. The roadway improvement will require significant fills along the length of the project, particularly in the western portion and through narrow sketches of the canyon. Road embankment construction is an unavoidable significant landform impact.

Due to the proximity of the project to the San Andreas Fault zone, a major earthquake occurring nearby on the fault can be expected to produce extreme ground shaking, fault/ground rupture and lurching within the vicinity of the project area which may result in significant damage to the proposed roadway and drainage improvements. The potential for rock falls and landslides is considered an unavoidable significant impact.



4.2 AIR RESOURCES

Information in this Section is based upon the Final Draft CEQA Air Quality Handbook (South Coast Air Quality Management District (SCAQMD), September, 1992), the Air Quality Handbook for Preparing EIRs (SCAQMD, Revised 1987), Air Quality Data 1987-1991 (SCAQMD), the Final 1991 Air Quality Management Plan (SCAQMD, adopted July, 1991), The National Oceanic and Atmospheric Administration Climatological Data Annual Summary, Amargosa Creek Improvement Project and Assessment District Draft EIR (1991), and the Soil Survey - Antelope Valley Area, California (U.S. Department of Agriculture Soil Conservation Service). Selected excerpts of these references are provided in Appendix C, AIR QUALITY DATA. Local precipitation data was provided by a Leona Valley resident¹. The purpose of this Section is to identify potential short- and long-term impacts to air quality created by the proposed project.

EXISTING CONDITIONS

Climate

The project site lies within the northwestern portion of the Southeast Desert Air Basin (SEDAB), in the extreme southwestern extension of the Mojave Desert. The eastern edge of SEDAB is bounded by the Colorado River. The western boundary follows the ridgeline of a series of high mountain ranges, the San Gabriel, San Bernardino and San Jacinto ranges, which form both a physical and climatological barrier between the Southeast Desert and South Coast Air Basins.

The SEDAB has a desert climate characterized by low annual rainfall, low humidity, hot days and very cold nights. The mean annual precipitation in the SEDAB portion of Los Angeles County averages about 2.5 inches in the lower elevations, most of which occurs between November and March (foothill areas in higher elevations have increased rainfall). Temperature varies greatly between summer and winter. The average annual temperature is 60.7°, ranging from an average minimum of 41.7° in January to an average maximum of 83.9° in July. About 100 days per year reach 90°, while about 60 days drop to slightly sub-freezing temperatures. Relative humidity is generally low in summer; afternoons are particularly dry. These clean, dry conditions result in intense solar radiation that, combined with high temperatures, is highly conducive to photochemical smog formation.

¹ Letter from Mr. Paul G. Sloane, dated November 16, 1990.

The project site is located within the eastern foothill portions of Leona Valley, which is characterized by more cool temperatures and increased precipitation as compared to the desert alluvial fan areas to the east (Palmdale and Lancaster). A Leona Valley resident has reported annual rainfall ranging between 3.9 inches to 16.7 inches and annual snowfall ranging from 0 inches to 18.9 inches, between 1985 and 1990, with average annual rainfall of 8.5 inches.

Winds

Winds in the Antelope Valley are typically brisk and highly persistent, originating mainly from the west and west-southwest. The average speed of approximately 13 mph usually allows any localized pollution to be scattered. Most regional air quality problems are, therefore, due to interbasin transport from the Los Angeles area through mountain passes such as Soledad Canyon. The prevailing winds typically move polluted air from the more densely populated portions of the South Coast Air Basin toward the Southeast Desert Air Basin, with the air entering the Desert Basin from mid-afternoon to late evening.

The Antelope Valley rarely experiences the summer temperature inversions which frequently "cap" polluted air layers in the Los Angeles Basin area. However, inversions can form during cold nights with mild winds, but are usually removed during daytime heating. When these desert inversions form, they may trap pollutants near low-level emission sources such as freeways or parking lots.

Ambient Air Quality

Air quality at any site is dependent on the regional air quality and local pollutant sources. As noted above, regional air quality is primarily a function of basin topography, wind patterns and emissions. Primary pollutants under the influence of these variables react with each other in sunlight to form secondary pollutants such as ozone. Primary pollutants are those emitted directly from a source and include: carbon monoxide (CO), nitric oxide and nitrogen dioxide (NO and NO₂), sulfur dioxide (SO₂), particulates, and various reactive organic gases (ROG). Secondary pollutants are created with the passage of time in the air mass and include ozone (O₃), photochemical aerosols, and peroxyacetylnitrate (PAN). Oxidants (90% of which are ozone from motor vehicles) and particulates represent the major air quality problems in the SEDAB. Air quality in the project area is a function of the primary pollutants emitted locally, the existing regional ambient air quality, and the meteorological and topographic factors which influence the intrusion of pollutants into the air from sources outside the immediate vicinity. Ozone and ozone precursors transported

into the SEDAB from the South Coast Air Basin across the mountain ranges and through the desert passes may be responsible for the occurrence of high ozone concentrations in the SEDAB.

The SCAQMD maintains ambient air quality monitoring stations at numerous locations throughout the SCAQMD. The air monitoring station nearest to the project is operated by the SCAQMD in Lancaster, and is approximately 12 miles northeast of the project site (within Source Receptor Area 14). The data collected at this station is considered to be representative of the air quality experienced in the vicinity of the project area (although the less populated project area is expected to experience lower concentrations of the indicated pollutants). Air quality data for 1987 through 1991 for the Lancaster Station is provided in Table 4.2-1, LOCAL AIR QUALITY LEVELS. As indicated in the Table, fine particulate matter (PM₁₀) and ozone are the pollutants of primary concern in the area. The particulate matter originates within the Southeast Desert Air Basin. However, much of the other pollutants are a result of South Coast Air Basin pollutants spilling over into the desert area.

Vehicle emissions along major arterials currently expose land uses in the project area to increased concentrations of pollutants, particularly carbon monoxide (although exposure is presently limited due to relatively little vehicle travel in the project area). Carbon monoxide is the pollutant of major concern along roadways, as it is directly emitted from motor vehicles.

The various types of pollutants are described below. The information is based on material obtained from SCAQMD (Air Quality Data, 1987-1991). Refer to Table 4.2-1, LOCAL AIR QUALITY LEVELS, for information on days exceeding State and Federal standards.

Carbon Monoxide (CO) is a colorless, odorless gas produced by incomplete combustion of carbon-containing fuels, such as gasoline. Approximately 80 percent of the CO in the atmosphere of the Basin is emitted directly from and slightly downwind of areas with heavy traffic (approximately 82 percent of CO in the Southeast Desert Air Basin is from Mobile Sources).² CO concentrations are generally higher along roadways, especially in the early mornings, late evenings and winter. As shown in Table 4.2-1, LOCAL AIR QUALITY LEVELS, Carbon Monoxide levels did not exceed the State standard of 20 ppm (parts per million, averaged over 1 hour) between 1987 and 1991. The maximum one-hour concentration has fluctuated, averaging 11.4 ppm from 1987-1991. The highest concentration occurred in 1989 with 13.0 ppm.

² Emission Inventory 1989, Air Resources Board, August, 1991, Table A-75.

Table 4.2-1
LOCAL AIR QUALITY LEVELS
 -Compared to State and Federal Standards-
 As monitored at the Lancaster Ambient Air Monitoring Station

| Pollutant | California Standard | Federal Primary Standard | Year | Maximum Concentration ¹ | Days (Samples) State/Federal Std. Exceeded |
|--|--|---|------|------------------------------------|--|
| CO (Carbon Monoxide) | 20 ppm (1-hour average) | 35 ppm (1-hour average) | 1987 | 12.0 | 0/0 |
| | | | 1988 | 11.0 | 0/0 |
| | | | 1989 | 13.0 | 0/0 |
| | | | 1990 | 11.0 | 0/0 |
| | | | 1991 | 10.0 | 0/0 |
| Ozone | 0.09 ppm (1-hour average) ² | 0.12 ppm (1-hour average) | 1987 | 0.17 | 105/32 |
| | | | 1988 | 0.18 | 105/44 |
| | | | 1989 | 0.21 | 95/27 |
| | | | 1990 | 0.15 | 52/7 |
| | | | 1991 | 0.14 | 62/8 |
| NO ₂ (Nitrogen Dioxide) | 0.25 ppm (1 hour average) | 0.0532 ppm (Annual Average) | 1987 | 0.09 | 0/0 |
| | | | 1988 | 0.09 | 0/0 |
| | | | 1989 | 0.08 | 0/0 |
| | | | 1990 | 0.09 | 0/0 |
| | | | 1991 | 0.11 | 0/0 |
| Visibility (Humidity Less Than 70%) | 10 Miles with Humidity Less Than 70% | NS | 1987 | NM | 1 |
| | | | 1988 | NM | 5 |
| | | | 1989 | NM | 2 |
| | | | 1990 | NM | 14 |
| | | | 1991 | NM | 9 |
| | | | | | (William J.Fox Airport) |
| SOx (Sulfates) | 25 ug/m ³ (24 hour-average) | NS | 1987 | 7.3 | 0/NS |
| | | | 1988 | 5.7 | 0/NS |
| | | | 1989 | 17.0 | 0/NS |
| | | | 1990 | 6.0 | 0/NS |
| | | | 1991 | NM | NM |
| Suspended Particulates PM10 ³ | 50 ug/m ³ (24 hour-average) | 150 ug/m ³ (24 hour-average) | 1987 | NM | NM |
| | | | 1988 | NM | NM |
| | | | 1989 | 110 ⁴ | (25/0) |
| | | | 1990 | 342 ⁵ | (22/6) |
| | | | 1991 | 780 ⁶ | (11/3) |

¹ Maximum concentration measured over same period as California standard, although carbon monoxide maximum concentration is for one hour and lead is over 24 hours.

² State standard for ozone decreased from .10 ppm to 0.09 ppm in 1988.

³ PM10 refers to fine particulates with aerodynamic diameter of 10 micrometers or less.

⁴ Based on 56 samples.

⁵ Based on 58 samples.

⁶ Based on 57 samples.

NOTE: Sulfur dioxide (SO₂) and lead were not measured at the Lancaster Station between 1987 and 1991.

NS: No standard set

ppm: parts per million

NM: Not measured

ug/m³: micrograms per cubic meter

Ozone, a colorless gas with a sharp odor, is a highly reactive secondary pollutant (it is not directly emitted). Ozone is the result of complex chemical reactions of primary pollutants, specifically reactive hydrocarbons (also termed reactive organic gases) and oxides of nitrogen in the presence of bright sunlight. Hydrocarbons and nitrogen dioxides are emitted from mobile and stationary sources, with the greater contribution coming from mobile sources in the Basin. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in Palmdale. Therefore, all areas of the South Coast Air Basin and portions of the Southeast Desert Air Basin contribute to the ozone levels experienced at the project site, with the more significant areas being those directly upwind. These concentrations increase in the summer, with peak concentrations increasing from late morning through afternoon.

Because of the excellent dispersive capacity of desert air, the ozone problem is primarily due to transport into the Antelope Valley rather than from any local pollutant contribution. Although local emissions do add incrementally to regional air quality degradation, their effects are obscured by the transport problem.

As shown in Table 4.2-1, the ozone levels at the Lancaster Station have fluctuated over the last five years, exceeding the State standard 95 days in 1989, with a maximum concentration of 0.21 ppm (State standard is 0.09 ppm). The maximum concentration in 1987 was 0.17 ppm, and it increased slightly in 1988 to 0.18 ppm and dropped to 0.15 ppm and 0.14 ppm in 1990 and 1991, respectively. In 1988, the State standard for ozone decreased from 0.10 ppm to 0.09 ppm averaged over one hour.

Nitrogen Dioxide (NO_2) is a reddish-brown gas with an odor similar to that of bleach. NO_2 is formed in the atmosphere primarily by rapid oxidation of nitric oxide (NO). Some NO_2 is also emitted with NO from stationary and mobile combustion sources. These compounds, NO and NO_2 , are referred to collectively as oxides of nitrogen (NO_x). The latest emissions inventory shows that 66 percent of the SEDAB's NO_x is emitted from mobile sources and 34 percent from stationary sources.³ NO_2 is itself a regulated pollutant, but it also reacts with hydrocarbons in the presence of sunlight to form ozone and other compounds that makeup photochemical smog. Seasonal and diurnal patterns in NO_2 concentration vary widely between locations.

³ Ibid.

The Lancaster Station has not exceeded the State standard (0.25 ppm averaged over 1 hour) since 1978, with maximum concentrations declining to 0.08 ppm in 1989 and increasing to 0.09 ppm in 1990.

Sulphur Dioxide (SO₂) is a colorless gas with a sharp, irritating odor. It is emitted directly into the atmosphere, equally by mobile sources and stationary sources such as power plants, petroleum refineries, chemical plants, and steel plants. SO₂ diurnal concentrations are complex, but typically are higher at night. This pollutant is not measured at the Lancaster station; however the SOCAB has relatively low SO₂ concentrations, as no station has exceeded the Federal standard of 0.14 ppm (24-hour average) since the mid-1960's. Therefore, it is inferred that SEDAB has low SO₂ concentrations.

Visibility can be defined as the distance that atmospheric conditions permit a person to see at any given time. Technically, visibility is defined as the farthest distance an observer can distinguish a large black object against the horizon. Reduced visibility causes aesthetic impairment of our surroundings and also interferes with aircraft operations. The greatest contribution to visibility reduction in the Southeast Desert Air Basin is from light scattering by "fine particle" aerosols within the size range of 0.1 to 2 microns (a micron is one-millionth of a meter).

Visibility may be impaired by natural or man-made sources, including natural aerosols such as precipitation, fog, soil particles, volcanic emissions, vegetation, sea spray and organic decomposition products; and man-made sources such as sulfates and nitrates.

Visibility measured at William J. Fox Airfield (which is located in the northwestern portion of the City of Lancaster) exceeded the State standard 1 day in 1987, 5 days in 1988 and 2 days in 1989, 14 days in 1990 and 9 days in 1991.

Total Suspended Particulates (TSP) is the name given to the solid matter suspended in the atmosphere, of which approximately 95% in SEDAB is from stationary sources.⁴ This complicated mixture of natural and man-made materials includes soil particles, biological materials, sulfates, nitrates, organic (or carbon-containing) compounds, and lead. A high volume sampler is used to determine TSP concentration by passing a measured volume of air through a glass fiber filter. The filter then is weighed to determine the concentration of TSP, after which it is analyzed for lead, sulfate, and nitrate by an SCAQMD laboratory. TSP tends to be at higher concentrations in the day but has an unclear seasonal pattern.

⁴ Ibid.

High dust levels result from strong winds and loose, arid soil. Much of the valley dust burden is in the form of large, heavy particles. Larger dust particles pose a less serious health threat than small particles produced by fossil fuel combustion.

Fine Particulate Matter (PM10) are of particular concern in the SEDAB. PM10 are extremely small suspended particulates (10 microns in diameter), which are most often a result of agricultural or industrial operations and combustion. PM10 arises from sources such as road dust, diesel soot, combustion products, construction operations and dust storms. PM10 scatters light and significantly reduces visibility. In addition, these particulates penetrate into the lungs and often damage the respiratory tract. Approximately 1.08% of PM10 is a result of mobile sources within the SEDAB⁵.

California established a State standard for PM10 in August, 1983 (50 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) in 24 hours). Suspended particulates (PM10) were not measured at the Lancaster Station until 1989. The maximum concentration for PM10 in 1991 was $780 \mu\text{g}/\text{m}^3$ and 11 of 57 samples taken exceeded the State standard. Particulate concentrations monitored at the Lancaster Station are representative of the levels experienced at the project site.

Lead. In this Basin, atmospheric lead is generated almost entirely by the combustion of leaded gasoline, and contributed to less than 1 percent of the material collected as total suspended particulates in 1982. Atmospheric lead concentrations have been reduced substantially in recent years due to the lowering of average Lead content in gasoline. Exceedances of the State air quality standard for Lead (monthly average concentration of $1.50 \mu\text{g}/\text{m}^3$) now are confined to the densely populated portions of Los Angeles County where vehicle traffic is greatest.

Lead concentrations are typically highest in late fall and winter due to vehicle emissions being trapped by early-morning surface temperature inversions. Lead concentrations vary diurnally with CO, peaking in the early mornings and late evenings. The Lancaster Station has recorded a steady decline in maximum Lead concentrations, from $0.59 \mu\text{g}/\text{m}^3$ in 1982 to $0.26 \mu\text{g}/\text{m}^3$ in 1986 (not measured from 1987 to 1991).

Sulfates (SO_x). Atmospheric sulfates are formed mostly by oxidation of SO_x, and primarily include ammonium sulfate, ammonium bisulfate and traces of sulfuric acid. High sulfate concentrations occur throughout the year. The highest average concentrations generally

⁵ Ibid.

occur in the months of July through October, as this period registers many days of high relative humidity, strong photochemical activity and limited vertical mixing, all of which favor the conversion of SO_x emissions to Sulfate. Sulfate concentrations do not show sharp diurnal variation, but peak at different times depending on location.

The sulfate levels at the Lancaster Station have decreased from 7.3 ug/m³ in 1987 to 5.7 ug/m³ in 1988. The sulfate level increased substantially in 1989 to 17.0 ug/m³ and then decrease to 6.0 ug/m³ in 1990. Sulfate levels were not measured at the Lancaster Station in 1991. The State standard of 25 ug/m³ averaged over 24 hours has not been exceeded at this Station in the last five years.

Air Quality Management Plan

The proposed project is located in the Southeast Desert Air Basin (SEDAB) and, jurisdictionally, is governed by the South Coast Air Quality Management District (SCAQMD) and the California Air Resources Board (CARB).

The Federal Clean Air Act required the SEDAB to attain all national ambient air quality standards by December 31, 1987. The California Clean Air Act (CCAA) requires the attainment of both the Federal and State ambient air quality standards (AAQS) "as soon as practicable". It is the responsibility of the South Coast Air Quality Management District (SCAQMD) to lead the regional effort to attain state and national AAQS. Thus, in accordance with the State Lewis Air Quality Act (1976) and the Federal Clean Air Act Amendments, the SCAQMD prepared the Air Quality Management Plan (AQMP) (and several updates) for the South Coast Air Basin (SOCAB). In addition, SCAQMD is also responsible for developing and enforcing rules for desert areas within the SEDAB.

The SEDAB is designated a "non-attainment" area for ozone (O₃) and fine particulate matter (PM₁₀). Non-attainment refers to the fact that the Federal and State ambient air quality standards are violated in the region. As a non-attainment region, the region must participate in the State Implementation Plan (SIP) pursuant to the Federal Clean Air Act and amendments thereto. It should be noted that the SEDAB is designated "unclassified" for hydrogen sulfides and visibility. The "unclassified" designation indicates that data for the pollutant does not support a designation of attainment or non-attainment.

SCAQMD's 1989 AQMP was the first AQMP to define a comprehensive control strategy, achievable attainment dates, and an aggressive rulemaking schedule for implementation of the Plan. Even as the 1989 AQMP was being developed, unprecedented population growth

and concurrent environmental pollution precipitated passage of the 1988 California Clean Air Act (CCAA). This law requires stricter controls on pollutants and attainment of the air quality standards within specified time frames. The most recent revision is the 1991 AQMP, adopted by the District on July 12, 1991. The purpose of the 1991 AQMP is to set forth a comprehensive program that will lead the SOCAB and SEDAB portions of Los Angeles and Riverside Counties into compliance with all Federal and State and air quality standards.

Target dates for attainment of Federal Ambient Air Quality Standards (AAQS) have been revised to the year 2000 for CO and NO₂, to the year 2006 for PM₁₀ and to the year 2010 for ozone. Estimates for attainment of State AAQS are between the year 2000 and the year 2010 for CO and the year 2000 for NO₂. Even with full implementation of the 1991 AQMP, State PM₁₀ and ozone standards will not be attained. Future revisions of the AQMP will include additional control measures to bring the basin into compliance with State PM₁₀ standards.

Within the AQMP is a list of strategies designed to improve the transportation system throughout the region. This package of measures explores the feasible limits for long range solutions to system-wide air quality concerns. The control measures in the 1991 AQMP are categorized into three tiers: Tier I includes measures that propose currently available technological applications and management practices that can be adopted within the next five years; Tier II measures are based on significant advancement of today's technological applications within the next ten to fifteen years; and Tier III requires the development of new technologies that are currently in the research stage and that will be implemented within the next twenty years. The AQMP provides an attainment planning framework that sets specific dates by which the SEDAB will achieve the Federal and State air quality standards.

In addition, the 1991 Plan identifies a number of "contingency" measures which it indicates might have to be implemented if some of the Tier I and Tier II measures are not implemented, if the Tier III measures don't occur, or if the expected emissions from adopted measures do not materialize. These contingency measures include propositions such as parking lot fees, limiting vehicle registration, gasoline taxes, highway user fees, and a flat reduction on vehicle miles traveled enforced by some unmentioned form of control. Regulation XV presently requires employers of 100 persons or more to submit trip reduction plans to the SCAQMD. It should be noted that it will take a combination of Tier I, II, and III controls to meet most of the other standards including the State and Federal ozone standard. The 1991 Plan assumes that even with all of the visionary Tier III controls in place, the SCAQMD will still not meet the State ozone or PM₁₀ standards by the year 2010.

In the Final Draft CEQA Air Quality Handbook, SCAQMD-recommended mitigation measures are divided into two categories: Standard Mitigation Measures (SMM) and Best Available Mitigation Measures (BAMM). The SCAQMD recommends that SMM be applied to all projects, regardless of the extent of air quality impacts, in order to reduce cumulative impacts; and that BAMM be applied, as appropriate, when a project has a significant impact on air quality and as such requires a higher level of mitigation.

Senate Bill 151, enacted in 1987, gave the SCAQMD significant new authority to develop and enforce transportation and land use control measures. SCAQMD is in the process of developing and implementing a number of new programs and regulations, such as ridesharing requirements and restricting heavy truck use of freeways during peak hours. Included in the revised plan are new stationary and mobile source controls; carpooling, vanpooling, and other ride-sharing programs; and energy conservation measures. The AQMP is designed to accommodate a moderate amount of new development and growth throughout the Basin. The AQMP projections and mitigations are based on recent SCAG growth forecasts.

The AQMP is one of four comprehensive regional planning documents which govern the project area. These documents include the following:

Regional Mobility Plan (RMP): This plan describes the traffic-related impacts of regional growth, based on population projections from the Southern California Association of Governments (SCAG), and proposes a regional plan to improve traffic flow. The plan includes programs for streets, highways, and public transit.

Regional Housing Needs Assessment (RHNA): This report assesses what amount and type of housing will be needed by individual cities and areas in Southern California, based on SCAG population and housing projections.

Growth Management Plan (GMP): This document incorporates the mobility goals of the RMP, the housing goals of the RHNA, and the air quality goals of the AQMP, into a comprehensive framework for municipal planning. A major thrust of the GMP is to achieve a jobs/housing balance within the various localities that make up Southern California.

Together, these documents outline a coordinated strategy for all cities in the SCAG region to meet specific SCAG and AQMD goals relative to growth, housing, and transportation by the year 2010. These documents also identify specific goals for Subregions in terms of

population, housing, and employment by the year 2010. The City of Palmdale is part of the North Los Angeles County Subregion, which also includes Lancaster and the unincorporated areas of the Antelope Valley. This area has been given goals for population, housing and employment. The Subregion will remain housing rich and jobs poor in the year 2010 (jobs/housing balance ratio of 0.72). A ratio of 1.22 jobs per housing unit represents the theoretical regional (year 2010) balance between jobs and housing.

Increased vehicle miles travelled and congestion result in higher pollutant emissions. The AQMP's projected population, housing, and employment projections for the Antelope Valley inherently assume that the number of commuters to jobs in the San Fernando Valley and the Los Angeles Basin will increase proportionate to the Antelope Valley's population. This assumption is inconsistent with the jobs/housing balance provisions of the AQMP, and is counter to policies adopted by the Cities of Lancaster and Palmdale and the County of Los Angeles.⁶ If projected growth rates are realized and the jobs/housing imbalance is maintained as AQMP predicts, an increased number of residents will continue commuting long distances, thereby further exacerbating the quality of air in the Antelope Valley⁷.

SEDAB Air Quality

The Southern California Association of Governments (SCAG) Baseline Project (1988) is the latest growth forecast data available from SCAG and served as the foundation for development of the SCAG-88 growth forecast policy to replace SCAG-82M (growth forecasts include the desert portions of Los Angeles and Riverside Counties). These factors result in the Baseline Projection estimating 6% higher levels of ROG emissions than did the SCAG-82M growth forecast for SEDAB, erasing the progress planned from mobile source emission reductions towards attaining air quality standards. The intensive development plans for the Palmdale Airport, situated in and impacting SEDAB, also contribute to the higher mobile source emission levels under the SCAG Baseline Projection 1988.

In addition, improving SEDAB air quality is complicated by transport from the South Coast Air Basin. High morning background ozone concentrations occurring in SEDAB are caused by transport of ozone (a secondary pollutant), from the Los Angeles Basin. On transport days, diurnal increases in ozone levels still result from local sources, however, the background concentrations already exceed standards. These findings point to the need to

⁶ Recently SCAQMD shifted its emphasis for projecting impacts on air quality from jobs/housing to vehicle miles travelled.

⁷ City of Lancaster State of the City Report, (Natural Environment), Page 11-B-2, 13.

effect improvements in South Coast Basin air quality, as well as to achieve tighter local controls, in order to attain standards in the Southeast Desert Basin.

Sensitive Receptors

Sensitive populations are more susceptible to the effects of air pollution than are the general population. Sensitive populations (sensitive receptors) who are in proximity to localized sources of toxics and carbon monoxide are of particular concern. Land uses considered sensitive receptors by the SCAQMD include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The SCAQMD provides guidance for local governments to consider when placing proposed sensitive receptors adjacent to land uses with significant CO and toxic emissions. West of 25th Street West, sensitive receptors currently do not exist immediately adjacent to the project site or in the immediate vicinity, with the exception of a few residences. The area northeast of 25th Street West contains several residential communities and other sensitive receptors in the vicinity of 10th Street West. The project does not propose the sighting of additional sensitive receptors.

IMPACTS

Short-term Construction Impacts

Significant Impacts

4.2.1. Short-term impacts on air quality would occur during the grading and construction activities required to implement the proposed project. These temporary impacts will include:

- Particulate (fugitive dust) emissions from grading and clearing activities onsite;
- Air pollutant emissions at the power plant serving the site, while temporary power lines are needed to operate construction equipment and provide lighting;
- Exhaust emissions from the construction equipment used onsite as well as the vehicles used to transport materials to and from the site; and
- Exhaust emissions from the motor vehicles of the construction crew.

With the exception of PM10 emissions, short-term construction impacts would be mitigated to a less than significant level. As the Basin is non-attainment for PM10 and the SCAQMD PM10 threshold would be exceeded, the project would result in a short-term, unavoidable significant impact to local and regional PM10 levels.

- *Fugitive Dust Emissions*

Extensive clearing, grading, excavation, and travel on unpaved surfaces required for the project will create a considerable amount of fugitive dust during the construction phase of the project (including grading for road and channel improvements, flood control basins, excavation in Borrow Areas, and construction of temporary detour roads). Construction activities for large development projects are estimated by the U.S. Environmental Protection Agency to add 1.2 tons of fugitive dust per acre of soil disturbed per month of activity. Including all grading required for the flood control basins, roadway and channels, the project would disturb approximately 500 acres. Assuming grading occurs in 100-acre increments, this would generate approximately 120 tons per month of dust during grading activities. This figure is without mitigation and assumes "worst-case" soil and wind conditions (loose, dry soil), whereas dust control measures such as watering can reduce fugitive dust up to 50%. Therefore, with regular watering the particulate generation would be reduced to 60 tons monthly. Additional dust generation will occur from importing fill material from offsite or from the three adjacent Borrow Areas, and from stockpiling of fill material in the Ritter Ranch area (which is addressed in the Ritter Ranch Specific Plan EIR). Much of the dust generated settles within hours of being generated. This material is inert silicates, rather than the complex organic particulates released from combustion sources which are generally more harmful to health. Dust (larger than PM10) generated by such activities usually becomes more of a local nuisance than a serious health problem.

A large portion on the TSP is comprised of larger diameter particles outside the PM10 size range. Many of these larger dust particles will quickly settle back out on nearby surfaces such as parked cars or landscaping foliage within a few hundred feet of any construction activity source. With prevailing southwest winds throughout the day, dust emissions will usually be carried northeastward from the project site. Soiling effects typically extend 500 feet from the dust source such that there are a relatively limited number of receptors exposed to any temporary fugitive dust impacts. The typical 500-foot construction dust impact zone may become much larger, however, when brisk Santa Ana winds scour freshly disturbed areas, particularly while equipment is operating on unpaved surfaces. With a high frequency of strong winds, even the larger diameter particles may be carried well beyond

the normal 500-foot impact zone. Grading permits are often conditioned to terminate site operations when winds exceed 25-30 mph to minimize such nuisance. Dust will also occur along offsite roads, although this has been minimized by using material primarily from adjacent Borrow Areas.

Of particular health concern is the amount of fine particulate matter (PM10) emitted during construction. As previously described, PM10 poses a serious health hazard (mainly respiratory problems), alone or in combination with other pollutants. Additionally, the Risk Assessment Committee of the California Air Pollution Control Officers Association (CAPCOA) prepared a Air Toxics "Hot Spots" Program, Risk Assessment Guidelines, dated January, 1992, which indicates that the International Agency for Research on Cancer (IARC) has identified crystalline silica as a possible human carcinogen, based on experiments performed on laboratory animals (rats). However, such cancer risks should be estimated for the crystalline silica with a diameter of 10 microns or less (PM10). A telephone conversation with SCAQMD staff indicated that the EPA has not yet taken action regarding these findings. Quartz sand encountered on the project site is crystalline silica, however, it is not respirable. SCAQMD staff stated that there would have to be some kind of grinding action to reduce the silica particles to a respirable size (PM10).⁸ It is assumed that normal grading activities associated with project implementation would not generate enough respirable crystalline silica to create a serious health risk.

The SCAQMD's Final Draft CEQA Air Quality Handbook (September, 1992) provides screening tables used as a guideline for estimating pollutant emissions from construction. These tables include factors used for calculating on-road construction emissions, off-road construction equipment emissions and PM10 (fugitive dust) emissions. Based on Table 9-3, "Screening Table for Estimating Construction PM10 Emissions - Fugitive Dust", within the Final Draft CEQA Air Quality Handbook (SCAQMD), the proposed project would generate approximately 297 tons per quarter of construction PM10⁹. Refer to following discussion for comparison to thresholds.

In conclusion, dust generated by construction activities usually becomes more of a local nuisance than a serious health problem. Construction related dust impacts will be mitigated by compliance with required State, County and City dust control measures.

⁸ Telephone conversation with Kate Chun at SCAQMD, December 23, 1992

⁹ Assumes 90% of loaded trucks on paved local road and 10% of loaded trucks on unpaved roads.

- *Truck and Construction Equipment Emissions*

In addition to the short-term impacts on air quality resulting from fugitive dust generation, exhaust emissions generated from project-related construction equipment and trucks hauling materials to and from the site would also contribute to air quality degradation. Exhaust from heavy-duty equipment is difficult to quantify because of day-to-day variability in construction activities and equipment used. At typical fuel consumption rates, emission rates from construction activities range from about 1 to 4 pounds per hour per piece of onsite diesel equipment and up to 44 pounds per hour for gasoline-powered equipment¹⁰. Within the Final Draft CEQA Air Quality Handbook (SCAQMD), construction equipment is classified as an off-road mobile source of pollutant emissions.

Table 4.2-2, SCAQMD SIGNIFICANCE THRESHOLDS, provides the significance thresholds for air pollutant emissions set by SCAQMD for both project construction and operation. Table 4.2-3, PROJECT CONSTRUCTION EMISSIONS, shows the total estimated pollutant emissions generated during project construction, as calculated by Table 9-8 of the Handbook (Appendix 9). Table 4.2-3 also indicates if the project would result in a short-term threshold exceedance of any of the pollutants analyzed. According to the Draft Final SCAQMD CEQA Handbook, construction emissions are measured in tons per quarter (78 days in this case) for comparison to SCAQMD thresholds. Based on Table 9-8 of Appendix 9 of this Handbook, project construction would generate approximately 1.39 tons per quarter of CO, 0.23 tons per quarter of ROG, 1.36 tons per quarter of NO_x, 0.87 tons per quarter of SO_x, and 0.52 tons per quarter of PM₁₀ (includes both exhaust and tire wear). These figures include emissions from two tracked loaders, two motor graders, four wheeled dozers, and one hundred seventy five hauling trucks (1,053 VMT).

These projected emissions reflect a "worst-case" scenario, assuming no mitigation. With the exception of PM₁₀, all pollutants would not exceed the SCAQMD construction emission thresholds. However, with implementation of applicable Best Available Mitigation Measures (BAMM) provided in the Final Draft CEQA Air Quality Handbook, mobile source PM₁₀ emissions may be reduced by over 70 percent thus mitigating this impact to the extent feasible.

¹⁰ Final Draft CEQA Air Quality Handbook, SCAQMD, September, 1992, Table 9-8-a (Appendix 9).

Table 4.2-2

SCAQMD SIGNIFICANCE THRESHOLDS

| POLLUTANT | SIGNIFICANCE THRESHOLDS | |
|-----------------|--------------------------------|------------------------|
| | Construction (tons/quarter) | Operation (lbs/day) |
| CO | 24.75 | 550 |
| ROG | 2.5 | 75 |
| NO _x | 2.5 | 100 |
| PM10 | 6.75 | 150 |
| SO _x | 6.75 | 150 |

Source: Final CEQA Air Quality handbook, SCAQMD, Chapter 6, February, 1993.

Table 4.2-3

**PROJECT CONSTRUCTION EMISSIONS
(Unmitigated)**

| POLLUTANT | DAILY EMISSIONS (tons/quarter) (78 days) | THRESHOLD EXCEEDED |
|-----------------|---|-----------------------|
| CO | 1.39 | No |
| ROG | 0.23 | No |
| NO _x | 1.36 | No |
| PM10 | 297.52 (includes 297 tons/quarter from fugitive dust) | Yes |
| SO _x | 0.87 | No |

NOTE: Refer to text for mitigated construction emissions.

Construction-related PM10 emissions (fugitive dust, exhaust, and tire wear combined) would exceed the SCAQMD threshold of 6.75 tons per quarter.¹¹ SEDAB is currently designated non-attainment for PM10, therefore, even minor amounts of PM10 generated during construction would result in a significant short-term impact to regional air quality. However, it should be noted that PM10 emissions generated during construction, although significant, are considered temporary and would cease following project completion. In addition, implementation of the specified mitigation measures related to the control of construction-generated fugitive dust would reduce impacts from PM10 emissions to the maximum extent feasible.

- *Odors*

Potential nuisance impacts may also result due to odors associated with site grading and construction activities (such as tar for road asphalt). These impacts will be mitigated through compliance with SCAQMD Rule 402 as specified in the proposed mitigation measures.

Project Operation

Significant Impacts

4.2.2 Traffic from buildout of area land use in 2010 would be accommodated by the proposed project, thus resulting in long-term impacts to air quality. With the exception of PM10 emissions, this impact would be mitigated to a less than significant level through implementation of recommended mitigation measures. As the Basin is non-attainment for PM10 and significance thresholds would be exceeded, the traffic accommodated by the project would result in an unavoidable significant long-term impact to local and regional PM10 levels.

- *Local Impacts*

The project is not expected to result in significant local climate or air quality impacts with the exception of PM10 emissions (refer to Regional discussion). Local carbon monoxide levels are sufficiently low that increased vehicle travel is not expected to result in local

¹¹ Please note that the best available mitigation measures and standard mitigation measures were combined into on list in the Final CEQA Air Quality Handbook.

exceedances of State or Federal air quality standards (although pollutant concentrations will increase due to increased vehicle travel). Studies for the Ritter Ranch Specific Plan indicated an estimated worst-case carbon monoxide concentration of 9.8 parts per million over one hour, which is well below the State standard of 20 ppm over one hour (Year 2010 conditions as shown in Table 7 of the Ritter Ranch Specific Plan Final EIR). In addition, the project, through significant growth-inducing impacts discussed in Section 5.3, GROWTH-INDUCING IMPACTS OF THE PROPOSED ACTION, may facilitate a transformation of the rural Leona Valley climate due to cumulative effects of "urban heat" (vehicle and residential home heat), wind effects and solar radiation absorption changes. Although it would be speculative to conclude that Leona Valley will experience a climate change (due to the numerous unknown complex variables involved), it is possible that project-facilitated growth may affect a noticeable change (it should be noted that certain Leona Valley agricultural operations are dependent on a winter frost).

- *Regional Impacts*

Impacts on air quality due to implementation of the flood control improvements as well as the installation of utility and service lines will be primarily confined to construction activities. The impact for operation of the proposed facilities (as with pump stations, street lighting and maintenance vehicles) will be minimal and, therefore, is not considered in this analysis. It should be noted that the project may induce growth in the vicinity of the site, particularly within the Leona Valley, therefore creating the possibility of additional impacts upon air quality by future growth within the area. Refer to Section 5.3, GROWTH-INDUCING IMPACTS OF THE PROPOSED ACTION, for a detailed discussion regarding growth-inducing impacts upon local and regional air quality.

The widening of Elizabeth Lake Road will increase daily vehicle trip capacity on this road network which will lead to an overall increase in the local pollutant load due to direct impacts from vehicle emissions. Existing emissions, future emissions without the road widening and future emissions with the road widening are listed in Table 4.2-3, VEHICLE EMISSIONS. This table was prepared using emission factors as indicated in the Appendix 9 of the Draft Final SCAQMD CEQA Handbook and traffic data in the City of Palmdale General Plan Circulation Element (1993). This table assumes buildout of the Southwest Planning Area by 2010. In addition, Table 4.2-3 presents only primary pollutant generation of the project, as secondary pollutant generation results from complex factors (sunlight, volume of primary pollutants, wind) that make estimation prohibitive. Therefore, this EIR is limited to primary pollutants in evaluating air quality impacts.

The amount of motor vehicle emissions associated with the proposed project is calculated based upon the total vehicle miles travelled (VMT) as a result of development accommodated by the project. The VMT was determined by multiplying the traffic volume projected for individual segments of Elizabeth Lake Road by the length of those segments. These individual VMT values were then added to obtain the total VMT for the 5.9 mile portion of Elizabeth Lake Road (between Godde Hill Road and 20th Street West). The individual segments make up the length of Elizabeth Lake Road to be widened which is approximately 5.9 miles (refer to Table 4.9-6, FORECAST BUILDOUT DAILY TRAFFIC VOLUMES AND LEVELS OF SERVICE, for the individual segments and their respective traffic volumes).

Development facilitated by the project is expected to result in total VMT of 127,890 along Elizabeth Lake Road at assumed buildout (year 2010) which is an increase of 102,960 VMT, compared to the existing VMT on Elizabeth Lake Road (between Godde Hill Road and 25th Street West). Based on a 15,000 ADT capacity of a two-lane undivided major arterial, the "Future Without Project" scenario would result in approximately 88,500 VMT (also see Section 5.4, CUMULATIVE IMPACTS, for cumulative air emissions from project facilitated development).

Table 4.2-4, VEHICLE EMISSIONS, indicates the existing pollutant generation of vehicle travel on Elizabeth Lake Road, pollutant emissions at build-out, and assumptions associated with the project vehicle emissions. Due to motor vehicle emissions control programs, emission rates from the motor vehicles in Southern California are lower each year. However, the net emissions are increasing in some areas due to increases in contributing vehicles (growth). Employee compliance with SCAQMD Regulation XV requirements such as carpools, vanpools and alternate transportation incentives is anticipated to reduce this impact. The amount of motor vehicle emissions associated with the road widening and future buildout of the area has been estimated by employing a methodology developed by the South Coast Air Quality Management District, which utilizes mobile emissions factors determined by the California Air Resources Board.

It should be noted that the project will provide for bicycle, pedestrian and equestrian access along Elizabeth Lake Road and Amargosa Creek to allow use of non-vehicular forms of transportation (which will reduce traffic, noise and air quality impacts).

The mobile vehicle emissions for the buildout forecast in year 2010 with the project (using year 2009 emission rates) would result in the following estimated daily pollutant generation: 796 pounds of carbon monoxide, 34 pounds of reactive organic compounds, 194 pounds of

Table 4.2-4

VEHICLE EMISSIONS

| Pollutant | Existing Emissions (1993) (pounds/day ¹) | Future Emissions With Project ² (2010) (pounds/day) | Future Emissions Without Project ³ (2010) (pounds/day) |
|----------------------------|--|--|---|
| Carbon Monoxide | 410 | 796 | 549 |
| Reactive Organic Compounds | 28 | 34 | 24 |
| Nitrogen Oxides | 75 | 194 | 56 |
| PM10 Exhaust & Tire Wear | 12 | 42 | 30 |
| Sulfur Oxides | 6 | 21 | 15 |

Source: Traffic figures obtained from DKS Associates: Circulation and Transportation Needs Study for the Palmdale Southwest Planning Area, July, 1990.

¹ Based on 1990 traffic figures with 1993 SCAQMD emission factors.

² Includes both passenger cars and trucks.

³ VMT figure based on forecast buildout year 2010 traffic volumes.

Note: Figures are based on Table 9-5-J-6 (Year 2009) of the Draft Final CEQA Air Quality Handbook, September, 1992. Traffic data is based on the City of Palmdale General Plan Circulation Element (1993), and assumes average vehicle speed for Los Angeles County as stated in Table 9-5-F of Appendix 9 (CEQA Air Quality Handbook). Please refer to assumptions in Appendix C for fleet mix and speed assumptions.

nitrogen oxides, 42 pounds of PM₁₀, and 21 pounds of sulfur oxides (see Table 4.2-4, VEHICLE EMISSIONS). This is considered a significant individual impact to the regional pollutant burden for NO_x as the threshold of 100 lbs/day is exceeded. By implementation of available mitigation measures as recommended and as required in the SCAQMD 1991 AQMP, year 2010 NO_x emissions with the project could be reduced by 15 percent however, the SCAQMD threshold would still be exceeded with implementation of standard mitigation measures as recommended by the AQMP for development. CO levels could be reduced by over 20% thus reducing project CO levels to a less than significant level. These measures specifically apply to development projects and should be implemented on a project-specific basis under buildout conditions. (The project itself will not "generate" vehicle trips, but it will accommodate a significant increase in vehicle trips due to increased road capacity). The road widening may also induce growth in the southwestern Palmdale area which could represent a significant addition of pollutants into the Basin. Refer to Section 5.3, GROWTH-INDUCING IMPACTS OF THE PROPOSED ACTION and 5.4, CUMULATIVE IMPACTS, for a more detailed discussion of growth-inducing and cumulative impacts upon regional air quality and project conformance with the AQMP and SCAG growth forecasts. The widening of Elizabeth Lake Road is necessary to accommodate the currently proposed developments in the area, and to provide for safe vehicle travel.

MITIGATION MEASURES

Short-term Construction

4.2.1 In order to reduce fugitive dust emissions and air pollutant emissions, the following measures shall be implemented during project grading and/or construction to the satisfaction of the City of Palmdale.

- The project shall comply with City, State, County, and UBC dust control regulations, so as to prevent the soil from being eroded by wind, creating dust, or blowing onto a public road or roads or other public or private property.
- Adequate watering techniques shall be employed to partially mitigate the impact of construction-generated dust particulates (at least twice daily). Portions of the project site that are undergoing earth moving operations shall be watered such that a crust will be formed on the ground surface and then watered again at the end of the day.

- SCAQMD Rule 403, as amended, shall be adhered to, ensuring the clean up on the construction-related dirt on approach routes to the site, and the application of water and/or chemical dust retardants that solidify loose soils shall be implemented for construction vehicle access, as directed by the City Engineer.
- Any vegetative ground cover to be utilized onsite shall be planted as soon as possible to reduce the amount of open space subject to wind erosion. Irrigation shall be installed as soon as possible to maintain the ground cover and minimize blowsand.
- Construction access roads shall be paved as soon as possible in order to reduce PM10 emissions.
- Speeds on unpaved roads shall be reduced to 15 miles per hour or less.
- Grading activity shall be suspended when **sustained** local winds exceed 25 miles per hour and during first and second stage smog alerts.
- All trucks hauling dirt, soil or other loose dirt material shall be covered and shall maintain a minimum of two feet of freeboard.
- Heavy construction equipment shall use low sulfur fuel (0.05% by weight).
- Construction activities shall be phased and scheduled to avoid high ozone days.
- Construction equipment shall be fitted with the most modern emission control devices and be kept in proper tune. Motors out of proper tune can result in emissions that vastly exceed recommended standards.

Project Operation

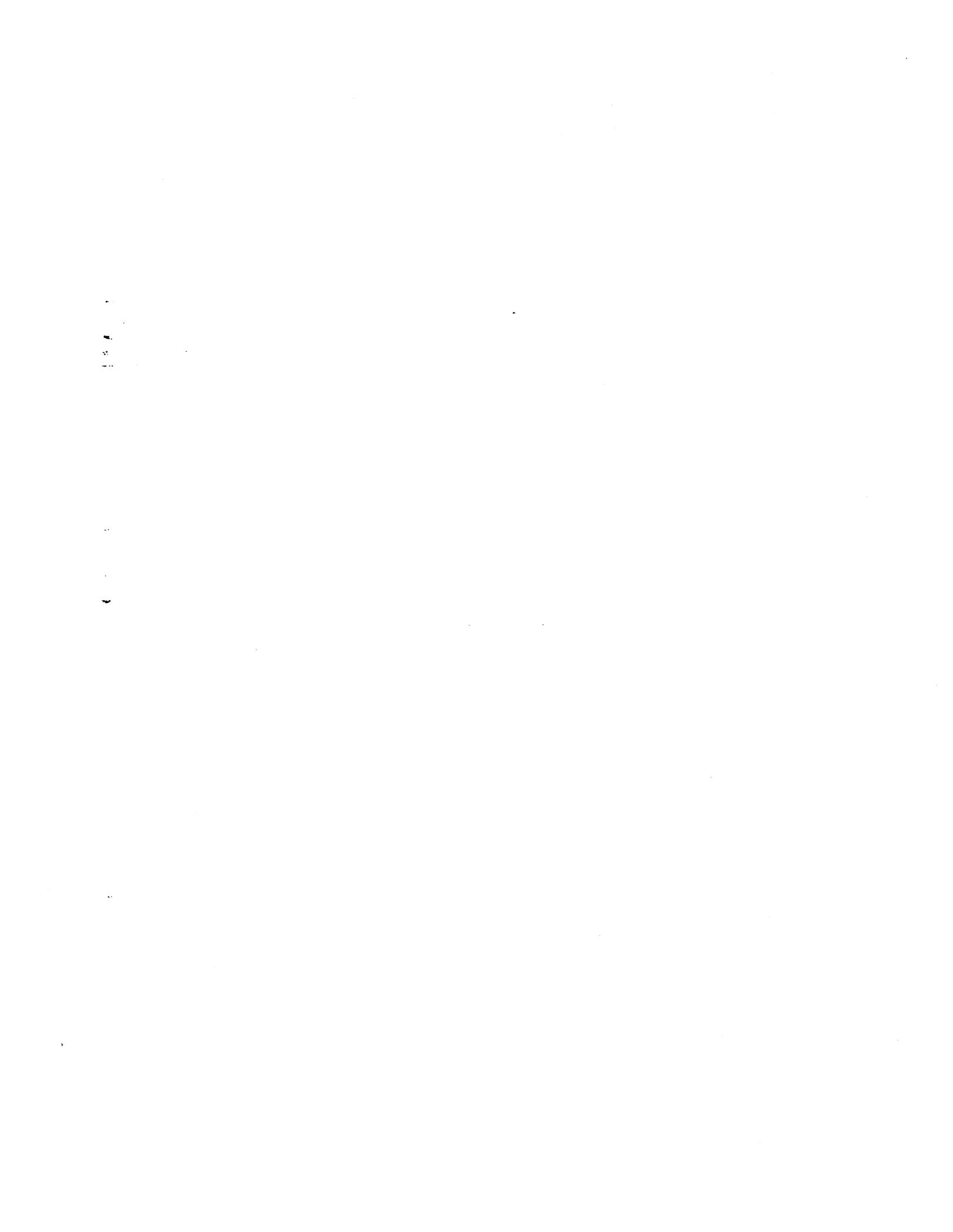
4.2.2 To limit emissions from project-related vehicle trips, the following measures shall be implemented to the satisfaction of the City of Palmdale Planning Department:

- The project shall implement applicable Tier I Control Measures contained in the Final 1991 AQMP, ~~as may be subsequently amended~~ that are in effect prior to finalizing project design plans (that affect project design) and are in effect prior to construction (that affect construction-related emissions), in order to reduce project-related motor vehicle emissions. General measures which shall be applied for the project include:
 - a. Encourage the use of alternative transportation modes by promoting public transit usage and providing secure bicycle facilities.
 - b. Provide mass transit accommodations as part of adjacent development, such as bus turnout lanes and bus shelters if determined necessary by the local transit authority. As final plans are developed, these features should be considered.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of the proposed project is anticipated to significantly increase regional air quality impacts due to additional vehicle trips accommodated by road widening. Significant local climate impacts may result from substantial additional growth accommodated by the project.

As the SEDAB is designated non-attainment for PM10 and significance thresholds are exceeded, the proposed project, in combination with other projects, would result in a significant unavoidable individual and cumulative air quality impact to PM10 levels in the Basin both during and following construction. Under cumulative conditions, the project and build-out traffic would result in an unavoidable significant impact to regional nitrogen oxide levels.



4.3 WATER RESOURCES

The following hydrology discussion is based on a Preliminary Drainage Study prepared by the RBF Water Resources Department, and supplemental flood data provided by KWC Engineers and the City of Palmdale. It includes a preliminary drainage investigation for the Amargosa Creek Improvement Project located in the Amargosa Creek watershed basin in the Antelope Valley. The project site is within the jurisdiction of the Los Angeles County Department of Public Works (LACDPW). All evaluations are based on the LACDPW hydrology manual (revised 1989) and the City of Palmdale Master Plan of Drainage. This section provides a discussion of potential impacts and mitigation measures relating to drainage, flood control, and water quality for the project (refer to Appendix D, PRELIMINARY HYDROLOGY REPORT, for excerpts of the report).

EXISTING CONDITIONS

Annual precipitation in the area is usually relatively sparse and ranges from 6 inches in Palmdale to over 19 inches in the mountains to the south. Amargosa Creek originates from the Leona Valley and flows ~~north~~easterly through the project site, continuing northerly through Palmdale and Lancaster.

Location

From its source in the Leona Valley, Amargosa Creek flows easterly through unincorporated portions of Los Angeles County, then northerly through the cities of Palmdale and Lancaster. Downstream of the project site through the developed portions of Palmdale and Lancaster, Amargosa Creek flows northerly over a relatively flat alluvial plain. Within the rural Leona Valley portion in the project area, the creek is well-contained by the mountains to the north and south. Elevations in the vicinity range from 2,900 feet at the foothills of the San Gabriel Mountains to the south and west, to approximately 2,450 feet in the northern part of the City of Palmdale. The entire watershed tributary to the project encompasses about 19,850 acres (this is the upstream area that drains to Amargosa Creek at 20th Street West, of which approximately 4,130 acres are from Ritter Ranch). The project extends from 1,000 feet west of Godde Hill Road to 3,950 feet northeast of the Antelope Valley Freeway.

Watershed Conditions

- *Morphology*

Amargosa Creek is relatively narrow (within the project area), ranging in width from about 10 feet in confined areas to about 70-80 feet. The Creek follows a relatively straight watercourse with minor meandering except for a large meander in which the flow departs northerly from Elizabeth Lake Road by over 1,000 feet. This occurs in the vicinity of the Ritter Canyon tributary.

Assessments of bed and bank material is important to evaluating the sediment transport characteristics of a river system. Bed material represents the bottom sediments of the creek and varies widely along the length of a stream due to slope and source material characteristics. Generally, the bed material of Amargosa Creek is composed of cobbles and gravelly sands, with occasional small boulders approximately 20-25 inches in diameter. The geotechnical appendix to this EIR (Appendix B) contains additional detailed information on the soil type and source material of the creek.

- *Hydrology*

Previous hydrology studies were prepared by BSI Consultants, Inc. for the City of Palmdale's Drainage Master Plan (BSI, 1988). This hydrology served as a basis for the previous proposed flood control improvement design. Capital storm (approximately 50-year frequency) discharge values were previously estimated at 22,485 cfs at 20th Street West. Current capital storm estimates are 12,800 cfs at 25th Street West (prior to implementing flood control measures).¹

The discharges used to analyze flow tributary to the creek represent existing topographic conditions. However, flows within Amargosa Creek are not expected to significantly change even under ultimate conditions. This is due to the County and City requirement that development within tributary drainage will "meet or beat" existing flows. To this end, the Drainage Master Plan contains a "step-down" requirement for flow on Amargosa Creek into the City of Palmdale. The "bulked" discharge is to be limited to 6,200 cfs at 25th Street West. Currently, the Capital Storm discharge (50-year flood) is approximately 12,800 cfs at this location representing a significant existing flood hazard (bulked, meaning allowing for "bulking" caused by debris during a storm).

¹ Based on a drainage study prepared by AKM Consulting Engineers dated February 17, 1992.

As previously discussed in Section 4.1, EARTH RESOURCES, the project area is characterized by numerous faults, including three active faults (San Andreas, Little Rock and Cemetery, all located within the San Andreas Fault Zone). Faults often act as barriers to the subsurface movement of groundwater. Disparities of up to 150 feet in groundwater elevations have been documented across the segment of the overall San Andreas fault zone within this portion of the Antelope Valley.

Two primary surface sources of groundwater recharge influencing the project vicinity include precipitation/irrigation within the area and percolation of runoff from the ~~San Gabriel Mountains~~ Sierra Pelona into the alluvial soils in the foothills. The primary source of groundwater recharge comes from water collected in the Amargosa Creek watershed.

The slightly permeable hydrogeologic units are Pretertiary granitic basement rocks and bedrock of the Tertiary Anaverde Formation. The early Pleistocene Harold Formation is moderately permeable. Very permeable units are represented by surficial deposits, consisting of the Nadeau gravel, older alluvium, slope wash and colluvium, landslide debris, and recent alluvium. ~~Schist is also relatively impermeable. The Nadeau Gravel and Older Alluvium can contain considerable clay and may not be less permeable than expected. Clay deposits have been encountered in the Harold Formation which have low permeabilities.~~

- *Sediment Yield*

The watershed of the area falls into the Los Angeles County Debris Production Zone IV. During a Capital Storm, the watershed would be expected to produce about 140,000 cubic yards of sediment over its 31 square miles (based on a Los Angeles County Flood Control District Design Manual debris production factor of 4,450 cubic yards of sediment per square mile of watershed). Because of the relatively low sediment production in this area, a sediment yield study was not performed in the upper watershed. Also, a bedload transport study was not performed downstream of the basins. These data would be useful during the final hydraulic design of the channel to ensure a balanced erosion/deposition regime.

- *Existing Improvements*

The majority of Amargosa Creek along the project reach is in the natural condition. The only flood control improvements in the creek are the culvert facilities that exist to

convey flow underneath Elizabeth Lake Road at several locations. These culverts are undersized for the capital storm, and damaging floodflows often wash over the road.

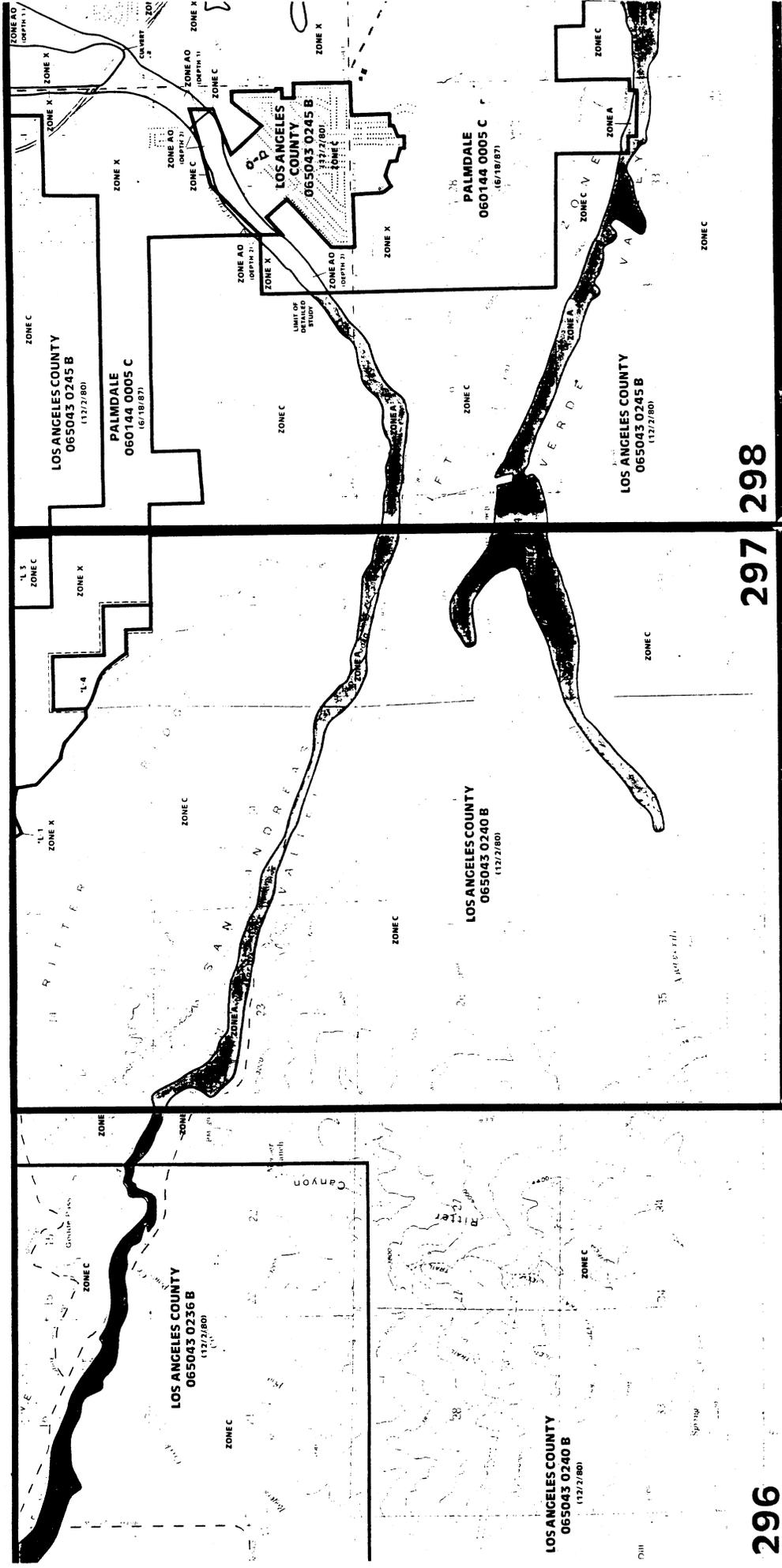
- *Land Use*

The land use information used in the City of Palmdale's Master Plan of Drainage (BSI, Inc., 1988) was obtained from the City's Land Use Plan and the Antelope Valley Areawide General Plan. Therefore, existing condition runoff into Amargosa Creek was derived from land designated as either open space or non-urban (0.5 - 1.0 dwelling units per acre). While it is unrealistic to expect that land use remains as presently zoned, the Master Plan contains the provision that any future zoning changes within the County would require appropriate mitigation to reduce flows to the maximum allowable discharges identified in the Master Plan.

- *Floodplain Mapping*

The flood hazard zones (as depicted by Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps) that currently exist at the Project site and its near vicinity are shown on Exhibit 4.3-1, FLOOD HAZARD BOUNDARY ZONES. The creek itself plus an average of 200 feet on either side of the creek are in the Zone A (shaded) classification. The remainder of the Project vicinity is classified as Zone C. The following is a description of the flood hazard zones and some of the regulations pertaining to development within their boundaries. Zone A is for areas of 100-year flooding. Base flood elevations and flood hazard factors are not determined. Zone C (unshaded) is for areas of minimal flooding. The area has been identified in the community flood insurance study as an area of moderate or minimal hazard from the principal source of flood in the area. However, buildings in this zone could be flooded by severe, concentrated rainfall coupled with inadequate local drainage systems. Local stormwater drainage systems are not normally considered in the community's flood insurance study. The failure of a local drainage system creates areas of high flood risk within this rate zone. Flood insurance is available in participating communities but is not required by regulation in this zone. There are no regulations, with respect to flood insurance, for development within a Zone C area.

The terrain east of 25th Street West can generally be classified as being an alluvial fan (mostly downstream of the project). Extension of the National Flood Insurance Act of 1968 to alluvial fans is a key element in flood loss protection on alluvial fan areas, and towards strengthening the necessary mitigation measures. The flooding process on



Source: FEMA, Flood Hazard Boundary Maps
 Los Angeles County, 1986 (Panels 296,
 297, and 298)



alluvial fans is highly complex. Watercourses on alluvial fans are ephemeral, and watercourse patterns vary with each flood. Flows on alluvial fans typically have high velocities, carry large amounts of debris, and unpredictably change direction. The soils on alluvial fans are usually highly porous and easily erodible. In addition, flow characteristics change abruptly over short distances on most alluvial fans. These characteristics, however, can vary widely among alluvial fans.

Since FEMA recognizes that conditions determining flood hazards may change, such as when flood control improvements are constructed, they have enacted administrative procedures for the revision of flood hazard zones. Revision of a Flood Hazard Zone Map must be requested from FEMA. Following review of hydrologic and hydraulic data in support of a map revision, they issue a Letter of Map Revision (LOMR) which officially revises the effective map. For a proposed project, a Conditional Letter of Map Revision (CLOMR) is issued and the map revision is then dependent on the construction of the proposed project. The proposed improvements to Amargosa Creek would represent a significant change in the flood hazard regime, and would therefore be expected to generate map revisions that would substantially reduce the 100-year floodplain.

IMPACTS

The improvement concept for Amargosa Creek was developed by the Design Team in 1992. Portions of the project will change drainage patterns and absorption rates. However, the proposed improvements will provide valuable flood control benefits by controlling the volume of storm water flows through construction of detention basins and channel improvements.

Proposed Improvements

The drainage improvement plan would reduce flows through the use of three in-line flood control basins (Basins "B", "E", and "F"). Three interim basins may also be constructed in the vicinity of 25th Street West. Streamflow in the creek would largely be conveyed in the existing channel area. Channel modifications would also occur north of 25th Street West.

A major feature of the project is the realignment of Elizabeth Lake Road. In some places, the proposed road embankment would also serve the dual purpose of a channel wall. Throughout much of the proposed reach, the channel would consist of the road

embankment on one side, and the natural channel on the other side. Refer to Section 3.0, PROJECT DESCRIPTION, for additional project design characteristics.

Short-Term Construction Impacts

Significant Impacts

- 4.3.1 The project would result in increased sedimentation due to increased erosion where soils are exposed. Implementation of recommended mitigation measures will reduce this impact to less than significant levels.

A wider surface disturbance (and associated sedimentation) will result due to additional temporary vehicle movements during the construction phase, relative to project completion. Construction of Elizabeth Lake Road, Amargosa Creek Channel improvements, will result in temporary increases in sedimentation, due to increased erosion where soil is exposed, including stockpiling areas along the dirt access road, Elizabeth Lake Road and in undeveloped areas (particularly if stockpiling were to occur within the 100-year floodplain). This will not be a significant impact with implementation of recommended mitigation measures.

Drainage/Flood Control Impacts

Significant Impacts

- 4.3.2 Potential flooding of the Lazy T Ranch and other properties is an existing hazard which will remain following implementation of the proposed project. However, the proposed project will substantially reduce this flood hazard relative to existing conditions; therefore, the proposed project will not have a significant adverse impact upon flood hazards.
- 4.3.3 Project improvements will significantly impact existing drainages (see 4.1, EARTH RESOURCES).

The creek improvement project will significantly impact Amargosa Creek due to road fills, and will divert/modify the natural drainage course in several locations (particularly between Basin "E" and Ranch Center Drive). The original BSI, Inc. rational run (hydrology model) was modified in 1992 to reflect the several flood control basins

proposed along Amargosa Creek. Based on revised (reduced) flood projections noted above, the proposed system will be designed to achieve $\pm 3,000$ cfs at 20th Street West (the present 50-year flood would yield 12,800 cfs)². The hydrology calculations used in the project design are conservative in accordance with County and State Division of Safety of Dams requirements. The 25% "burned and bulked" assumption allows for debris and sediment within storm flows (this is adequate to allow for wetland vegetation growth, which is estimated at 1% of the Basin "B" volume³).

Although the net effect of the project will be to significantly reduce local and downstream regional flood hazards, certain areas may locally experience greater flooding due to alteration and diversion of storm flows, primarily Lazy T Ranch. It should be noted that portions of Lazy T Ranch are currently subject to significant flood hazards.

Hydraulic Impacts

Significant Impacts

- 4.3.4 Erosion and deposition of streambed material is a potentially significant impact that will be rendered less than significant with implementation of mitigation measures.

The following factors are considered the most important in estimating erosion that may be associated with increases in velocity occurring along Amargosa Creek (Simons, Li & Associates, 1982):

- velocity patterns
- discharge patterns
- channel hydraulics (depth, width, and slope)
- size distribution of bed material with depth
- sediment load being transported by stream
- trap efficiency of the basin or reservoir

It is recognized that a riverbed below a dam or basin degrades due to the stoppage of sediment being transported downstream (sediment tends to "drop out" in flood control

² Based on a drainage study prepared by AKM Consulting Engineers, dated February 17, 1992.

³ Assuming 3-foot high growth in Zone A and 37-foot high growth in Zone B at 5-foot spacing on center with 10" diameter trunks.

basins). The resulting "sediment-poor" water leaving a flood control basin picks up additional material that otherwise would remain. This process mostly removes the finer materials, resulting in an armored, coarser bed material immediately downstream of the dam. Eventually, an equilibrium condition establishes in which the downstream bed material is armored against any additional erosion or slope change (Simons, Li & Associates, 1982).

The proposed improvements to Amargosa Creek are likely to experience only minimal velocity impacts since the design methodology includes keeping the velocities at their present levels or less. Therefore, erosion due to increases in velocities is not expected to occur. Water discharge from the basins would pick up sediment along the stream bed and transport material further downstream, regardless of whether velocities were maintained, resulting in significant basin deposition and erosion of the downstream channel. Even with current modelling capabilities, this issue is expected to require observation after project construction and implementation of available corrective measures. Upstream erosion and downstream deposition of streambed material would be a significant impact if unmitigated. However, implementation of recommended mitigation will render this impact less than significant.

Although the stream channels and detention basins may experience significant erosion and deposition, the total amount of sediment transported to the end of the project reach (near Avenue O) is not anticipated to increase and should in fact decrease. The flood control improvements would attenuate the peak 50-year flow at 25th Street West, reducing it from the present peak of 12,800 cfs under natural conditions to 3,000 cfs under improved conditions. A hydraulics and sediment transport study completed by Psomas and Associates concluded that approximately 41,000 cubic yards of material would reach 10th Street West during the 50-year flood under improved conditions.⁴ During the more frequent 1,000 cfs hydrograph, approximately 2,600 cubic yards of material would inflow into the area. Since reductions in peak flow volumes typically result in decreases in total sediment yield, deposition under improved conditions would be expected to be less than under current natural conditions. Additionally, the proposed detention basins and design features such as drop structures and desiltation ponds would allow for additional settling of sediments before flood waters reach 10th Street West.

⁴ Hydraulics and sediment transport study prepared by Psomas and Associates, dated August 21, 1992.

Another impact related to the flood control basins is expected to be a beneficial impact. Since flood control basins hold back water for later release, the overall effect is an extension of the amount of time water flows in the channel. This increase in peak release time would improve groundwater recharge and help maintain riparian vegetation.

Water Quality Impacts

Significant Impacts

- 4.3.5 The proposed project will not result in increased pollutant load within Amargosa Creek relative to existing conditions; however, development of surrounding properties would likely result in such an increase, creating significant cumulative water quality impacts. Implementation of the specified mitigation measures will reduce the amount of pollutants entering Amargosa Creek to less than significant levels.

Stormwater discharges from the proposed residential developments surrounding Amargosa Creek would consist mainly of non-point source surface runoff from streets, lawns, parks, and upland undeveloped areas (other than increased road pollutants from additional traffic, the project will not directly impact water quality, although significant impacts may occur from growth facilitated by the project). The constituents of concern and significance to downstream water quality in these discharges are those resulting from motor vehicle operation, oil and grease residues, leaf fall, application of chemical and organic fertilizers and pesticides, human littering, careless material storage and handling, poor property maintenance, animal droppings, and pavement disintegration. These typically include coliform bacteria, total suspended solids (TSS), biochemical oxygen demand (BOD), chemical oxygen demand (COD), total organic carbon (TOC), and total petroleum hydrocarbons (TPH).

As an active participant in the National Pollutant Discharge Elimination System (NPDES) administered by the U.S. Environmental Protection Agency (EPA), Los Angeles County maintains surface water quality monitoring programs at strategic locations throughout the Los Angeles Basin. Stormwater runoff samples collected are analyzed for nutrients, trace metals, total coliform, oil and grease, specific conductance, dissolved oxygen, temperature and pH. However, most of the water quality monitoring stations are located at systems associated with land use activities identified to significantly impact the beneficial uses of waters in Los Angeles County.

The proposed developments surrounding Amargosa Creek, being residential with limited commercial and no industrial activities, would not cause significant impairment to the beneficial uses of receiving waters. As such, they would not require active monitoring that takes place adjacent to significant dischargers.

Development of surrounding projects may result in a cumulative increase in pollutant load. Depending upon when the EPA promulgates definite guidance for the pending Stormwater Management Program, the proposed residential developments would be required to implement management, control, and mitigation measures. One of the most effective and reliable methods of reducing sedimentation and pollution downstream is the use of flood control basins (see below). Such project by project mitigation is anticipated to reduce cumulative pollutant loads to less than significant levels.

- *Street Washoff of Pollutants*

The major threat to water quality from the area surrounding Amargosa Creek, assuming that proposed upstream developments take place, is the washing-off of pollutants that accumulate on the residential streets throughout the upstream drainage areas. It is estimated that the proposed project will yield an accumulation of approximately 650-800 pounds of pollutants per curb mile after the first storm event of the season, or a maximum of approximately 4,800 pounds of pollutants for the 5.9 mile roadway project (refer to the MUNP Model discussed in Appendix D). As the majority of street runoff pollution occurs in the first rainfall event of a season ("first flush", resulting in "shock loading" of pollutants to downstream areas), minimizing pollutant buildup on street surfaces is important to pollution control.

- *Flood Control Basins*

Control of pollution from urban runoff, as well as restoration of degraded wetlands, are significant benefits that flood control basins may provide in addition to their flood control functions. A flood control basin that also acts as a sedimentation basin, or alternatively, contains a separate sedimentation basin component, would provide more pollution control than a flood control basin alone. Results of field and laboratory studies indicate that sedimentation basins have suspended solids trap efficiencies in excess of 90 percent (Walesh, 1989). Furthermore, basins may significantly reduce the concentration of pollutants other than suspended solids. Examples of these pollutants include pesticides, heavy metals, and fertilizer residues, such as nitrogen and phosphorous.

In a combined flood control basin/sedimentation basin/wetland system, the sedimentation basin would have the function of removing suspended solids, absorbed and adsorbed substances, and buoyant debris. The wetland would function as a physical and biological filter to remove additional suspended solids, colloidal material, nutrients, and other substances (Walesh, 1989). The system would therefore provide a primary purpose of flood control with associated benefits of water quality enhancement.

The flood control basins along Amargosa Creek are expected to capture and control many of the pollutants that surface runoff would otherwise convey into the creek. Basin "B", especially, offers tremendous opportunities to restore wetland areas that have been degraded by grazing.

MITIGATION MEASURES

Short-term Construction

Refer to Mitigation Measure #4.3.3

Drainage/Flood Control

- 4.3.2 None Required. Construction of the proposed project will serve as mitigation for flood hazards related to the Lazy T Ranch and other properties in the watershed.
- 4.3.3a Natural slope banks and/or natural materials shall be utilized to the extent feasible in order to minimize channel modification. (It should be noted that upstream detention and reduced flood projections have allowed for greater use of natural channel features.)
- 4.3.3b Facilities shall be designed and constructed in accordance with the City of Palmdale Drainage Master Plan and LACFCD Hydrology Manual to the satisfaction of the City Engineer.
- 4.3.3c Flood control basin facilities shall incorporate adequate peak attenuation and storage features and safety provisions (fencing, signage), to the satisfaction of the City Engineer.

- 4.3.3d The City shall install stakes in Basin "B" to annually monitor deposition, and shall periodically inspect streambed areas downstream of flood control basins for excessive erosion. In the event of excessive deposition or erosion, the City Engineer shall implement appropriate available corrective measures in the interest of public safety, and with respect to limited maintenance activity permitted in the wetland mitigation portion of Basin "B", as stipulated in the project's U.S. ACOE 404 Permit.
- 4.3.3e The Water Quality Control Plan shall also include measures to minimize pollutant loads in Amargosa Creek, including:
- a. Periodic cleaning of paved areas (street sweeping) to remove sediments with absorbed pollutants shall be required to be implemented by the City.
 - b. Controlled use of pesticides and fertilizers within common areas shall be enforced through provisions in the Landscape Plan, including frequency and type of fertilizers/pesticides to be used, and application by qualified persons.

Hydraulic

Refer to Mitigation Measure #'s 4.3.3d and 4.3.5.

Water Quality

- 4.3.5 The City shall prepare a Water Quality Control Plan prior to issuing grading permits. The plan shall indicate specific means of reducing urban pollutants and sedimentation including but not limited to the following:
- a. The project shall provide appropriate sediment traps in open channels and energy dissipators in stormwater conduits and storm drain outlets.
 - b. Surplus or waste material from construction shall not be placed in drainage ways or within the 100-year floodplain of surface waters.
 - c. All loose piles of soil, silt, clay, sand, debris, or other earthen materials shall be protected in a reasonable manner to eliminate any discharge to waters of the State.

- d. Dewatering shall be done in a manner so as to eliminate the discharge of earthen material from the site.
- e. All disturbed areas shall be stabilized by appropriate soil stabilization measures by October 15th of each year. Avoid grading during the October-March rainy period.
- f. All work performed between October 15th and May 1st of each year shall be conducted in such a manner that the project can be winterized within 48 hours.
- g. All nonconstruction areas shall be restricted by fencing, signage or other means to prevent unnecessary disturbance.
- h. During construction, temporary gravel or sandbag dikes shall be used as necessary to prevent discharge of earthen materials from the site during periods of precipitation or runoff.
- i. Stabilizing agents such as straw, wood chips and/or hydroseeding shall be used during the interim period after grading in order to strengthen slopes while ground cover takes hold.
- j. Impervious areas shall be constructed with infiltration trenches along the downhill edges to dispose of all drainage emanating from them.
- k. Revegetated areas shall be continually maintained in order to assure adequate growth and root development.
- l. Physical erosion control facilities shall be placed on a routine maintenance and inspection program to provide continued erosion control integrity.
- m. Where construction activities involve the crossing and/or alteration of a stream channel, such activities should be timed to occur during the period in which streamflow is expected to be lowest for the year, and only after obtaining a 404 Permit (Army Corps of Engineers) and a 1601/1603 Agreement (California Department of Fish and Game), as necessary.

- n. Routine cleaning of manholes and catch basins shall be performed to remove sediment and debris.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of the proposed project will significantly alter the existing drainage patterns on the project site. Significant flood hazards will remain for several properties currently subject to flood hazards, including Lazy T Ranch. Significant cumulative water quality impacts would occur, although project design and mitigation measures will substantially reduce this impact.

4.4 BIOLOGICAL RESOURCES

Biological information used in this section was obtained from biological surveys performed by Pacific Southwest Biological Services, Inc. (PSBS) and Michael Brandman Associates (MBA) for the proposed Amargosa Creek Improvement Project area. The extent of jurisdiction by the U.S. Army Corps of Engineers (ACOE) for the portion of the project west of 25th Street West was determined by criterion established following a field inspection of the project, focusing on the more sensitive Basin "B" area, by Ms. Elizabeth Varnhagen of the ACOE Regulatory Branch, Los Angeles District (refer to Appendix E, BIOLOGICAL RESOURCES ASSESSMENT, for additional detail and methodology). For the portion north of 25th Street West, MBA conducted focused surveys for the desert tortoise (*Gopherus agassizii*) and the Mojave ground squirrel (*Spermophilus mohavensis*) as well as a focused sensitive plant species survey in 1990. Field data was supplemented by a biological resource assessment for the Ritter Ranch Specific Plan project (conducted in May, 1990). Additional information is based on a U.S. Army Corps of Engineers 404 Permit Application Package prepared by RBF, including a wetland mitigation plan prepared by PSBS (April, 1991).

EXISTING CONDITIONS

Botanical Resources

- *Vegetational Overview*

The following is a brief description of the location of the various vegetation types occurring on the project site. The lower slopes in the project area support Joshua tree/juniper woodland, desert scrub, Great Basin sage scrub, mountain meadow, and annual grassland. The Amargosa Creek drainage channels contain five riparian associations including cottonwood riparian, willow riparian, mulefat scrub riparian, tamarisk woodland and desert wash vegetation. These riparian strips are generally relatively thin as they are contained within the typically incised narrow active stream banks of the channel. However, they are of a high ecological value (particularly the native cottonwood, willow, and mulefat areas) as they provide food and shelter for a variety of resident and migratory wildlife species.

The western, upstream half of the site supports a variety of vegetation types (refer to Exhibit 4.4-1A, VEGETATION). Willow riparian woodland is present within the Amargosa Creek drainage in three locations: within the proposed Basin "E" site, a small area north of Basin "B", and a large (approximately 3,500 foot) strip in the western-most portion of proposed

Basin "B". Annual grassland and mountain meadow vegetation inhabit the relatively level ground adjacent to the stream course and on the floors of the small canyons tributary to the main Amargosa Creek drainage.

The eastern, downstream portion of the onsite drainage contains cottonwood riparian woodland, mulefat scrub, the tamarisk woodland, and desert wash vegetation (refer to Exhibit 4.4-1B and 4.4-1C, VEGETATION). Willow riparian woodland is not represented in the downstream half of the project site. A single strip of invasive tamarisk woodland approximately 1,000 feet long is located along a bend in the creek west of the Lazy T Ranch. The surrounding upland areas support large stands of Joshua tree/juniper woodland, desert scrub, and Great Basin sage scrub, and an area of annual grassland in the vicinity of the Lazy T Ranch. The majority of the project site east of 25th Street has been previously disturbed by human uses. No riparian or marsh areas exist along this portion of the natural channel.

- *Vegetation*

Ten vegetation types were delineated on the proposed project site: mountain meadow, mulefat scrub, cottonwood/willow riparian woodland, tamarisk woodland, Great Basin sage scrub, rabbitbrush scrub, annual grassland, orchard/residential and Joshua tree/juniper woodland and desert wash (see Exhibits 4.4-1A and 4.4-1B, BIOLOGICAL RESOURCES). For the purposes of determining "wetland" loss in U.S. Army Corps of Engineers (ACOE) jurisdiction (within "waters of the U.S.", ACOE jurisdictional wetlands include the riparian woodland/scrub communities (willow, cottonwood, mulefat and tamarisk), as well as the saltgrass (*Distichlis*) portion of the mountain meadow habitat. Please note that vegetation mapped in Exhibit 8 shows riparian woodland/scrub of typically 50 feet to over 100 feet in width along a relatively narrow channel, and is therefore considered a conservative (worst-case) estimate of habitat quantity (much of the woodland/scrub habitat is poorly defined and typically no wider than a tree crown, approximately 50 feet at maximum). Actual ACOE wetland areas are expected to be substantially less using ACOE criteria for soils, hydrology and vegetation due to the heavily incised nature of much of the channel. The following is a brief discussion of the general location and species composition of each of the ten vegetation types encountered on the site.

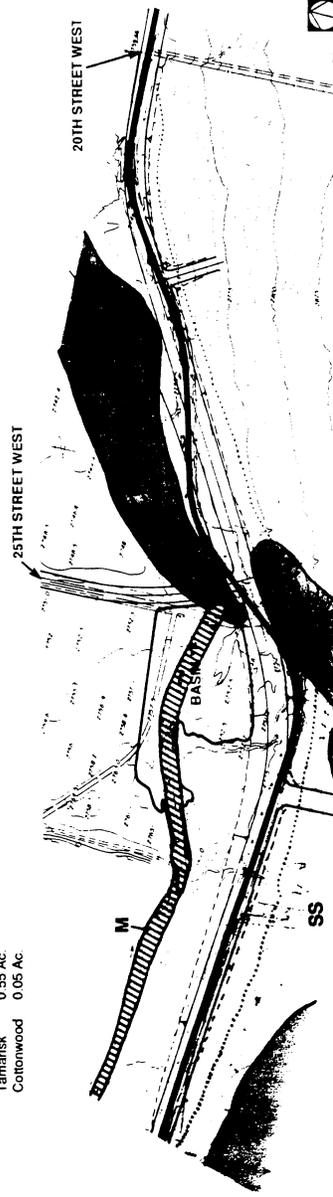
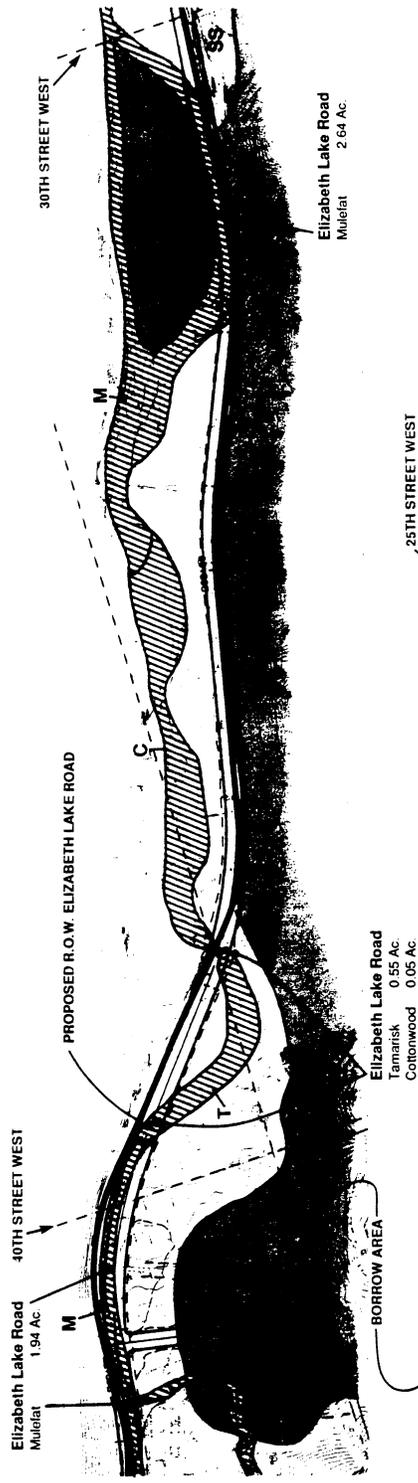
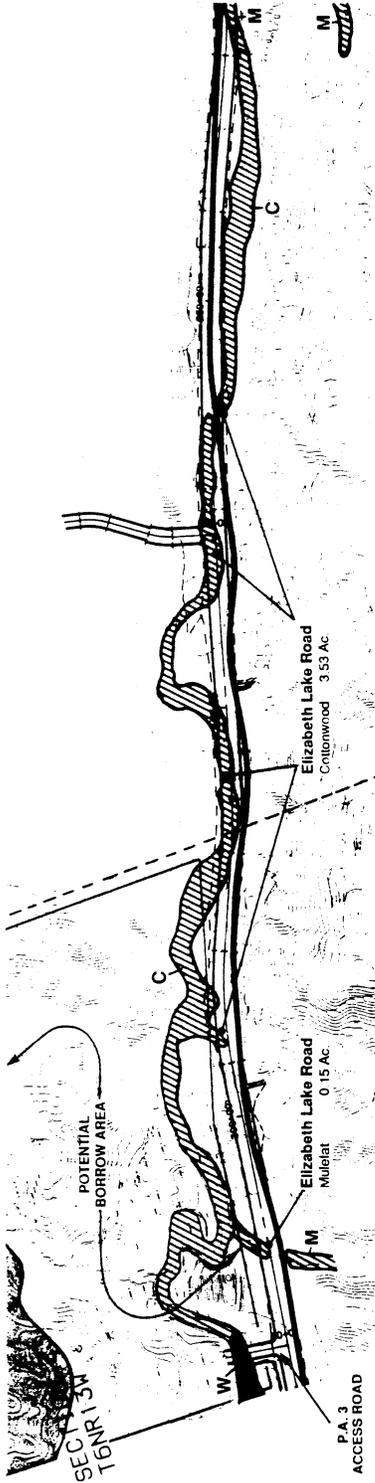
Mountain Meadow. The upper portion the channel, located below the intersection of Godde Hill Road and Elizabeth Lake Road (proposed location of Flood Control Basin "B"), is a broad valley which is dominated by a sward of *Carex*, *Juncus*, *Distichlis* and *Elymus*

Existing Vegetation and Jurisdictional Area

| | |
|--|---|
| | Joshua Tree/Juniper Woodland |
| | Cottonwood Riparian |
| | Willow Riparian |
| | Mountain Meadow |
| | Great Basin Sage Scrub |
| | Mulefat Scrub |
| | Corps of Engineers Jurisdiction in Basin B and along Channel * |
| | Existing Road |
| | Tamarisk Woodland |
| | All Other Areas are Annual Grassland, Desert Sage Scrub, Disturbed or Residential |

Note: This exhibit is for illustrative purposes (acreage impact estimates were based on 1" = 40' engineering plans).

* Jurisdictional areas not assigned a habitat type were determined by the presence of *Distichlis spicata* (Saltgrass).



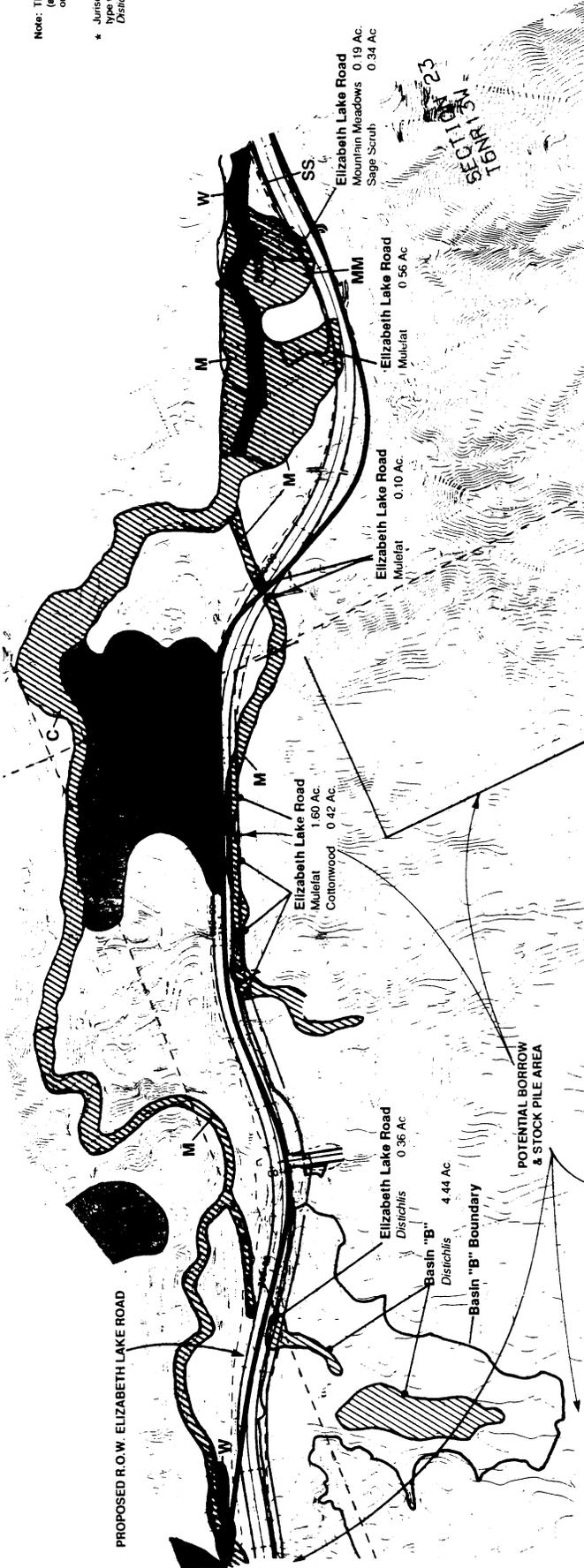
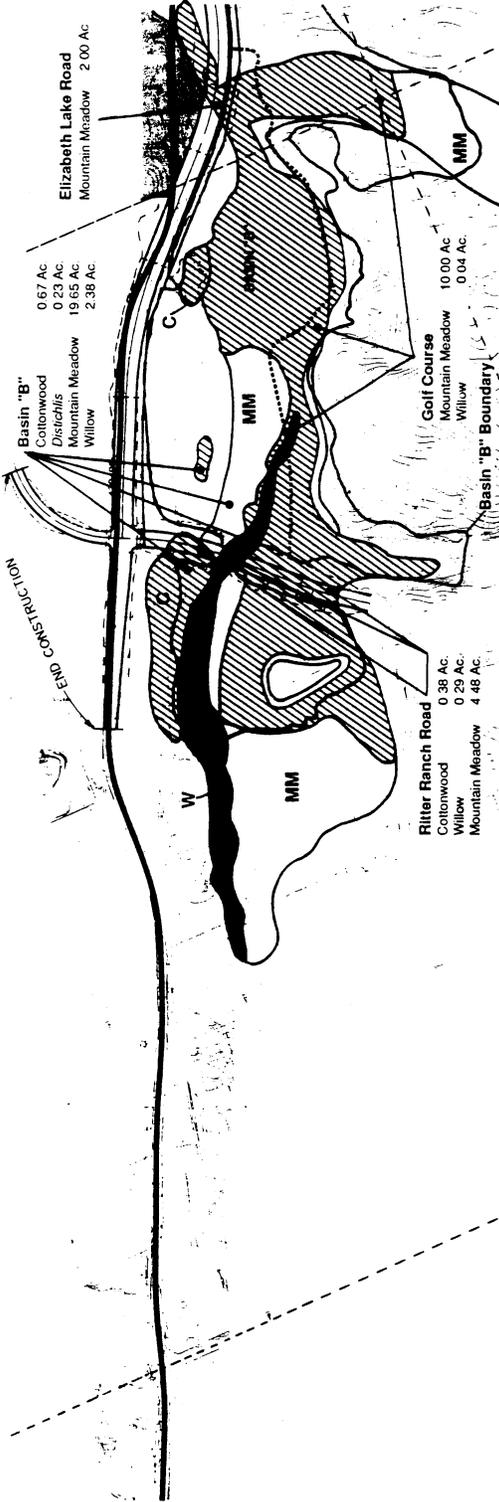
Source: R. Mitchell Beauchamp, Pacific Southwest Biological Resources



| | |
|--|---|
| | Joshua Tree/Juniper Woodland |
| | Cottonwood Riparian |
| | Willow Riparian |
| | Mountain Meadow |
| | Great Basin Sage Scrub |
| | Mulefat Scrub |
| | Corps of Engineers Jurisdiction in Basin B and along Channel * |
| | Existing Road |
| | All Other Areas are Annual Grassland, Desert Sage Scrub, Disturbed or Residential |

Note: This exhibit is for illustrative purposes and is not intended to be used for engineering plans on a 1" = 40' engineering plan.

* Jurisdictional areas not assigned a habitat type were determined by the presence of *Distichlis spicata* (Saltgrass).



Source: R. Mitchell Beauchamp, Pacific Southwest Biological Resources

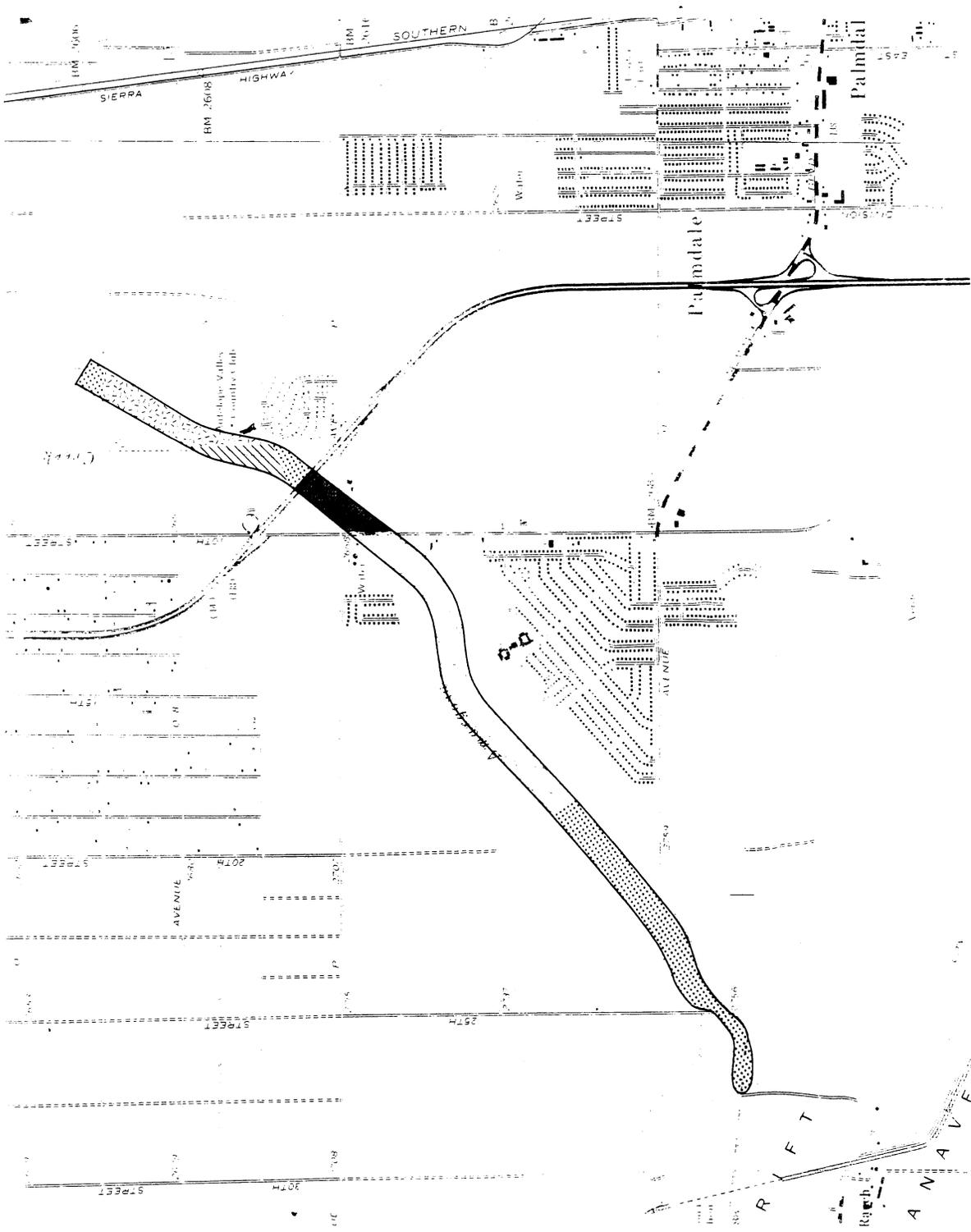
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Robert 'Bert' William 'Burr' G. Associates
 2005-2025

Vegetation

-  Joshua Tree/Juniper Woodland
-  Ruderal Desert Scrub
-  Golf Course
-  Existing Concrete Culvert
-  Desert Wash
-  Desert Scrub (High Quality and Disturbed)

NOTE: A U.S. Army Corps of Engineers 404 Permit and a California Department of Fish and Game 1601 Agreement have already been secured for this segment of the project, as part of the previously certified "Phase 1" EIR. Project modifications may require amendments/revisions to the approved permit/agreement.



0 1500'



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 203
 JUN 26/93 3625

species (a small area is located in Basin "E"). The valley has been heavily grazed and, due to the dry conditions during the survey, data from a prior investigation of the site was utilized in determining the floristic composition of the meadow.

Mulefat (*Baccharis salicifolia*) is the dominant entity for the majority of the Amargosa Creek channel. Generally, this vegetation type is very sparse and resolution of this vegetation category from others is somewhat arbitrary at times.

Cottonwood and Willow Riparian Woodland. The most conspicuous vegetation along Amargosa Creek is the cottonwood riparian woodland. Willows are also present, but are limited, perhaps by the lack of long-term surface flows (a representative stand is located east of Ranch Center Drive and the tamarisk infestation). Understory of the cottonwood woodland is nil due to its narrow width, which is usually the width of a single tree crown.

Tamarisk Woodland. The infestation of the channel by this invasive Asiatic tree is most notable at the bend in the channel east of the Lazy T Ranch. Although cottonwoods also occur in this area, the tamarisk trees dominate here, as well as at a few other locations along the channel.

Great Basin Sage Scrub. This vegetation type occurs about the lowest portion of the channel in the project area west of 25th Street West. A stand of vegetation characterized by the presence of basin sagebrush (*Artemisia tridentata*), the dominant shrub occurs just upstream of the proposed Ritter Ranch northern crossing (in Basin "E"). Without this diagnostic shrub, the vegetation would be classified as rabbitbrush scrub (desert scrub).

Desert Scrub. The common community of desert scrub (also known as rabbitbrush scrub) is scattered along the lower end of the channel. *Chrysothamnus nauseosus* is the indicator plant of this plant association in the project area. Ruderal (weedy) areas occupy the borders of the site between 20th Street West and the Antelope Valley Country Club. The ruderal areas on the site occupy desert scrub communities that have been heavily disturbed, creating conditions favorable to the introduction of non-native species.

Annual Grassland. Disturbed, fallow areas along the project route are dominated by non-native annual grasses, mostly bromes (*Bromus diandrus*, *B. mollis*, *B. tectorum*).

Orchard/Residential. The channel of Amargosa Creek passes near several single-family residences north of Elizabeth Lake Road and between the Flood Control Basin "B" and "E" sites. Here residents have disturbed the channel with road crossings, sand excavation, diking

of the channel and planting of orchards in the flood plain of the creek. Aside from the intentional plantings, these areas share similar non-native plants with the annual grassland habitat.

Juniper/Joshua Tree Woodland. The lower end of the channel (west of 25th Street West) supports a Joshua tree woodland which has been severely burned and will be many decades in recovering. Additional woodland occurs east of 25th Street West, south of Elizabeth Lake Road between 25th Street West and Ranch Center Drive, and north of Elizabeth Lake Road between Basin "E" and Godde Hill Road. The floral diversity of the woodland, as observed in unburned islands, is rather low when compared to those few intact woodlands still surviving in the Palmdale and Lancaster areas.

Desert Wash

The vegetation of the Amargosa Creek bed east of 20th Street West is extremely sparse. The most common species in the streambed are four-winged saltbush, Great Basin sage, and burro-bush. Salt heliotrope (~~Heliotropium~~ *Heliotropium curassavicum*) and jimsonweed (*Datura innoxia*) also occur in the streambed along with desert scrub species. No willows (*Salix spp.*) or other riparian-associated vegetation was observed in this habitat.

- *Flora*

The observed flora of the site west of 25th Street West was very low, as the PSBS survey was conducted at a time when many plants are dormant. The total probably represents about 55% of the possible site flora. The remainder consisted mostly of annuals whose remains were not identifiable at the time of the survey.

The floristic composition of the site reflects its unique "ecotonal" (or transitional) situation between coastal and desert influences (referred to as "trans-montane" habitat). The project site flora is heavily influenced by the riparian association, with largely trans-montane elements. The alkaline (salt-adapted) feature of desert wetlands is not developed on the site.

Zoological Resources

- *General Wildlife Habitats*

Four primary wildlife habitats occur on-site: scrublands, desert riparian woodland, joshua/juniper tree woodland, and grasslands. The general locations and wildlife associations of each habitat type are discussed in the following text.

Scrublands. This habitat type is often adjacent to the desert riparian woodland on site, being found mainly in the floodplain of Amargosa Creek (including sage scrub and rabbitbrush/desert scrub). There are also several Joshua trees present in this habitat along the eastern portion of the site. Rodents and various species of lizards and snakes are common in scrublands. A distinctive avifauna occurs in Southern California scrub communities (see the **Birds** section) and a number of these species were present in this habitat on the site. Mammalian predators, such as bobcat (*Lynx rufus*) and coyote (*Canis latrans*), are common in scrub habitats. This wildlife habitat includes several botanical categories including mulefat scrub, Great Basin sage scrub and rabbitbush/desert scrub.

Desert Riparian Woodland. This habitat consists primarily of a sparse assemblage of medium-sized to large cottonwood and willow trees, with a minimum of understory growth. Nevertheless, the San Andreas Fault, which runs along the creek, has allowed an up-welling of water that is substantial enough to support some dense shrubbery. The importance of these relatively rare desert riparian systems to wildlife populations cannot be overstated. These habitats support more bird species at greater densities than almost any other desert habitat (England *et al.* 1981). The food, cover, and water available in these areas are invaluable to other species of wildlife as well.

Juniper/Joshua Tree Woodland. This open woodland type supports many of the same vertebrate species as scrublands; however species such as the California cactus wren (*Campylorhynchus brunneicapillus*) are associated with Joshua trees in this area and the Scott's oriole (*Icterus parisorum*) is partial to juniper stands. A portion of this habitat has burned on the site and currently has low wildlife value.

Grassland. This habitat occurs in scattered locales adjacent to the desert riparian woodland and includes the mountain meadow habitat. While this habitat does not support an extremely diverse vertebrate fauna, it is important as raptor foraging habitat and as

Table 4.4-1
FLORAL CHECKLIST

| HABITAT | A = Annual Grassland | M = Mountain Meadow |
|---|--|----------------------------------|
| | T = Tamarisk Woodland | J = Juniper/Joshua Tree Woodland |
| | R = Rabbit-brush Scrub/Great Basin Sage Scrub | |
| | W = Cottonwood/Willow Riparian, Mulefat Scrub | |
| | X = Disturbed Residential, Orchard | |
| <u>HABITAT</u> | | |
| GYMNOSPERMS | | |
| Cupressaceae | | |
| | <i>Juniperus californica</i> Carr. Juniper | J |
| DICOTYLEDONS | | |
| Adoxaceae - Adoxus Family | | |
| | <i>Sambucus mexicana</i> Presl ex D.C. Desert Elderberry | W |
| Anacardiaceae - Sumac Family | | |
| | <i>Rhus trilobata</i> Nutt. | J |
| Asclepiadaceae - Milkweed Family | | |
| | <i>Asclepias fascicularis</i> Dcne. in A. D.C. Narrow-Leaf Milkweed | A,W |
| Asteraceae - Sunflower Family | | |
| | <i>Ambrosia acanthicarpa</i> Hook. Annual Bur-Weed | W |
| | <i>Ambrosia psilostachya</i> var. <i>californica</i> (Rydb.)Blake. Ragweed | W |
| | <i>Artemisia douglasiana</i> Bess. in Hook. Mugwort | W |
| | <i>Artemisia dracunculoides</i> L. Dragon Sagewort | W |
| | <i>Artemisia tridentata</i> Nutt. ssp. <i>tridentata</i> Great Basin Sagebrush | R |
| | <i>Baccharis salicifolia</i> (R.P.)Pers. Mule-fat | W |
| | * <i>Centaurea melitensis</i> L. Tocalote | A,X |
| | <i>Chrysopsis villosa</i> (Pursh)Nutt. Golden-Aster | M |
| | <i>Chrysothamnus naseosus</i> (Pall.)Britton | R |
| | <i>Cirsium californicum</i> Gray. California Thistle | M,J,W |
| | * <i>Cirsium vulgare</i> (Savi)Ten. Bull Thistle | W |
| | <i>Corethrogyne filaginifolia</i> var. <i>peirsonii</i> Canby. peirson's Cudweed-Aster | D,M |
| | <i>Gnaphalium californicum</i> D.C. California Everlasting | D |
| | <i>Grindelia camporum</i> Greene var. <i>parviflora</i> Steyermark (tentative I.D.) | M |
| | <i>Gutierrezia sarothrae</i> (Pursh)Britt. & Rusby. San Joaquin Matchweed | A,R,M |
| | * <i>Helianthus annuus</i> ssp. <i>lenticularis</i> (Dougl.)Ckl. Western Sunflower | A,M |
| | <i>Hymenoclea salsola</i> T. & G. var. <i>salsola</i> | W |
| | <i>Iva axillaris</i> ssp. <i>robustior</i> (Hook.)Bassett. | A,W,M |
| | * <i>Lactuca serriola</i> L. Prickly Lettuce | W |
| | <i>Lagophylla ramosissima</i> Nutt. | M |
| | <i>Layia glandulosa</i> (Hook.)Hook. & Arn. White Layia | M |
| | <i>Lepidospartum squamatum</i> (Gray)Gray. Scale-Broom | M,W |
| | * <i>Matricaria matricarioides</i> (Less.)Porter. Pineapple Weed | W |

Table 4.4-1

FLORAL CHECKLIST (Continued)

| | <u>HABITAT</u> |
|---|----------------|
| Asteraceae - Sunflower Family (continued) | |
| <i>Senecio douglasii</i> var. <i>monoensis</i> (Greene) Jeps. Sand-Wash Butterweed | M,W |
| * <i>Taxaxacum officinale</i> Weber in Wiggers. | A,W |
| Boraginaceae - Borage Family | |
| <i>Heliotropium curvassavicum</i> var. <i>oculatum</i> (Heller) Jtn. Salt Heliotrope | W |
| <i>Plagiobothrys californicus</i> (Gray) Greene var. <i>californicus</i> California Popcornflower | D,J |
| Brassicaceae - Mustard Family | |
| * <i>Brassica geniculata</i> (Desf.) J. Ball | A |
| <i>Caulanthus lasiophyllum</i> (H. & A.) Pays. California Mustard | A,X |
| <i>Descurainia pinnata</i> ssp. <i>halictorum</i> (Ckll.) Detl. | A,J |
| <i>Lepidium perfoliatum</i> L. Shield-grass | A,M,W |
| * <i>Rorippa nasturtium-aquaticum</i> (L.) Schinz & Thell. | M,W |
| * <i>Sisymbrium altissimum</i> L. Tumble-Mustard | A,R,X |
| * <i>Sisymbrium irio</i> L. London Rocket | A,M,X |
| Caryophyllaceae - Pink Family | |
| <i>Cerastium glomeratum</i> Thuill. Mouse-Ear Chickweed | A |
| Chenopodiaceae - Goosefoot Family | |
| <i>Atriplex canescens</i> (Pursh) Nutt. ssp. <i>canescens</i> Four-wing Saltbush | A |
| <i>Atriplex patula</i> ssp. <i>hastata</i> (L.) Hall. & Clem. Halberd-Leaf Saltbush | W |
| * <i>Atriplex semibaccata</i> R. Br. Australian Saltbush | A,X |
| <i>Bassia hyssopifolia</i> (Pall.) Kuntz. | A,W |
| <i>Chenopodium berlandieri</i> var. <i>sinuatum</i> (J. Murr.) Wahl. | W |
| <i>Chenopodium californicum</i> (Wats.) Wats. California Goosefoot | M |
| * <i>Chenopodium murale</i> L. Nettle-Leaf Goosefoot | A,X |
| * <i>Salsola australis</i> R. Br. Russian-thistle | A,X |
| Cucurbitaceae - Gourd Family | |
| <i>Cucurbita foetidissima</i> HBK. Calabazilla | A |
| Euphorbiaceae - Spurge Family | |
| <i>Chamaesyce albomarginata</i> (T. & G.) Small. Rattlesnake Spurge | A |
| <i>Eremocarpus setigerus</i> (Hook.) Benth. Doveweed | A |
| Fabaceae - Pea Family | |
| <i>Astragalus douglasii</i> (T. & G.) Gray var. <i>douglasii</i> Douglas' Mild-vetch | M |
| * <i>Lotus corniculatus</i> L. | W,X |
| <i>Lupinus bicolor</i> ssp. <i>microphyllus</i> (Wats.) D. Dunn. Lupine | M |
| <i>Lupinus sparsiflorus</i> Benth. ssp. <i>inopinatus</i> (C.P. Small) Dizek. & Dunn | M |
| * <i>Melilotus indicus</i> (L.) All. Indian Sweet Clover | A,W,X |
| Geraniaceae - Geranium Family | |
| * <i>Erodium cicutarium</i> (L.) L'Her. Red-stem Filaree | A,M,X |

Table 4.4-1

FLORAL CHECKLIST (Continued)

| | <u>HABITAT</u> |
|---|----------------|
| Lamiaceae - Mint Family | |
| ▪ <i>Marrubium vulgare</i> L. Horehound | X |
| <i>Salvia columbariae</i> Benth. Chia | M |
| <i>Trichostema lanceolatum</i> Benth. Vinegarweed | A,M |
| Lythraceae - Loosestrife Family | |
| ▪ <i>Lythrum hyssopifolia</i> L. Grass Poly | W |
| Malvaceae - Mallow Family | |
| <i>Malvella leprosa</i> (Ort.)Krapov. Alkali Mallow | M,W |
| Oleaceae - Olive Family | |
| <i>Forestiera neomexicana</i> Gray | M,W |
| Onagraceae - Evening-Primrose Family | |
| <i>Clarkia purpurea</i> (Curt.)Nels. & MacBr. ssp. <i>viminea</i> (Dougl. in Lindl)Lewis & Lewis. Large Clarkia | A,M |
| Polygonaceae - Buckwheat Family | |
| <i>Eriogonum fasciculatum</i> ssp. <i>foliolosum</i> (Nutt.)S. Stokes. Interior Flat-top Buckwheat | M |
| <i>Polygonum arenastrum</i> Bor. | A |
| <i>Rumex crispus</i> L. Curly Dock | W |
| <i>Rumex hymenosepalus</i> Torr. Wild-Rhubarb | J,W |
| Primulaceae - Primrose Family | |
| ▪ <i>Anagallis arvensis</i> L. Scarlet Pimpernel | W |
| Rubiaceae - Madder Family | |
| ▪ <i>Galium aparine</i> L. Common Bedstraw | M |
| Salicaceae - Willow Family | |
| <i>Populus fremontii</i> Wats. Western Cottonwood | W |
| <i>Salix gooddingii</i> Ball. Southwestern Willow | W |
| <i>Salix lasiandra</i> var. <i>lancifolia</i> (Anderss.)Bebb. Lance-leaf Willow | W |
| <i>Salix laevigata</i> Bebb. | W |
| <i>Salix lasiolepis</i> Benth. var. <i>lasiolepis</i> . Arroyo Willow | W |
| Saururaceae - Lizard-tail Family | |
| <i>Anemopsis californica</i> Hook. Yerba Mansa | M,W |
| Scrophulariaceae - Figwort Family | |
| <i>Mimulus guttatus</i> Fisch. ex D.C. Common Monkey Flower | M,W |
| <i>Orthocarpus purpurascens</i> Benth. var. <i>purpurascens</i> Red Owl's-Clover | M |
| <i>Veronica americana</i> (Raf.)Schw. Brooklime | W |
| Solanaceae - Nightshade Family | |
| <i>Datura discolor</i> Bernh. Jimsonweed | M |
| <i>Datura wrightii</i> Regel. Western Jimsonweed | A,M |
| <i>Nicotiana bigelovii</i> (Torr.)Wats. var. <i>wallacei</i> Gray | X |

Table 4.4-1

FLORAL CHECKLIST (Continued)

| | | <u>HABITAT</u> |
|---------------------------------------|--|----------------|
| Tamaricaceae - Tamarisk Family | | |
| * | <i>Tamarix parviflora</i> DC. | T |
| Urticaceae - Nettle Family | | |
| | <i>Urtica dioica</i> ssp. <i>holosericea</i> (Nutt.) Thorne. Hoary Nettle | M,W |
| Verbenaceae - Verbena Family | | |
| | <i>Verbena menthaefolia</i> Benth. Mint-leaf Vervain | M,W |
| Viscaceae - Mistletoe Family | | |
| | <i>Phoradendron villosum</i> (Nutt. in T.& G.) Nutt. Oak Mistletoe | W |
| MONOCOTYLEDONS | | |
| Agavaceae - Agave Family | | |
| | <i>Yucca brevifolia</i> Engelm. in Wats. var. <i>brevifolia</i> Joshua Tree | J |
| Cyperaceae - Sedge Family | | |
| | <i>Carex alma</i> Bailey | W |
| | <i>Carex praegracilis</i> W. Boott. | A,W |
| | <i>Carex senta</i> Boott. | A,W |
| | <i>Cyperus odoratus</i> L. | W |
| | <i>Eleocharis macrostachya</i> Britt. in Small. Pale Spike-Sedge | W |
| | <i>Eleocharis montevidensis</i> Kunth. Dombey's Spike-Sedge | W |
| | <i>Scirpus acutus</i> Muhl ex Bigel. Viscid Bulrush | W |
| | <i>Scirpus robustus</i> Pursh. Prairie Bulrush | W |
| Juncaceae - Rush Family | | |
| | <i>Juncus mexicanus</i> Willd. Mexican Rush | W |
| | <i>Juncus textilis</i> Buchen. Basket Rush | W |
| Poaceae - Grass Family | | |
| * | <i>Avena barbata</i> L. Slender Oat | A,M |
| * | <i>Bromus diandrus</i> Roth. Ripgut Grass | A,M |
| * | <i>Bromus mollis</i> L. Soft Chess | A,M |
| * | <i>Bromus rubens</i> L. Red Brome | A,M |
| * | <i>Bromus tectorum</i> L. Cheat-Grass Brome | A,M |
| * | <i>Cynodon dactylon</i> (L.) Pers. Bermuda Grass | M,X |
| | <i>Distichlis spicata</i> (Greene) var. <i>stricta</i> (Torr.) Beetle Salt Grass | A,M,W |
| | <i>Elymus glaucus</i> Buckl. ssp. <i>glaucus</i> | A |
| | <i>Elymus triticoides</i> Buckl. Beardless Wild Ryegrass | W |
| * | <i>Hordeum murinum</i> ssp. <i>leporinum</i> (Link) Arcang. Hare Barley | X |
| * | <i>Lamarckia aurea</i> (L.) Moench. Goldentop | A,X |
| * | <i>Poa pratensis</i> L. Kentucky Bluegrass | W,X |
| | <i>Poa scabrella</i> (Thurb.) Benth. ex Vasey | A |
| * | <i>Polypogon monspeliensis</i> (L.) Desf. Annual Beardgrass | W |
| * | <i>Schismus barbatus</i> (L.) Thell. Mediterranean Schismus | X |
| * | <i>Vulpia myuros</i> (L.) K.C. Gmelin. Foxtail Fescue | A,X |

Table 4.4-1

FLORAL CHECKLIST (Continued)

| | <u>HABITAT</u> |
|--|----------------|
| Poaceae - Grass Family (continued) | |
| <i>Vulpia microstachys</i> Gray | A.X |
| Typhaceae - Cat-Tail Family | |
| <i>Typha domingensis</i> Pers. Tule Cat-tail | W |
| <i>Typha latifolia</i> L. Soft Flag | W |

* - Denotes non-native plant taxa

wintering areas for a variety of sparrows, as well as other ground-foraging birds, such as California quail (*Callipepla californica*) and western meadowlarks (*Sturnella neglecta*). Aerial foragers such as swallows often feed over grasslands. A variety of small mammals and snakes are also quite common in these habitats.

- *Vertebrate Groups*

The following is a description of the wildlife observed, detected or anticipated to occur on the project site (See Table 4.4-2, FAUNAL CHECKLIST).

Amphibians. No amphibians were found on the site. The lack of observations of these animals is related to the season and lack of surface water on the site. Amphibian activity in arid regions is tied to the rainy season when adequate surface moisture is available. The Pacific chorus frog (*Pseudacris regilla*) and western toad (*Bufo boreas*) are both expected to occur along the main drainage of Amargosa Creek.

Reptiles. Due to the season and dry surface conditions prevailing during the survey, diurnal reptile activity was limited. Only two species of lizards were observed on the project area: the side-blotched lizard (*Uta stansburiana*) and western whiptail (*Cnemidophorus tigris*). Both these species are common and widespread in arid habitats of the western United States. Reptiles common within the study area east of 25th Street West also include the desert horned lizard (*Phrynosoma platyrhinos*) and the Mojave rattlesnake (*Crotalus scutulatus*).

Other reptile species expected to occur along the drainage of Amargosa Creek in the scrub and open riparian vegetation include coast horned lizard (*Phrynosoma coronatum*), Gilbert's skink (*Eumeces gilberti*), coachwhip (*Masticophis flagellum*), gopher snake (*Pituophis catenifer*), common kingsnake (*Lampropeltis getulus*), and western rattlesnake (*Crotalus viridis*).

Birds. Forty-two species of birds were found on the project area. The majority of these species were found in riparian vegetation in the upper part of the drainage. Three of the species observed are non-native to North America, having been introduced by humans. These are the rock dove (*Columba livia*), european starling (*Sturnus vulgaris*), and house sparrow (*Passer domesticus*). These three species are primarily associated with human use areas such as ranch yards and urban developments.

Table 4.4-2

FAUNAL CHECKLIST
Animals Observed or Detected on the Amargosa Creek Site

| HABITAT | | | F = Flying | |
|---|--------------------------------|---------------------------|-----------------------|-----|
| A = Annual Grassland | | | S = Rabbitbrush Scrub | |
| R = Desert Riparian Woodland | | | | |
| COMMON NAME | SCIENTIFIC NAME | NUMBER/MEANS OF DETECTION | HABITAT | |
| REPTILES | | | | |
| Phrynosomatidae | | | | |
| Side-blotched Lizard | <i>Uta stansburiana</i> | 7 | | S |
| Teiidae (Whiptails and Relatives) | | | | |
| Western Whiptail | <i>Cnemidophorus tigris</i> | 1 | | S |
| BIRDS | | | | |
| Accipitridae (Hawks, Old World Vultures, and Harriers) | | | | |
| Red-shouldered Hawk | <i>Buteo lineatus</i> | 1 | | R |
| Red-tailed Hawk | <i>Buteo jamaicensis</i> | 1 | | F |
| Phasianidae (Quails, Pheasants, and Relatives) | | | | |
| California Quail | <i>Callipepla californica</i> | Calling | | S |
| Charadriidae (Plovers and Relatives) | | | | |
| Killdeer | <i>Charadrius vociferus</i> | 1 | | A |
| Columbidae (Pigeons and Doves) | | | | |
| Rock Dove | <i>Columba livia</i> | 4 | | F |
| Mourning Dove | <i>Zenaida macroura</i> | 1 | | A,R |
| Cuculidae (Typical Cuckoos) | | | | |
| Greater Roadrunner | <i>Geococcyx californianus</i> | 1 | | S |
| Strigidae (Typical Owls) | | | | |
| Great Horned Owl | <i>Bubo virginianus</i> | 2 | | R |
| Trochilidae (Hummingbirds) | | | | |
| Anna's Hummingbird | <i>Calypte anna</i> | 5 | | R |
| Picidae (Woodpeckers and Wrynecks) | | | | |
| Nuttall's Woodpecker | <i>Picoides nutallii</i> | 5 | | S |
| Tyrannidae (Tyrant Flycatchers) | | | | |
| Black Phoebe | <i>Sayornis nigricans</i> | 3 | | R |
| Corvidae (Jays, Magpies, and Crows) | | | | |
| Scrub Jay | <i>Aphelocoma coerulescens</i> | 1 | | R |
| Common Raven | <i>Corvus corax</i> | 5 | | F |

Table 4.4-2

FAUNAL CHECKLIST
Animals Observed or Detected on the Amargosa Creek Site
(Continued)

| COMMON NAME | SCIENTIFIC NAME | NUMBER/MEANS OF DETECTION | HABITAT |
|---|--|--|--|
| Paridae (Titmice) Plain Titmouse | <i>Parus inornatus</i> | 4 | R |
| Aegithalidae (Bushtit) Bushtit | <i>Psaltriparus minimus</i> | 1 Flock | S |
| Sittidae (Nuthatches) White-breasted Nuthatch | <i>Sitta carolinensis</i> | 1 | R |
| Troglodytidae (Wrens) Cactus Wren Bewick's Wren House Wren | <i>Campylorhynchus brunneicapillus</i> <i>Thryomanes bewickii</i> <i>Troglodytes aedon</i> | 1 3 1 | S R,S R |
| Muscicapidae (Old World Warblers, Gnatcatchers, Kinglets, Thrushes, Bluebirds, and Wrenit) Western Bluebird | <i>Sialia mexicana</i> | 4 | A,R |
| Mimidae (Mockingbirds and Thrashers) California Thrasher | <i>Toxostoma redivivum</i> | 2 | S |
| Ptilonotidae (Silky Flycatchers) Phainopepla | <i>Phainopepla nitens</i> | 11 | R,S |
| Laniidae (Shrikes) Loggerhead Shrike | <i>Lanius ludovicianus</i> | 3 | A,R,S |
| Sturnidae (Starlings) European Starling | <i>Sturnus vulgaris</i> | >20 | A,R |
| Vireonidae (Typical Vireos) Warbling Vireo | <i>Vireo gilvus</i> | 1 | R |
| Emberizidae (Warblers, Sparrows, Blackbirds and Relatives) Orange-crowned Warbler Nashville Warbler Yellow Warbler Wilson's Warbler Black-headed Grosbeak California Towhee Rufous-sided Towhee Brewer's Sparrow Lark Sparrow Song Sparrow | <i>Vermivora celata</i> <i>Vermivora ruficapilla</i> <i>Dendroica petechia</i> <i>Wilsonia pusilla</i> <i>Pheucticus melanocephalus</i> <i>Pipilo crissalis</i> <i>Pipilo erythrophthalmus</i> <i>Spizella breweri</i> <i>Chondestes grammacus</i> <i>Melospiza melodia</i> | 5 3 2 8 1 5 4 1 >25 5 | R R R R R R,S R,S S R,S R |

Table 4.4-2

FAUNAL CHECKLIST
Animals Observed or Detected on the Amargosa Creek Site
(Continued)

| COMMON NAME | SCIENTIFIC NAME | NUMBER/MEANS OF DETECTION | HABITAT |
|---|-------------------------------|------------------------------|---------|
| Emberizidae (Warblers, Sparrows, Blackbirds and Relatives) (continued) | | | |
| Dark-eyed Junco | <i>Junco hyemalis</i> | 1 | R |
| Western Meadowlark | <i>Sturnella neglecta</i> | 1 | A |
| Brewer's Blackbird | <i>Euphagus cyanocephalus</i> | >20 | A |
| Fringillidae (Finches) | | | |
| House Finch | <i>Carpodacus mexicanus</i> | 61 | R,S |
| Lesser Goldfinch | <i>Carduelis psaltria</i> | 8 | R |
| Passeridae (Weaver Finches) | | | |
| House Sparrow | <i>Passer domesticus</i> | 1 | A |
| MAMMALS | | | |
| Leporidae (Rabbits and Hares) | | | |
| Desert Cottontail | <i>Sylvilagus audubonii</i> | Scat | S |
| Geomyidae (Pocket Gophers) | | | |
| Botta's Pocket Gopher | <i>Thomomys bottae</i> | Diggings | A,R,S |
| Canidae (Foxes, Wolves, and Relatives) | | | |
| Coyote | <i>Canis latrans</i> | Scat | R,S |
| Mustelidae (Weasels, Badgers, and Relatives) | | | |
| Badger | <i>Taxidea taxus</i> | Remains | S |

The warbling vireo (*Vireo gilvus*), orange-crowned warbler (*Vermivora celata*), Wilson's warbler (*Wilsonia pusilla*), and black-headed grosbeak (*Pheucticus melanocephalus*) are migratory species which spend the winter in Mexico or Central America. Species such as the white-breasted nuthatch (*Sitta carolinensis*) and dark-eyed junco (*Junco hyemalis*) breed in the local mountains and winter in the surrounding lowlands. The American robin (*Turdus migratorius*) is another migratory species which does not breed on the site. This large thrush was abundant in the riparian woodland during a November 9, 1990 visit to the site by PSBS. Up to 50 individuals were observed drinking at once around a cattle tank along the creek bed.

Some typical scrub community species observed on the site include: Bewick's Wren (*Thryomanes bewickii*), California thrasher (*Toxostoma redivivum*), California towhee (*Pipilo crissalis*), rufous-sided towhee (*Pipilo erythrophthalmus*), and lesser goldfinch (*Carduelis psaltria*).

Two diurnal raptors, the red-tailed hawk (*Buteo jamaicensis*) and red-shouldered hawk (*Buteo lineatus*), were observed on the site and several great horned owls (*Bubo virginianus*) were heard calling during the night or were seen at their daytime roosts in the riparian woodland. Other raptors which are expected to utilize the habitats along the drainage of Amargosa Creek include the American kestrel (*Falco sparverius*), prairie falcon (*Falco mexicanus*), and golden eagle (*Aquila chrysaetos*). Three golden eagles were observed adjacent to the site in the spring of 1990 during another PSBS survey. The ferruginous hawk (*Buteo regalis*) and sharp-shinned hawk (*Accipiter striatus*) are also expected during the winter months.

Many species of birds were observed by MBA in the project area east of 25th Street West during the site visit (refer to the Amargosa Creek Improvement Project and Assessment District Draft EIR). The most frequently observed species in Juniper/Joshua tree woodlands were the cactus wren (*Campylorhynchus brunneicapuillus*) and the black-throated sparrow (*Amphispiza bilineata*). On the north side of the Creek, near the intersection of Elizabeth Lake Road and the 25th Street West, Joshua trees and chollas support several cactus wren nests. The Le Conte's thrasher (*Toxostoma lecontei*) and the California thrasher (*Toxostoma redivivum*) were also observed during the MBA survey. Other bird species found in the study area include the morning dove (*Zenaidura macroura*), northern mockingbird (*Mimus polyglottus*), and the rock wren (*Salpinctes obsoletus*). Common ravens (*Corvus corax*), loggerhead shrikes (*Lanius ludovicianus*), and red-tailed hawks (*Buteo jamaicensis*) were also seen over most of the less observed areas of the site, especially on the slopes of Ritter Ridge.

Mammals. Four species of mammals were detected on the site by finding their spoor or remains. Desert cottontail (*Sylvilagus audubonii*) and coyote scat was abundant around thickets along the major drainage. The diggings of Botta's pocket gopher (*Thomomys bottae*) were found in many areas. Badger remains were also noted.

A number of other mammal species are undoubtedly present; however, without a nocturnal trapping survey it is difficult to determine the presence of exact species. Some of the mammals which can be expected include at least one species each of the following rodents: pocket mouse (*Perognathus*), kangaroo rat (*Dipodomys*), white-footed mouse (*Peromyscus*), and woodrat (*Neotoma*). Several other species of rodents probably occur on the site.

Two carnivore species, the coyote (*Canis latrans*) and badger (*Taxidea taxus*), utilize the site as indicated by the presence of their scat and mummified remains, respectively. The gray fox (*Urocyon cinereoargenteus*) and bobcat (*Lynx rufus*) are also expected to utilize the site.

Various species of bats are expected to forage in the air space along the drainage, and mule deer (*Odocoileus hemionus*) occur in the area and undoubtedly utilize the site to some degree.

The only mammal species observed during the MBA site survey east of 25th Street West were the California ground squirrel (*Spermophilus beecheyi*) and the black-tailed jack rabbit (*Lepus californicus*). Other small animals, however, including the western harvest mouse (*Reithrodontomys megalotis*), the desert woodrat (*Neotoma lepida*), and the cactus mouse (*Peromyscus cremicus*) are expected to occur onsite. Signs of coyote and desert cottontail were also observed.

Sensitive Biological Resources

The purpose of the EIR is to identify biological impacts that may be significant in nature and allow decision makers to decide on the project based upon reasonably complete information concerning impacts of the project to biological resources as well as other features of the environment. There are many other plant and animal groups, such as the lichens, fungi, aquatic insects, and spiders, which are not usually addressed in environmental documents since there is no body of knowledge supporting a possibility of significant impact. Listing of animals is intended mainly to characterize the quality of the various habitats. Sensitive animals do receive their own consideration due to the jeopardized nature of their population conditions.

- *Sensitive Vegetation*

The wetland habitats on the site represent sensitive vegetation associations due to the limited extent of these features in southern California. The mountain meadow (portion containing *Distichlis* salt grass), mulefat scrub, tamarisk woodland, cottonwood and willow riparian are the habitats classified as wetlands. As discussed in "Vegetational Overview" above, wetlands are significant due to rarity in desert environments and important roles in providing feeding and shelter areas.

The total wetland acreage communities in the project area as delineated by PSBS (including the ACOE jurisdictional area), consist of approximately 168 acres which include 65 acres of Mountain Meadow, 44 acres of Mulefat Scrub, 4 acres of Tamarisk Riparian, 40 acres of Cottonwood Riparian, 11 acres of Willow Riparian and 2 acres of Great Basin Sage Scrub. The Great Basin Sage Scrub is not normally considered a wetland habitat, however the 2 acre stand is an ecotone located within the drainage between 25th Street West and 35th Street West. It is therefore included in the wetland habitat. There are also approximately 11 acres of Joshua Tree/Juniper Woodland situated on an "island" surrounded by Mulefat Scrub between 30th Street West and 35th Street West. Large stands of Joshua Tree/Juniper Woodland and Great Basin Sage Scrub are located adjacent to the proposed roadway realignment and drainage. The majority of the wetlands (and other vegetation) shown in Exhibit 4.4-1, VEGETATION, will not be impacted by project grading.

- *Sensitive Plants*

The only sensitive plant encountered on the site was a small population of the Great Valley gumplant (*Grindelia camporum* var. *parviflora*). The Great Valley gumplant is listed by the California Native Plant Society (CNPS listing status 1-1-3).¹ This population was badly mauled by grazing cattle.

- *Sensitive Plants Expected to Occur But Not Found On-Site*

Prior work in the area indicated that several sensitive plants occur near the project site. The following species were not observed within the study area by either PSBS or MBA but are listed here due to their potential for occurrence within areas which may be disturbed by project implementation:

¹ CNPS R-E-D code identifies Rarity, Endangerment and Distribution on a scale of 1 to 3, with 3 being the most critical condition.

Peirson's morning-glory (*Calystegia peirsonii*)

LISTING: CNPS (Smith and Berg) 1-1-3
Federal - Category 2

s Short-jointed beaver-tail (*Opuntia basilaris* var. *brachyclada*)

LISTING: CNPS 3-1-3
Federal - Category 2

Pringle's yampah (*Perideridia pringlei*)

LISTING: CNPS 1-1-3
Federal - Category 3c

• *Sensitive Vertebrates Which May Occur On-Site But Were Not Observed*

The following species of sensitive animals are known from the area in similar habitats and may be expected to utilize the site at least occasionally. The probability of their occurring in the project area is considered high; however, some of these species may occur on the site sporadically. None were observed during the present field work.

golden eagle (*Aquila chrysaetos*)

LISTING: Bald Eagle Act (1940)
CDFG (1977, 1988, 1989) - Fully Protected
CITES (1976) - Priority II
Remsen (1980) - Priority III

A juvenile and two adults were seen flying low over an adjacent site (PSBS, 1990). While no eagle nests were located on this site, they probably do nest within a few miles of the site, and thus the property is likely within the home-range of at least one pair. Golden Eagles require large areas for foraging and are extremely sensitive to human disturbances.

American badger (*Taxidea taxus*)

LISTING: CDFG Species of special concern
Williams (1986) - Priority III

A dead specimen was discovered in Rabbitbrush Scrub near the creek bed. The status of the American badger on the project site is unclear; however, the dead individual is positive evidence that they at least occurred in the very recent past. Badgers occur in low population densities and therefore would in general be difficult to locate on this long and linear project.

mountain lion (*Felis concolor*)

LISTING: Current moratorium on hunting

Due to the presence of mule deer and large undeveloped tracts of land, this large cat is expected to utilize the site occasionally. Tracks of one lion were noted along Amargosa Creek during the previous Ritter Ranch surveying. Riparian areas serve as important sources of water, food, and cover for these lions and their prey.

coast horned lizard (*Phrynosoma coronatum*)

LISTING: USFWS (1986) - Category II
IUCN (1979) - Depleted
CDFG (1977, 1988, 1989) - Protected Amphibian/Reptile
CITES (1976)- Category III

While not seen on the property, suitable habitat for this species does occur on-site in the scrublands adjacent to the creekbed. These lizards occur in low density populations and are frequently hard to find even in good habitat.

black-shouldered kite (*Elanus caeruleus*)

LISTING: CDFG (1977, 1988, 1989) - Fully Protected

The black-shouldered kite is an uncommon resident in the nearby Antelope Valley and may occasionally forage over the open grassy habitats along the creek drainage.

sharp-shinned hawk (*Accipiter striatus*)

LISTING: Remsen (1980) - Priority III
Audubon Blue List (Tate 1986)

This small hawk is a winter visitor or migrant in this area. These hawks forage for small birds in a variety of habitats including riparian woodland and open scrub lands. This species is expected to be a fairly common winter visitor.

Cooper's hawk (*Accipiter cooperii*)

LISTING: Audubon Blue List (Tate 1986)
Remsen (1980) - Third priority

This hawk is expected to be primarily a winter visitor or migrant on the site. Suitable nesting habitat does not occur on-site; however, this hawk may nest in oak woodlands in the general region.

northern harrier (*Circus cyaneus*)

LISTING: Audubon Blue List (Tate 1986)
Everett (1979) - Declining
Remsen (1980) - 2nd Priority

The northern harrier is expected to occur on the site as a migrant or winter visitor. This hawk forages low over open country for small rodents. The open areas along the creek drainage provide good foraging habitat for this species.

prairie falcon (*Falco mexicanus*)

LISTING: CITES (1976) - Priority II
Remsen (1980) - Priority III

Prairie falcons are uncommon residents of the area, however, local numbers increase during the winter months with an influx of migrating individuals. This large falcon is expected to occasionally utilize the open habitats of the site for foraging.

long-eared owl (*Asio otus wilsonianus*)

LISTING: Remsen (1980) - Priority II

Long-Eared Owls have been observed recently within eight miles of the proposed project area. (Eric R. Lichtwardt and Larry La Pre personal observations). This uncommon owl

probably is occasional on the site during the winter months in willow thickets and cottonwood groves. Historically this owl was a much more common resident in the area and there is a possibility that this species could nest on the site in the same habitats noted above.

San Emigo blue butterfly (*Plebujuis emigdionis*)

LISTING: USFWS - Endangered

The San Emigo blue butterfly is known to be present from the Mojave River near Victoville, in Ownes Valley, northern Ventura County, and Bouquet and Mint Canyons in Los Angeles County. Due to a lack of records in the region over the past decade, this butterfly species is not recorded as occurring within the project area.

Mojave ground squirrel (*Spermophilus mohavensis*)

LISTING: CDFG - Threatened
USFWS - Category II

The species occurs throughout the Antelope Valley to the northern Mojave desert on fine-to medium-textured soils in Creosote desert scrub. A trapping study was performed, per CDFG Guidelines for the Amargosa Creek Improvement Project EIR site, and concluded that the Mojave Ground Squirrel was not present onsite (Mojave Groundwater Live-Trapping Program, Amargosa Creek, prepared by Michael Brandman Associates, June, 1990). [NOTE: This species is proposed for "de-listing" by the CDFG and would no longer be a "sensitive species".]

Desert tortoise (*Gopherus agassizi*)

LISTING: CDFG - Threatened
USFWS - Endangered

Habitat typical of the desert tortoise is found onsite, however, no desert tortoises or indicative signs of the species were observed.

San Diego horned lizard (*Phrynosoma coronatum blainvillei*)

LISTING: USFWS - Category II candidate

This species potentially occurs in the study area on slopes in Juniper/Joshua woodland. however, no records for its occurrence east of the San Gabriel Mountains exist and it is, therefore, unlikely to occur in the project area.

Least Bell's Vireo (*Vireo bellii pusillus*)

LISTING: CDFG - Endangered

The species is know to occur within the project vicinity. However, this species is not expected to occur on the project site due to the lack of suitable habitat; this species is found in well-developed riparian woodlands which do not occur in this portion of Amargosa Creek.

Le Conte's thrasher (*Toxostoma lecontei*)

LISTING: CDFG - Bird Species of Special Concern, list III

This species occurs in sparse desert scrub, has been observed in the vicinity, and may occur occasionally onsite in the scrubby brushland of the floodplain.

Swainson's hawk (*Buteo swainsoni*)

LISTING: CDFG - Threatened
Species of Special Concern, List I

The species is likely to utilize the open arid scrub lands of the project site for foraging. It is potentially endangered due to it's small population size and habitat loss.

- *Sensitive Species Noted by Residents*

Correspondence for the previously circulated Draft EIR indicated that residents had observed the Burrowing Owl, Western Pond Turtle and the animals noted below, although no substantiating data was presented. The observation of the Desert Tortoise is not uncommon since this animal is frequently released from captivity in desert areas outside the natural range or in former areas of their range. The presence of burrows would be required from an observation to ascertain that the animal was part of a native population. Dr. Feldmeth's survey for the Mojave Ground Squirrel (included in "Ritter Ranch: A Predevelopment Biological Assessment", Ecological Research Services, October, 1989) has resolved the issue of that animal's absence on the site, and is referenced in the PSBS

Biological Resources Review in Appendix E of the Ritter Ranch Specific Plan Final EIR. The Golden Eagle activity on the north side of Sierra Pelona was noted in the PSBS report but at the time of the study, the nest site could not be located. U.S. Forest Service biologists indicated that the nest site was to the west (likely in the San Gabriels). The precise location of these nest sites is a very confidential matter within the biological community due to the threat of the theft of the young.

IMPACTS

Riparian Vegetation

Significant Impacts

- 4.4.1 The loss of natural habitat, including 57 acres of ACOE jurisdictional wetlands, a significant project impact. Implementation of recommended mitigation measures will reduce impacts; however, due to the uncertain success of wetland replacement and the time lag between disturbance and replacement, the impact is considered significant even with proposed mitigation.

The proposed project will result in a significant loss of natural habitat, including limited amounts of Joshua tree/Juniper woodland, Great Basin sage scrub, non-wetland mountain meadow, and approximately 57 acres of ACOE jurisdictional wetlands including cottonwood riparian, mulefat scrub, mountain meadow, Great Basin sage scrub, *Distichlis* salt grass, and tamarisk woodland. Refer to Table 6 for a breakdown of the total calculated ACOE jurisdictional wetland habitat loss due to construction of the Amargosa Creek drainage improvements, Elizabeth Lake Road realignment, Ritter Ranch Road, Ritter Ranch golf course, and equestrian trail. This loss of 57 acres of ACOE jurisdictional wetlands would be considered a significant impact if unmitigated. However, the proposed enhancement and creation of approximately 39 acres of high quality wetland habitat is anticipated to significantly reduce this impact.² It should be noted that the ultimate habitat value of the wetland mitigation areas is anticipated to be greater than that of the existing wetlands that will be destroyed. The wetland mitigation concept is described later in this section.

² Wetland Mitigation is proposed for a portion of Flood Control Basin "B" (approximately 20 acres of which is not available for mitigation to allow for the planned Ritter Ranch golf course).

Table 4.4-3

**ANTICIPATED ACOE JURISDICTIONAL WETLAND HABITAT LOSS
(including portion of Ritter Ranch Road, within Basin "B")**

| | <u>Acres</u> |
|------------------------|---------------|
| Mountain Meadow | 36.32 |
| Mulefat Scrub | 6.99 |
| Willow Riparian | 2.71 |
| Cottonwood Riparian | 5.05 |
| Tamarisk Woodland | 0.55 |
| Great Basin Sage Scrub | 0.34 |
| <i>Distichlis</i> | <u>5.03</u> |
| Total | 56.99* |

*NOTE: Acreage impact estimate is based on 1992 design plans. Subsequent reduction in design flows will likely result in a reduced roadway footprint and associated reduction in wetland impact.

No significant impacts are expected to result from utility construction due to the relatively small area affected. Project wetland loss will occur due primarily to roadway fills and construction of channel modifications, culverts and outlet structures adjacent to the roadway. Loss of habitat was calculated using 1"=40' scale wetland delineation maps and 1"=500' existing vegetation maps prepared by PSBS, in addition to 1"=40' engineering and design plans provided by the project applicant. For the purpose of this analysis, habitat is considered lost if it occurs in areas to be graded or within 25 feet of an area to be graded.

Flood Control Basin "B" will be excavated, therefore habitat within these areas will be destroyed. A new meandering channel will be constructed and revegetated with riparian plants as part of the construction of Flood Control Basin "B" (see "Wetland Mitigation Concept" discussion below). Flood Control Basins "E" and "F" and the interim basins will not be excavated; however, they will be subjected to inundation (peak height to zero height) during flood events. Water retention time (peak height to zero height) during a 50-year storm event will last approximately a maximum of 33 hours (for Basin "B" with less time for smaller basins); this is not expected to be of sufficient duration to jeopardize the health of

trees or herbaceous plant material³. Therefore, habitat within these flood control basins is not considered lost unless it is graded as part of the Elizabeth Lake Road realignment and widening. The eastern portion of the Flood Control Basin "E" area will also be impacted as a result of grading and construction of the access road into the planned Ritter Ranch Specific Plan Planning Area 3 and associated box culverts (see Exhibit 4.4-1B, VEGETATION).

As flood control basins will not significantly reduce low stream flows, no significant impact is expected to existing wetlands downstream. Positive impacts will likely occur due to the project allowing for use of non-domestic water (for irrigation of adjacent landscaped slopes in proposed development projects, which would sustain year-round low flows).

The unmitigated loss of 57 acres of wetland habitat is considered a significant impact. Compliance with required Federal and State regulations governing the destruction of wetland habitats (i.e., the ACOE 404 permit process and California Department of Fish and Game 1601 Agreement process) and the implementation of mitigation measures recommended below will reduce the biological impacts of the wetland loss (although significant impacts will remain). Recommended mitigation for wetland loss includes:

- creation of replacement wetland habitat within Flood Control Basin "B";
- construction of "gabions" (rock/steel mesh structures that serve to reduce stream velocities and to pond water) within portions of the remaining natural channel to create small wetland areas;
- additional wetland replacement offsite if necessary;
- salvage/relocation of valuable topsoil, mountain meadow sod, and specimen trees;
- planting beneficial native plant species within the channel that do not occur there now;
- removal of the invasive tamarisk riparian habitat;
- and the dedication of open space conservation easements to ensure the long-term maintenance of the mitigation measures.

The habitat replacement ratio proposed (57 acres lost: 37 acres created) is considered adequate, as the value of the replacement habitat to wildlife is anticipated to be substantially greater (in addition, as noted above, actual habitat loss will likely be less due to reduced roadway grading anticipated with the reduced flood projections). Much of the

³ Beauchamp, M., November 20, 1990, Pacific Southwest Biological Services Biological Assessment, pp. 15-16.

relatively low value mountain meadow habitat lost will be replaced by willow-cottonwood woodland which has a greater wildlife habitat value. In addition, the Specimen Tree Relocation Areas will be planted with full-sized trees relocated from development areas onsite. These areas will provide better habitat than would areas planted with smaller (5-15 gallon) trees from non-local sources.

If properly and successfully implemented, these mitigation measures could substantially reduce impacts upon riparian habitats. However, due to the uncertain success of wetland replacement and the lag time between habitat disturbance and replacement, the project's impact upon wetland habitat values is still considered significant.

- *Wetland Mitigation Concept*

As noted above, Basin "B" is proposed to be the primary mitigation area for the project. The mitigation plan is subject to review and approval by the U.S. Army Corps of Engineers and the California Department of Fish and Game. The Basin would be completely regraded to provide adequate floodwater storage volume and to effectively bring surface soils closer to the water table. This would also reduce present stream grade problems causing extensive erosion, incised channels and limited area benefitting from low flows and smaller storms. The intent is to replace impacted wetland (primarily mountain meadow, with some mulefat, cottonwood, willow and tamarisk riparian) with higher quality wetlands. A low-resistance wetland Zone "A" is proposed as a high-flow route for larger storms. A more dense Zone "B" is proposed for the majority of the mitigation area consisting of willows, cottonwoods and other wetland species. An "upland" Transition Zone is also proposed although it is not anticipated to be credited as wetland mitigation. A comprehensive 5-year maintenance and monitoring plan will also be provided to assist wetland development.

There have been numerous successful wetland revegetation projects in southern California⁴. The potential for vegetation loss in the initial years is acknowledged, and is the primary reason that the resource agencies (Army Corps of Engineers and California Department of Fish and Game) typically require higher than a 1:1 wetland replacement ratio as well as a wetland area monitoring and maintenance program. Any recreation areas near or within the wetlands would be passive, and subject to approval by the City of Palmdale and the resource agencies as part of the permit/agreement conditions.

⁴ "Use of Wetland in Golf Course Design", Robert Trent Jones, Jr., Golf Course Management, July, 1989, pp.82-86.

Although the proposed Ritter Ranch golf course and other year-round irrigation flows will likely enhance the value and successfulness of the wetlands, the wetland mitigation area will be designed to be sustained on existing annual flows. Although over 40 acres of mitigation area is available with Basin "B", only approximately 25 acres are proposed for wetland mitigation due to inadequate soil or groundwater conditions in the remaining acres.

Non-riparian Vegetation

Significant Impacts

- 4.4.2 The loss of non-riparian vegetation in conjunction with anticipated losses due to surrounding projects will result in significant cumulative impacts on raptors.
- 4.4.3 Loss of Joshua tree/Juniper woodland is significant, but can be mitigated to less than significant levels by providing for replacement and/or relocation in accordance with the City's Native Desert Vegetation Ordinance.

The project will result in the loss of habitats other than wetlands. Anticipated impacts include the loss of raptor forage habitat (annual grassland and scrublands), loss of Joshua tree/Juniper woodland and the potential loss of individuals and of habitat for the sensitive plant and animal species discussed previously in this analysis. The most significant Joshua tree losses will occur north of Elizabeth Lake Road, between Basins "B" and "E" and in the 25th Street West vicinity (Amargosa Creek channelization east of 25th Street West will significantly impact a Joshua tree/Juniper woodland). Also, temporary detour road construction between 20th and 30th Street West will significantly impact a Joshua tree/Juniper woodland and Great Basin sage scrub habitat. Mitigation for these impacts consists of minimization of grading and salvage and transplantation of displaced vegetation where possible. Implementation of mitigation should reduce project impacts upon raptor habitat and sensitive habitat to less than significant levels on an individual project basis. However, the project will result in a net loss of raptor forage habitat, which is a regional problem. Therefore, the loss of raptor foraging habitat resulting from project construction is considered a significant cumulative impact.

Wildlife Corridors

The proposed project may restrict wildlife movement, including access to water, along and across the Amargosa Creek drainage. Wildlife will be accommodated by the placement of large culverts of sufficient size (four feet high or more) for the passage of medium sized

mammals, i.e. mountain lions, deer and smaller (there are approximately 12 culverts 4 feet or larger in diameter, spaced 600 feet to 4,000 feet apart, sloping from 5% to 15%). The provision of properly located and designed culverts is anticipated to reduce project impacts upon wildlife movements to less than significant levels. Deer movement is largely expected from the south, and provisions in the Ritter Ranch Specific Plan design are anticipated to accommodate local deer populations⁵.

Widening of Elizabeth Lake Road and channelization of Amargosa Creek at the narrows immediately southeast of the eastern most foot of Ritter Ridge (near 25th Street West), will restrict the movement of wildlife (primarily coyotes, bobcats, skunks and rabbits) between the lowland desert and Leona Valley. In general, the proposed project will restrict wildlife movement within the Leona Valley and foothills and between Leona Valley and the lowland desert relative to existing conditions. However, this is not anticipated to result in a significant impact because the number of animals affected will be relatively small and no sensitive species would be affected. No significant impacts to migration corridors are expected north of 25th Street West, as few animals travel between the trans-montane valley and desert floor, and much of the area along the channel is developed.

Equestrian Trail

Trail users may deviate from the designated path, thereby disturbing adjacent vegetation, which could be a significant impact depending on the extent and frequency of "stray" trail users. These impacts could be minimized by providing warning signs to trail users and by establishing an appropriately sensitive trail alignment.

Impacts of Channelization

Significant Impacts

- 4.4.4 Channelization will result in loss of Joshua tree woodland although this will not be significant with required mitigation.

Channelization east of 25th Street West (addressed in the June 1990 MBA EIR) will include grading of Amargosa Creek and the subsequent mounding of excavated soil on the banks of the Creek. Conversion of onsite plant communities to project uses will result in the loss of habitat for wildlife species. In addition, following construction, the wildlife value of

⁵ Beauchamp, M., November 20, 1990, Pacific Southwest Biological Services Biological Assessment, p. 19.

habitats in areas adjacent to the project site may decline due to the increased disturbance, thus resulting in a lower diversity of plant and animal life. This is not considered a significant impact due to the small section of channel impacted and required mitigation for loss of Joshua tree woodland.

Groundwater recharge capacity in the northwestern portion of the project site will be reduced if the channel is lined in concrete as proposed. This may result in the degradation of habitats adjacent to the channelized creek, particularly of the Joshua tree woodland. Please refer to Section 5.2, HYDROLOGY, for more information regarding groundwater percolation and recharge.

MITIGATION MEASURES

Riparian Vegetation

- 4.4.1a Prior to issuance of Grading Permits, the City of Palmdale shall comply with all Federal and State regulations governing the development of wetland habitats including the U.S. Army Corps of Engineers 404 Permit and the California Department of Fish and Game 1601 Agreement processes. Compliance shall include the drafting of an Onsite Wetland Replacement and Enhancement Program to the satisfaction of the U.S. ACOE and California DFG.
- 4.4.1b The Wetland Mitigation and Monitoring Plan shall, at the discretion of the U.S. ACOE and California DFG, include the following mitigation measures:
- a. The creation of in-kind (or superior) replacement wetland habitat within the Flood Control Basin "B" area (and on other downstream areas if necessary).
 - b. Construction of gabions within portions of the unimproved natural channel to create small wetland areas.
 - c. Salvage and onsite transplantation of plant materials located within the impacted wetland areas. Special attention should be given to large cottonwood trees throughout the drainage and mountain meadow sod in Flood Control Basin "B" (sod should be salvaged in blocks where possible, as native stock for wetland Mitigation Zone "A").

- d. Removal of tamarisk trees and implementation of at least one follow-up infestation removal for recent growth.
 - e. Relocation of specimen trees along the roadway.
 - f. The replanting of disturbed portions of the channel with additional native plant species which will benefit wildlife. Species considered should include desert elderberry (*Sambucus mexicana*), desert olive (*Forestiera neomexicana*), false indigo (*Amorpha fruticosa*), California rose (*Rosa californica*) and western blackberry (*Rubus ursinus*).
 - g. The dedication of open space conservation easements covering the areas containing natural and replacement wetland habitat to a public agency to ensure the long-term maintenance of the wetland habitat. Although Flood Control Basin "B" has been designed to allow for mature wetland growth, easements granted to flood control districts are not adequate due to conflicting land use mandates (it is common practice to "clear" vegetation in public flood control facilities).
- 4.4.1c All graded portions of the project site including drainage basins, the Amargosa Creek channel, and grading associated with the Elizabeth Lake Road realignment shall be revegetated with native vegetation representative of the vegetation types disrupted by the grading operations. Cuttings, seeds, or plants grown from these shall be used to revegetate the site, where feasible, in order to preserve the local gene pool. Where terrain or soil may prohibit sufficient coverage of native species, vegetation as approved by the City Engineer may be used.
- 4.4.1d Revegetation efforts shall include the removal and stockpiling of topsoil from graded areas at the time of grading and later use of said topsoil during revegetation within Basin "B" and along revegetated channel and road slope areas (to avoid loss of valuable surface material).

Non-Riparian Vegetation

- 4.4.2a Mitigation for the cumulative loss of raptor foraging habitat is beyond the scope of this project and EIR.

- 4.4.2b The City shall post appropriate signs on the Equestrian Trail indicating that trail users should remain on the trail, to minimize disruption of adjacent vegetation.
- 4.4.2c The City shall minimize disruption within slope easement and natural channel areas. To the extent possible, slope maintenance roads shall not be provided where access is available from Elizabeth Lake Road or adjacent roadways.
- 4.4.3 A Joshua Tree Preservation and Transportation Plan shall be approved by the City of Palmdale Planning Department prior to grading permit issuance.

Impacts to Channelization

- 4.4.4 Upon implementation of the project, any suitable Joshua trees that are removed shall be transplanted either on- or offsite in accordance with the City's Native Desert Vegetation Ordinance and as determined in the Joshua Tree Preservation and Transplantation Plan.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of the proposed project will have significant short-term impacts upon the wetland habitat values of the Amargosa Creek drainage. It may be several years before mitigation for the loss of existing wetland can be considered successfully completed. During the interim period, the impact upon resident and migratory wildlife dependent upon these habitats will be significant. Once proposed wetland replacement and enhancement mitigation has been successfully completed, this impact will no longer be significant. The loss of raptor forage habitat is considered a cumulatively significant impact due to the regional nature of the problem. Loss of Joshua tree/Juniper woodland is significant, but can be mitigated to less than significant levels by providing for replacement and/or relocation in accordance with the City's Native Vegetation Ordinance.

4.5 NOISE

This section addresses potential noise impacts from project and cumulative traffic levels. The noise analysis is based on information from the Circulation and Transportation Needs Study for the Palmdale Southwest Planning Area, prepared by DKS in July 1990 and the Ritter Ranch Specific Plan Final EIR (both documents are available for review at the City of Palmdale Planning Department). This section is also based on available project design details, the City of Palmdale General Plan Noise Element, and the Amargosa Creek Improvement Project and Assessment District Draft EIR.

EXISTING CONDITIONS

Noise Environment

The existing noise environment is relatively quiet, and is primarily influenced by noise from local arterial roadways. The Antelope Valley Freeway does not contribute significantly to noise levels in the project area as this major noise source is over two miles east of the site. According to the Department of the Air Force Compatible Use District Map (see Appendix 12.6, NOISE DATA), the aircraft flight path from Plant 42 does not cross over the project site. Therefore, the project area is not experiencing excessive noise impacts due to aircraft operations (local residents have indicated that occasionally military aircraft fly over the Leona Valley area).

The existing noise environment is influenced mainly by residential related traffic along Elizabeth Lake Road, Bouquet Canyon Road and 25th Street West. Single-family residences scattered along Elizabeth Lake Road are considered to be the only sensitive noise receptors in the area. The remainder of the surrounding property is generally vacant. Generally, noise within the Leona Valley travels relatively far due to the canyon/valley topography, as attested by several residents at the November 14, 1990 EIR Scoping Meeting.

The project area east of 25th Street West is currently exposed to traffic noise from Elizabeth Lake Road, 10th Street West, 25th Street West, and the Antelope Valley Freeway. Air traffic noise resulting from the Air Force Plant 42 is also evident within the study area. Single-family housing is located on either side of the proposed channel between 10th and 20th Streets West while vacant land generally surrounds the remainder of the site.

Noise Scales

Community noise levels are measured in terms of the "A-weighted decibel" (abbreviated "dBA"). A-weighting is a frequency correction that correlates overall sound pressure levels with the frequency response of the human ear. The "equivalent noise level" or Leq is the average noise level on an energy basis for any specified time period. The equivalent noise level has the units of dBA, therefore, a sound measured for one hour can be expressed as a one hour Leq of 57 dBA.

The predominant noise rating scale, now in use in California for land use compatibility assessment, is the Community Noise Equivalent Level (CNEL), which penalizes "evening" (7 p.m. to 10 p.m.) and "night" (10 p.m. to 7 a.m.) noise levels. The CNEL scale represents a time weighted 24-hour average noise level based on the A-weighted decibel (roughly equivalent to the Day-Night Average sound Level (Ldn). According to the Palmdale General Plan, the Ldn is almost identical with the CNEL and varies by less than 1 dBA.

Noise Standards

The Noise Element (**Policy N1.1.2**) of the General Plan for the City of Palmdale establishes outdoor and indoor noise limits for new residential and commercial developments (refer to Table 4.5-1, LAND USE/NOISE COMPATIBILITY GUIDELINES). The outdoor noise standard varies with the land use. The residential outdoor noise standard is 50-60 CNEL ("Normally Acceptable"), although this analysis uses 65 CNEL as it is an indicator of potential interior noise level impacts (there is typically a 20-25 dBA CNEL noise reduction from exterior to interior areas with closed windows). The indoor residential noise standard is 45 CNEL. The indoor commercial noise standard varies, but is generally acceptable up to 65 CNEL for industrial areas. Compliance with these standards is required of future developers along this segment of Elizabeth Lake Road prior to obtaining building permits, by policy, although they are used in this report only as a guideline for the acceptability of the noise environment.

Preliminary Noise Analysis Methodology

Noise levels estimated in this EIR are calculated based on the FHWA Highway Noise Prediction Model (RD-77-108). The FHWA model is the widely accepted method for calculating traffic noise levels. The figures provided are based on general site features, known and projected roadway characteristics and existing and projected traffic volumes

(assumptions are provided in Appendix 12.6, NOISE DATA). The analysis is intended to provide a preliminary assessment of potential project and cumulative noise impacts.

The noise level estimates are obtained by applying project and roadway features to the FHWA model. Traffic assumptions are derived from the July, 1990 DKS traffic study and the Ritter Ranch Specific Plan Final EIR. Road characteristics were obtained from empirical observations and the proposed configuration of travel lanes (width, number). Traffic distribution is based on figures obtained from the traffic study. Existing vehicle speed is assumed to average 55 miles per hour, while buildout vehicle speed is assumed to be 45 miles per hour, which considers some slower speeds resulting from future signalization and increased traffic volumes. Refer to Appendix 12.6, NOISE DATA for additional assumptions.

Table 4.5-1

LAND USE/NOISE COMPATIBILITY GUIDELINES*

| <u>Land Use</u> | <u>Maximum Interior/Exterior Exposure (CNEL)</u> | <u>Normally Acceptable</u> | <u>Conditionally Acceptable</u> | <u>Normally and Clearly Unacceptable</u> |
|---|--|--------------------------------|-------------------------------------|--|
| Residential - Single Family, Duplex, Mobile Homes | 45/60 | 50-60 | 55-70 | 70 and above |
| Residential-Multi-Family | 45/60 | 50-65 | 60-70 | 70 and above |
| Transient Lodging, Motels, Hotels | 45/60 | 50-70 | 60-70 | 70 and above |
| School Classrooms, Libraries, Churches, Hospitals, Nursing Homes | 45/60 | 50-65 | 60-70 | 70 and above |
| Auditoriums, Concert Halls, Amphitheaters | -- | N/A | 50-70 | 65 and above |
| Sports Arenas, Outdoor Spectator Sports | -- | N/A | 50-75 | 65 and above |
| Playgrounds, Neighborhood Parks | -- | 50-70 | N/A | 67.5 and above |
| Golf Courses, Riding Stables, Water Rec., Cemeteries | -- | 50-75 | N/A | 70 and above |
| Office Buildings, Business, Commercial and Professional | 45/65 | 50-70 | 67.5-77.5 | 75 and above |
| Industrial, Manufacturing, Utilities and Agriculture | 65/70 | 50-75 | 70-80 | 75 and above |

* Source: Palmdale General Plan, 1992 (Table N-1)

Table 4.5-2

65 CNEL PROJECTIONS
(Distance from Centerline - Feet)

| <u>Road Segment</u> | <u>Existing Condition</u> | <u>Buildout</u> |
|---|---------------------------|-----------------|
| ELIZABETH LAKE ROAD | | |
| • Bouquet Canyon Rd. to Godde Hill Rd. | 41 | 130 |
| • Godde Hill Rd. to Bridge Road | 54 | 95 |
| • Bridge Rd. to 25th St. West | 54 | 194 |
| • 25th St. West to Foxholm Drive | 40 | 187 |

Existing Traffic Noise Levels

Existing traffic noise levels are based on the FHWA Highway Noise Prediction Model, which utilizes traffic data and project information (see discussion above and Appendix 12.6, NOISE DATA, for model assumptions). Table 4.5-2, 65 CNEL PROJECTIONS, lists the estimated distance to the 65 CNEL from the roadway centerline, along various roadway segments in the vicinity of the project sites.

The 65 CNEL along Elizabeth Lake Road, between Bouquet Canyon Road and Godde Hill Road extends approximately 41 feet from the centerline. The 65 CNEL along Elizabeth Lake Road, between Godde Hill Road and 25th Street West extends approximately 54 feet from the centerline, while the 65 CNEL between 25th Street West and Foxholm Drive extends 40 feet from the centerline. However, no significant noise impacts presently exist due to the setback of the existing residential areas and the undeveloped nature of the surrounding uses.

IMPACTS

Short-term Construction Impacts

Significant Impacts

- 4.5.1 Development of the proposed project would result in short-term construction noise impacts that would be reduced to less than significant levels with implementation of the proposed mitigation measure.

Project noise impacts would result primarily from temporary construction noise and long-term noise increases due to additional vehicle travel on Elizabeth Lake Road. Construction activities including truck traffic, grading and facility construction are anticipated to temporarily exceed the City noise standards. Noise levels during construction typically range from 81 dBA to 88 dBA at a distance of 50 feet from the source (see Appendix 12.6, NOISE DATA). However, the City noise ordinance limits the hours construction activities can occur. Due to restricted hours and the generally undeveloped nature of the surrounding area, noise impacts resulting from construction-related activities for the widening of Elizabeth Lake Road, flood control improvements within Amargosa Creek, and the provision of utilities within the Elizabeth Lake Road vicinity are not considered a significant impact. Although not considered a significant impact, construction noise will be a temporary substantial inconvenience to adjacent residences.

Noise Environment

Significant Impacts

- 4.5.2 Implementation of the proposed improvements would result in significant long-term noise impacts within the Leona Valley due to their growth-accommodating nature. These impacts will be reduced to less than significant levels with implementation of the proposed mitigation measure.

The proposed project is expected to significantly increase the ambient noise levels onsite due to increased additional vehicle travel. The increase will particularly impact the single-family dwelling units scattered along Elizabeth Lake Road and existing and future residents within the Leona Valley. Residents of these units would experience a significant increase in noise levels due to the transformation of the roadway from the existing two lanes to an improved (wider) four to eight lane roadway. In addition, due to the growth accommodating

nature of the road, drainage and utility improvements, future noise impacts are anticipated both along Elizabeth Lake Road and within the Leona Valley. Implementation of the flood control improvements within Amargosa Creek and the provision of utilities along Elizabeth Lake Road may generate additional significant long-term noise impacts within the Leona Valley due to their growth accommodating nature. Please refer to Section 5.4, CUMULATIVE IMPACTS, for a more detailed discussion regarding cumulative future noise impacts of the proposed project.

Stationary Noise Sources

The project will include two pump stations, an AVEK turnout and other minor appurtenant facilities. In consideration of their relatively small size and standard noise insulation practices for mechanical equipment, no significant noise impacts are anticipated.

Traffic Noise

The project is expected to contribute to significant future noise level increases along Elizabeth Lake Road due to the additional number of vehicles accommodated by the wider roadway. The project would accommodate an increase in traffic levels, which will have corresponding increases in local noise levels. The projected traffic changes (volume, speed, centerline location, lanes, gradient) were applied to the FHWA Highway Noise Prediction Model to estimate future CNEL based on traffic noise. The future CNEL values do not account for noise reduction due to potential reductions from topography or barriers such as trees, walls or other structures although intervening rough surfaces are assumed (a "soft site" analysis). An estimated 5 dBA CNEL noise reduction would result from existing or future noise walls along residential areas (actual noise reduction may be up to 11 dBA CNEL with an appropriately designed wall having no gaps, as shown in Appendix 12.6, NOISE DATA). This is expected to substantially reduce or eliminate potential impacts discussed below.

Table 4.5-2, 65 CNEL PROJECTIONS, indicates that buildout traffic accommodated by the project will result in significant noise impacts along Elizabeth Lake Road. The 65 CNEL along Elizabeth Lake Road, between Bouquet Canyon Road and Godde Hill Road extends appropriately 130 feet from the centerline, an increase of 89 feet beyond existing conditions. The 65 CNEL along Elizabeth Lake Road, between Godde Hill Road and Bridge Road extends approximately 95 feet from the centerline, an increase of 41 feet beyond existing conditions. Between Bridge Road and 25th Street West, the 65 CNEL increases to approximately 194 feet from the centerline, approximately 140 feet beyond existing conditions. Along Elizabeth Lake Road between 25th Street West and Foxholm Drive, the

65 CNEL extends approximately 187 feet from the centerline, increasing by 147 feet from existing conditions. Buildout traffic conditions are anticipated to create significant noise impacts along these segments.

With implementation of the required mitigation measures which follow, the significant impacts to future residential areas identified above may be reduced to a less than significant level. However, significant impacts will be unavoidable to existing residential uses that have driveway access to Elizabeth Lake Road (the driveway precludes a continuous noise wall, which is needed to effectively mitigate noise impacts). Although most existing residential units are adequately buffered by setbacks, the home adjacent to the knoll, west of Basin "E", may not be mitigated by providing a noise wall (the home will be over 10 feet below the road surface). Where noise walls are not possible, the project should provide window upgrades and mechanical ventilation to minimize noise impacts.

The noise assumptions table in Appendix 12.6, NOISE DATA provides further detail on the noise analysis and assumptions. The figures in Table 4.5-2, 65 CNEL PROJECTIONS, represent "buildout condition." "Buildout" refers to the projected environment at buildout (maximum ADT) of the area, which is effectively the "worst-case scenario".

MITIGATION MEASURES

Short-term Construction

4.5.1 All construction and general maintenance activities, except in an emergency, shall be limited by the City of Palmdale Municipal Code Section 828.030 to the hours of 6:30 a.m. to 8 p.m. Monday through Saturday. The operation of any machine mechanism, device or contrivance during construction shall comply with noise limits in said municipal code section.

Noise Environment

4.5.2a Future residential areas along Elizabeth Lake Road will require noise attenuation barriers similar to those presently located adjacent to arterials throughout the City of Palmdale (these barriers will be constructed by developers of future projects as a part of their development). Barriers may consist of berms, walls, increased setbacks, or any combination of techniques which sufficiently reduce noise levels. Any walls should be set back from all primary and secondary roadways and the area between the right-of-way and wall should be landscaped with shrubs and trees. These barriers

will serve as buffers between noise sources and residences along these roadways, consequently reducing noise to less than significant levels. Should noise levels exceed interior or exterior standards in the future due to cumulative traffic levels, future developers of these residential areas may be required to provide additional noise reduction measures.

- 4.5.2b Following completion of final design plans, the City shall prepare a noise assessment for any existing residential unit anticipated to be exposed to 65 CNEL or greater exterior noise levels (within the limits of project road improvements), providing noise mitigation to achieve acceptable interior noise levels.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Project implementation will accommodate significant cumulative traffic and associated noise increases in the project vicinity. The home adjacent to the knoll, west of Basin "E", will experience exterior noise levels exceeding the 65 CNEL.

4.6 AESTHETICS/LIGHT AND GLARE

This section evaluates the aesthetic impacts associated with the Amargosa Creek Improvement Project. Information in this section was compiled from a site visit and site photographs by RBF in July, 1990 and January, 1993. Additional information is based on the Ritter Ranch Specific Plan, the Santa Fe Specific Plan and the City Ranch Specific Plan which provide view analysis information and identification of aesthetic resources in the project vicinity.

EXISTING CONDITIONS

The Amargosa Creek Improvement Project includes the widening of Elizabeth Lake Road, flood control improvements and the provision of utilities. The improvement project area covers Amargosa Creek from 3,950 feet north of the Antelope Valley Freeway to 20th Street west and an approximately 200-foot wide corridor along Elizabeth Lake Road from 20th Street West to 1,000 feet west of Godde Hill Road. The project area is visually composed of open space, single-family structures and the Lazy-T Ranch (a horse stable).

Amargosa Creek, which is currently a flood hazard for the project area and downstream in the City of Palmdale, flows in an easterly direction along most of Elizabeth Lake Road, and in a northerly direction north of 10th Street West. The headwaters of Amargosa Creek are located approximately 5.5 miles west of Bouquet Canyon Road in Leona Valley. The following discussion will examine the existing visual resources of the project area from Godde Hill Road to the Antelope Valley Country Club (3,950 feet north of the Antelope Valley freeway) (also refer to Exhibit 3.0-2, SITE VICINITY and Exhibit 4.6-1, SITE PHOTOS).

Godde Hill Road to Planning Area 2 Access Road

The western portion of the project surrounding the Amargosa Creek project area primarily consists of open space. Located offsite to the west at the southeast corner of Bouquet Canyon Road and Lake Elizabeth Road, is the Valley High Ranch. Residential units are present on this ranch and are situated at a slightly higher elevation than the western portion of the Flood Control Basin "B". West of this point lie the majority of Leona Valley residences. In this area, Amargosa Creek flows from the south to the north side of the road, crossing under Elizabeth Lake Road. The area south of Elizabeth Lake Road consists of a broad valley (Flood Control Basin "B"), including extensive mountain meadow wetlands, willows, sycamores and cottonwoods. The flat valley area is currently used for grazing. An

orchard is located on the Messer Ranch property. East of the Elizabeth Lake Road crossing, Amargosa Creek flows on the north side of Elizabeth Lake Road, north of existing residential units, and contains various riparian habitat types (see Exhibit 4.6-1, SITE PHOTOS). The creek contains mulefat riparian, mountain meadow wetlands, cottonwood riparian and willow riparian vegetation communities. This area consists of a gently sloping valley with dispersed sage brush and grassland. A dirt road leads to four residential houses and a trailer, located on the north side of Elizabeth Lake Road across from Messer Ranch.

Planning Area 2 Access Road to Planning Area 3 Access Road

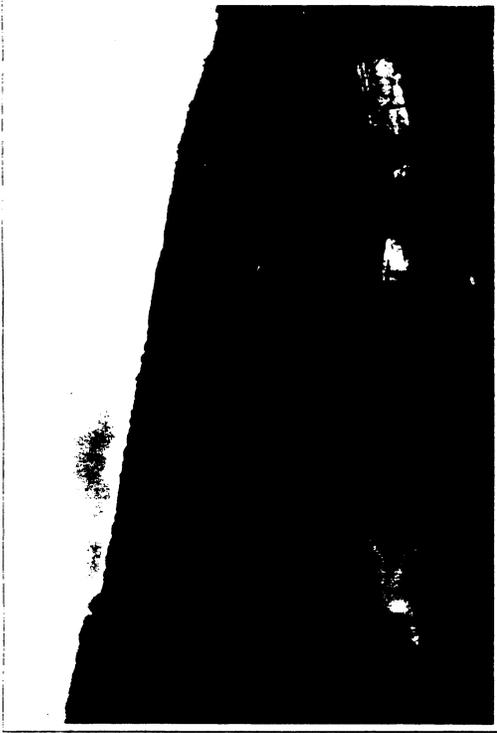
Between the Planning Area 2 Access Road and the Planning Area 3 Access Road, Amargosa Creek crosses over to the north side of Elizabeth Lake Road and meanders slightly away from the highway. This area is covered by chaparral, sage brush, Joshua trees, and dispersed riparian vegetation (willow, cottonwood and mulefat). There are a few scattered homes located in this rural area adjacent to Elizabeth Lake Road, primarily on the north side. Also, a small orchard exists on the north side of Elizabeth Lake Road. This project segment opens up on its western end in the relatively broad portion of Leona Valley.

Ritter Ranch Planning Area 3 Access Road to 40th Street West (Extension)

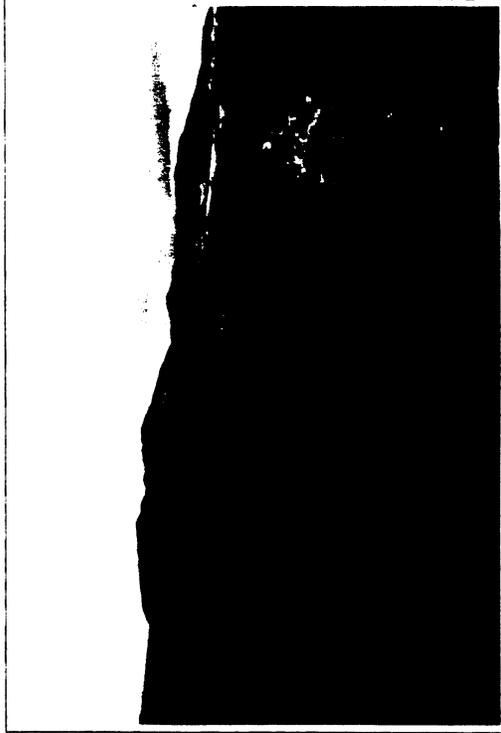
Further east along Elizabeth Lake Road, between the Planning Area 3 access road to Ritter Ranch and the approximate extension of 40th Street West, the viewshed along the Amargosa Creek is dominated by sage brush, Joshua trees, a tumble weed, and dispersed weedy vegetation. Vegetation communities within the Creek include cottonwood riparian, mulefat riparian and tamarisk riparian. Elizabeth Lake Road crosses the Amargosa Creek in this area (the creek runs along the south of Elizabeth Lake Road). This portion of the study area is approximately 100-150 feet wide. Lazy-T Ranch lies at approximately 43rd Street West (extension) and consists of a ranch house, a trailer, horse stables, a barn and a windmill. A two-story home lies at approximately 47th Street West (extension) north of Elizabeth Lake Road, along the hillside of Ritter Ridge. Power lines cross and run along the south side of Elizabeth Lake Road. The planned Ritter Ranch and proposed Sante Fe Hill Specific Plan projects border the south and north portions of this segment, respectively.

40th Street West (Extension) to 30th Street West (Extension)

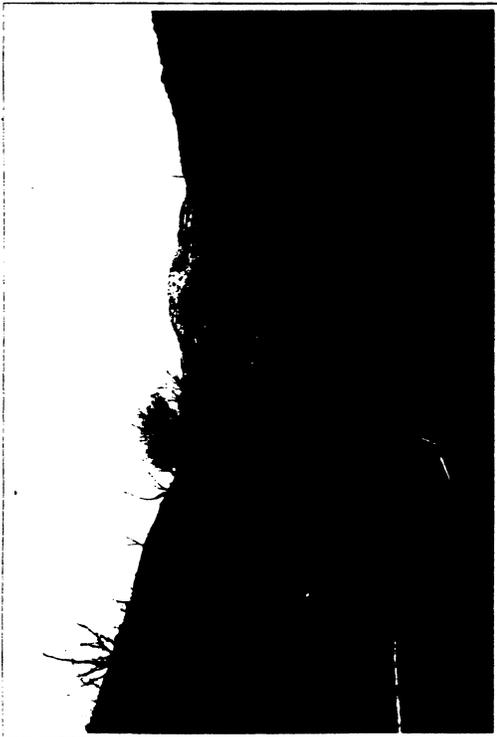
Moving further east along Amargosa Creek, between approximately 40th and 30th Street West extensions, Amargosa Creek flows directly adjacent to Elizabeth Lake Road on the northern side. The canyon becomes wider to the east as the surrounding terrain flattens.



2 West view along Amargosa Creek with Tamarisk Woodland in the foreground.



4 Southwest view of Delefont Basin "B" showing existing Annual Grassland and Desert Sullygrass (wetland) habitat.



1 East view along Amargosa Creek Canyon with Desert Scrub vegetation visible in foreground and Cottonwood Riparian vegetation at center.



3 East view of Amargosa Creek drainage with Cottonwood Riparian vegetation.

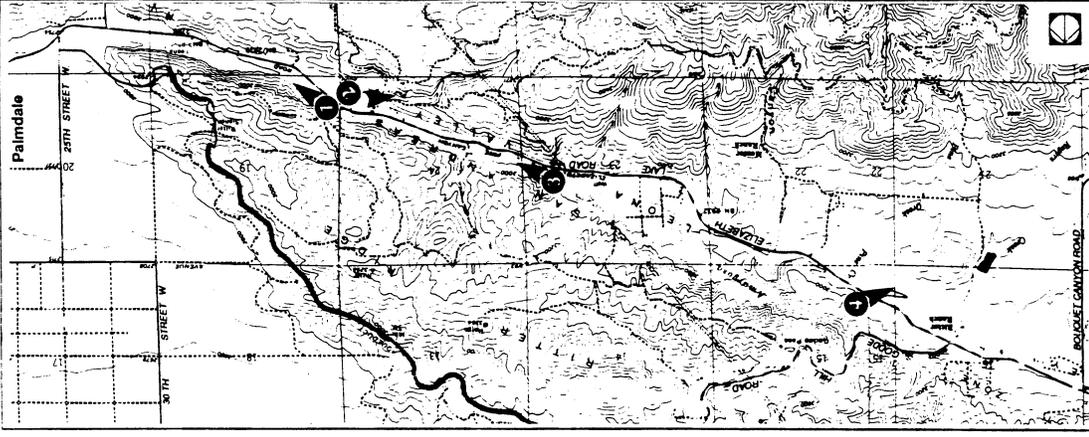


Photo Locations
AMARGOSA CREEK IMPROVEMENT PROJECT • EIR
Site Photos

Exhibit 4.6-1

- Borrow Areas

Three areas within the proposed project site and within the proposed Ritter Ranch project boundaries will be designated as "borrow areas" where dirt fill will be excavated. This dirt will be used as fill material for Elizabeth Lake Road construction. These borrow areas are also expected to be used for construction vehicle "staging" areas (storage) and construction trailers, which may be visible to the public. These borrow areas will have graded areas left open during construction for passing motorists to view, which may impose a temporary significant aesthetic impact on passing motorists and surrounding viewers. Development is planned to occur in these borrow areas at a later time and these visual and aesthetic impacts will occur temporarily. Temporary landscaping of the area will be necessary to help reduce these impacts if development is not to occur for a year or more (to avoid large graded areas being left exposed to view and to wind and water erosion).

- Detour Road

A temporary detour road will be constructed south of Elizabeth Lake Road between 20th Street West and 30th Street West. Although grading will have significant aesthetic impacts, this will be reduced to less than significant levels by required mitigation measures.

- Construction Traffic

Construction truck traffic will also temporarily increase on Elizabeth Lake Road due to the number of trucks required to pick up and haul the dirt to various stockpiles. The majority of the truck traffic is anticipated to remain onsite due to the borrow areas being on the Ritter Ranch property. However, some truck traffic will come from offsite areas. Presence of substantial truck traffic may be considered aesthetically offensive. Lane closures and detours on Elizabeth Lake Road are also expected to occur. This increase in traffic, detours, and road closures from the excavation of dirt and dump truck traffic is expected to be temporary. With proper implementation of mitigation measures, these impacts will be reduced to less than significant levels, although not eliminated.

- **Utility Rerouting**

Project construction will require temporary re-routing of utility lines to above ground poles primarily south of Elizabeth Lake Road. As noted in Section 3.0, PROJECT DESCRIPTION, utility rerouting will reduce the number of above-ground poles, which is a positive aesthetic impact.

Project Impacts

Significant Impacts

4.6.2 The project will result a significant permanent change in the physical nature of the canyon and valley floor due to grading and road construction, and may lead to a cumulative aesthetic impact due to facilitating future development. Roadway lighting and increased lights from motor vehicles represents a significant aesthetic impact. Although mitigation measures will be implemented to reduce these impacts, they will remain significant after mitigation as a result of an overall change in the character of Leona Valley.

Godde Hill Road to Planning Area 2 Access Road

The western portion of the improvement project lies between 1,000 feet west of Godde Hill Road and the Planning Area 2 Access Road. Amargosa Creek flows on the south side of Elizabeth Lake Road, on the Ritter Ranch property. Flood Control Basin "B" will require the excavation of approximately 2.14 million cubic yards (CY) of soil, which is a significant aesthetic impact due to loss of this visual resource (open space and wetland areas). The views of Flood Control Basin "B" could be changed from meadow/riparian to golf course (as part of the Ritter Ranch project) and revegetated riparian species (required as part of the biological resource mitigation measures). The excavation will produce a temporary increase in truck traffic due to the number of dump trucks needed to remove this large amount of dirt. This impact will be temporary and will be lessened through proposed mitigation measures.

The creek will flow through the middle of the 124-acre Flood Control Basin "B", which is proposed to retain approximately 2,050 acre-feet (AF) of water during the 50-year storm. As the natural creek flows into the basin, it will be improved as a low flow channel throughout Flood Control Basin "B" (re-excavated as a meandering soft-bottom "natural" channel). Portions of this basin will be left in a natural condition or will be enhanced by

plantings as mitigation for work required in the creek area. This low flow channel will move water through three 54-inch reinforced concrete pipes that will be constructed under Elizabeth Lake Road for a short distance. Water will continue to flow through a modified natural channel north of Elizabeth Lake Road. This channel will be constructed with rip-rap to protect it from erosion. Water will continue to flow through an outlet structure made of natural rock and concrete which leads to a natural sector of the Amargosa Creek north of Elizabeth Lake Road.

Planning Area 2 Access Road to Planning Area 3 Access Road

One flood control basin will be constructed in this portion of the project, Flood Control Basin "E". This basin is a natural depression and will not need to be graded in order to function as flood control basin (only relatively nominal grading will be required for outlet structures and storm drains). There will be no significant aesthetic impacts to the natural Amargosa Creek channel as it meanders north of the proposed Elizabeth Lake Road (although riparian vegetation of Ritter Canyon Creek will be impacted).

Elizabeth Lake Road will be widened throughout this entire portion of the project, significantly impacting the natural landscape adjacent to the road. This includes removal of sagebrush and juniper trees. Of main concern is a single-family dwelling unit located at the base of the existing knoll on the north side of the existing Elizabeth Lake Road. The proposed Elizabeth Lake Road will be widened as well as raised (the road surface would be approximately 10 feet above ground level at the home, and will require grading a large portion of the knoll), and the residential unit will have direct views of the proposed road. This is considered a significant view impact as residents will be looking up at the proposed road from their home. Widening of the road includes a 2:1 fill slope on both sides which will also pose an aesthetic impact to residents. Throughout this segment, the roadway will be between 0 and 20 feet higher than the existing roadway, which represents a significant aesthetic impact due to the view obstructions and loss of vegetation from road fill.

Flood Control Basin "E" will be situated west of the entrance to Planning Area 3. This flood control basin is located adjacent to several residential units but this will not be considered a significant impact as no grading for the construction of the basin will be required. Water will flow under the proposed Elizabeth Lake Road, in the natural channel of Amargosa Creek which is located on the northern side of the road, to Flood Control Basin "E".

Although relatively little grading for road improvements is necessary in the west portion of this segment, significant road fill is proposed from approximately the middle to the eastern end of Basin "B" (over 40 feet higher than the existing ground in places).

Planning Area 3 Access Road to 40th Street West (Extension)

Between the Planning Area 3 Access Road and 40th Street West, Elizabeth Lake Road will be realigned and widened generally in its present location. Amargosa Creek will transition from north of the realigned Elizabeth Lake Road to the south side (west to east) and will be substantially modified. Portions of the natural channel will be blocked with road fill, therefore small drainages will run along the road fill to connect the "old" channel. The improved channel bank will be one side of the road embankment of Elizabeth Lake Road. To prevent erosion impacts associated with the realignment of Amargosa Creek, rip-rap will be used to protect the road embankments of Elizabeth Lake Road. Riparian vegetation that currently exists along the existing road will be removed. This impact will affect the aesthetic quality of the natural landscape in this rural area.

Several structures on Lazy-T Ranch will be removed as a result of the realignment of Elizabeth Lake Road. Also, Elizabeth Lake Road will be raised above the existing road elevation by approximately 10 feet, representing a significant aesthetic and visual impact to Lazy-T Ranch. These impacts are all significant as the aesthetic qualities of the natural landscape cannot be fully replaced once removed. Landscaping the area surrounding the realigned road and channel may reduce the aesthetic impacts but will not eliminate them.

Also in this area, specifically the road that borders the entrance to Planning Area 3, a box culvert will be constructed under the road to connect the natural channel on the west to the modified channel on the east. The fill slope will be somewhat visible from Elizabeth Lake Road but is not be considered a significant visual impact.

40th Street West (Extension) to 30th Street West (Extension)

In this segment, most of Amargosa Creek will remain natural to meander along the north side of Elizabeth Lake Road. A small portion of the Creek near the extension of 40th Street West, which flows on the south side of Elizabeth Lake Road before flowing to the north side, will be modified due to road fill encroachment. Views of the modified Creek will be visible from Elizabeth Lake Road. Although the modified Creek may pose as an aesthetic impact to the surrounding area, the channel will have a natural bottom with rip-rap constructed to slow down the flow of water and reduce flooding that may occur. Grading

for road improvements will also be relatively moderate (total width of grading averages approximately 125 to 150 feet). Although this segment has the least grading, the change from existing conditions is considered a significant impact.

30th Street West (Extension) to 20th Street West

Basin "F" that is proposed for construction, west of 25th Street West (and the three City Ranch interim basins) will require relatively minimal grading (excavation of dirt), and will basically reflect the natural topography of the land. However, significant grading will be required for Amargosa Creek channel improvements immediately east and farther downstream of 25th Street West. The proposed above-ground utilities are not anticipated to result in significant aesthetic impacts due to their relatively small size and required mitigation measures (see Section 4.11, PUBLIC SERVICES AND UTILITIES).

The eastern portion of Elizabeth Lake Road between 30th Street West (extension) and 20th Street West will be widened to approximately 150 to 250 feet including Elizabeth Lake Road and the fill slope on both sides of the road, the sewer line bench, and the Amargosa Creek channel. Elizabeth Lake Road will be raised approximately 15 feet above the surrounding grade and will have a significant aesthetic impact on the views from surrounding areas. Also, views for motorists and from future residential developments may be impacted by the height of the road.

20th Street West to Antelope Valley Country Club

The channelization of Amargosa Creek will significantly alter the view of the creek. Channelization will convert the creekbed from a natural drainage course into a trapezoidal concrete channel approximately 15 feet in width with side slopes of 1.5:1 in most places (including access roads a total right-of-way width of approximately 75 feet in places). This is an unavoidable significant impact.

Noise Barriers

Noise walls if any, would be located adjacent to the few homes within approximately 150 to 235 feet of the future centerline, to achieve 60 dBA CNEL, or closer if 65 dBA CNEL is acceptable. Other noise barriers along Elizabeth Lake Road would be constructed in conjunction with new development where needed to provide adequate noise attenuation. These barriers are typically six to eight foot block walls, although other acoustically effective materials may be used. This is acknowledged to represent an aesthetic impact, although it

is not considered significant in light of the relatively small area affected (primarily affecting motorists along a short stretch of Elizabeth Lake Road). It should be noted that noise walls may not be necessary should future detailed development plans demonstrate an adequate setback from roadway noise.

MITIGATION MEASURES

Short-term Construction

4.6.1 Following initial grading for the flood control basins and grading of the borrow areas within the project area, areas planned for future development shall receive particular attention for revegetation and/or other and erosion control measures (graded areas should not lie exposed following completion of the improvement project). This will reduce the amount of time that these graded and borrow areas lie exposed.

Project

4.6.2a The City shall prepare a detailed Landscape Plan which shall, at minimum, address landscaping of road medians and road slopes; use replacement and retention of native vegetation within existing natural channel areas and flood control basins; and special screening techniques for aesthetically sensitive uses (including the pumping station and non-domestic water storage reservoir). Landscaping shall be compatible with native vegetation and landscape plans for adjacent developments, to the extent practical.

4.6.2b Any lights used to illuminate the road or utilities shall be designed and located so that direct lighting is confined to the necessary area. In addition to directional lighting, lighting should not be of greater intensity (wattage) than otherwise necessary for public safety.

4.6.2c To the extent feasible, removal of existing native trees and vegetation shall be minimized during project construction and grading, particularly within existing natural channels (this can be accomplished by staking sensitive habitat at the limits of grading to avoid incidental disruption).

4.6.2d The project grading plan shall clearly indicate permit limits and areas to remain. Road slope and channel bank protection ("rip rap") shall be

composed of natural materials where possible and with interspersed vegetation to maintain the existing aesthetic qualities.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of the proposed Amargosa Creek Improvement Project will result in significant roadway elevation increases and associated viewshed impacts. Grading will result in the permanent loss of natural vegetation, including several riparian/wetland habitats, sage brush, and Joshua and juniper trees. The project will introduce significant new light sources into the rural area. These impacts will significantly alter the natural landscape and affect the aesthetic character of this rural area, even following implementation of available mitigation measures. Also, growth facilitated by the project will result in a significant cumulative impact on the aesthetic character of this area.

4.7 LAND USE

The following discussion is based on a site survey by Robert Bein, William Frost, and Associates in July of 1990, in addition to U.S.G.S topographic maps, aerial and ground photographs for the onsite and surrounding land uses, the approved Specific Plans for Ritter Ranch, City Ranch and Santa Fe Hills, the Final EIR for the Ritter Ranch Specific Plan and EIRs for surrounding projects in the Antelope Valley, and the City of Palmdale Draft General Plan. This section examines existing conditions, potential impacts, and mitigation measures with regard to land use impacts and project implementation.

EXISTING CONDITIONS

The project area currently consists of the existing Elizabeth Lake Road, the Amargosa Creek drainage channel, open space, two horse stables and scattered residential units. The northern project area (north of 20th Street West) is more heavily developed including residential communities, a golf course and commercial uses at 10th Street West and Avenue P. Elizabeth Lake Road currently has two lanes and a 40 foot Right-of-Way (ROW). The open space consists mainly of natural vegetation, including wetland/riparian, Joshua trees, sage scrub, grassland and disturbed areas. It should be noted that the majority of the area south of Elizabeth Lake Road and west of Lazy T Ranch is within unincorporated Los Angeles County. This includes the western portion of the project known as Leona Valley, a rural residential community. Further west are the communities of Green Valley, Lake Elizabeth and Lake Hughes.

Refer to Section IV.F, AESTHETICS/LIGHT AND GLARE, for additional discussion regarding existing land uses. Also see Exhibit 3.0-2, SITE VICINITY and Exhibits 3.0-3, PROJECT OVERVIEW.

Godde Hill Road to Planning Area 2 Access Road

The portion of the project area from Godde Hill Road to the Planning Area 2 Access Road currently consists of open space, including wetland/riparian areas, grassland and disturbed areas. Valley High Ranch (a horse ranch) is located just east of Bouquet Canyon Road, west of the proposed improvements. The wetland/riparian area lies south of Elizabeth Lake Road in an area which will be excavated for use as Flood Control Basin "B". Several homes are located on the north side of Elizabeth Lake Road.

According to the City General Plan, the proposed land use for the area north of Elizabeth Lake Road is Low Density Residential (1 du/ac).

The City General Plan land uses for the area immediately south of Elizabeth Lake Road include Single Family Residential (0-3 du/ac) and Parks and Open Space (within Ritter Ranch). The proposed land uses for the area further south (within Ritter Ranch) include Single Family Residential (0-6 du/ac), Low Density Residential (1 du/ac), Neighborhood Commercial, and Public Facilities.

Planning Area 2 Access Road to Planning Area 3 Access Road

This portion of the project area consists mostly of open space. There are also single-family homes located from 275 to 850 feet north of Elizabeth Lake Road. There are two additional single-family homes located to the south of Elizabeth Lake Road. Also to the south of Elizabeth Lake Road are powerline easements and the Messer Ranch property which contains a ranch-style house and a barn.

The General Plan Land Use designation for the area north of Elizabeth Lake Road to Avenue P is LDR. Most of this area is presently zoned by Los Angeles County as A-2-2 (Heavy Agriculture, 2 acre minimum lot size).

The area south of Elizabeth Lake Road to Avenue R (extension) has an existing Land Use designation of Ritter Ranch Specific Plan and LDR.

Planning Area 3 Access Road to 40th Street West

The segment of the project from the Planning Area 3 access road to 40th Street West currently contains open space and the Lazy-T Ranch. The Lazy-T Ranch is located to the south of Elizabeth Lake Road and contains a ranch house, a trailer, horse stables, a barn and a windmill.

The City's General Plan Land Use designation for the area north of Elizabeth Lake Road to Avenue P is LDR and SD (Special Development proposed Santa Fe Hills Specific Plan area). The majority of this area is zoned as the Santa Fe Hills Specific Plan. The remaining area is currently zoned by Los Angeles County as A-2-2 (Heavy Agriculture, 2 acre minimum lot size), although a portion of it is included in the Ritter Ranch Specific Plan (Planning Area 3).

The area south of Elizabeth Lake Road to Avenue R (extension) has a General Plan Land Use designation of LDR. All but a small portion of the area which is immediately adjacent to Elizabeth Lake Road, between 50th Street West and 40th Street West, is part of the approved Ritter Ranch Specific Plan.

40th Street West (Extension) to 30th Street West (Extension)

The segment of the project from 40th Street West to 30th Street West consists of open space. The area to the north of Elizabeth Lake Road to Avenue P has an existing City General Plan Land Use designation of OS (Open Space) and UR (Urban Residential, 3.1 to 6.1 du/ac). A portion of this area is also designated as Specific Plan Zone and is proposed as the Santa Fe Hills Specific Plan. If approved, the Santa Fe Hills Specific Plan could allow for up to 2,100 single family and multi-family residential units.

The City's General Plan Land Use designations for the area south of Elizabeth Lake Road to Avenue R (extension) is LDR (Los Density Residential, 1 du/ac), and the City Ranch South Specific Plan (South). This area is currently zoned by Los Angeles County as A-2-2 (Heavy Agriculture, 2 acre minimum lot size).

30th Street West (Extension) to 20th Street West

The segment of the project from 30th Street West (extension) to 20th Street West consists primarily of open space, although the City Ranch North project is under construction on the north side of Elizabeth Lake Road. The existing City zoning for the area, north from Elizabeth Lake Road to Avenue Q extension is RPD-3U (Residential Planned Development: 3 units per acre).

The area south of Elizabeth Lake Road is designated by the existing Palmdale General Plan as Specific Plan Zone, proposed as the City Ranch South Specific Plan (approximately 5,200 single family and multi-family residential units). This area is presently zoned by Los Angeles County as A-2-2 (Heavy Agriculture, 2 acre minimum lot size).

According to the City of Palmdale General Plan, the area adjacent to the south side of Elizabeth Lake Road is shown as City Ranch South Specific Plan, which could include Multiple Family Residential (0-16 du/ac), Commercial, Public Facilities, Parks and Open Space, and Single Family Residential (0-6 du/ac).

The area adjacent on the north side of Elizabeth Lake Road (the approved City Ranch North project under construction) is designated as Public Facilities (for two school sites), and Single-Family Residential-3 (3.1-6 du/ac).

20th Street West to Antelope Valley Country Club

The segment of the project from 20th Street West to the Antelope Valley Country Club includes residential and commercial uses, and the developed golf course area. The project area from 20th Street West to 10th Street West is bordered by medium density residential units (4-6 units/acre) to the north and south of the Amargosa drainage channel. The existing natural drainage channel provides a strip of open space between the residential areas. The area surrounding the intersection of 10th Street West and P Avenue is primarily commercial. North of the Antelope Valley Freeway, the project area is lined by the Antelope Valley Country Club and residential units to the east. The proposed improved drainage channel will continue northward through the developed Antelope Valley Country Club golf course.

Leona Valley

Leona Valley (and adjacent rural communities) represents a unique physical and cultural setting. The area had become established by the mid 1800's when the Butterfield Stage Line made its first stop at Elizabeth Lake in 1858. Elizabeth Lake Road, believed to have been a trade route of early Indian settlements, became an important east/west trade route for early American settlers. The Antelope Valley Trails Council is endeavoring to protect the historically significant Amargosa Creek Trail (Antelope Valley Trails Council, September 15, 1990). Elizabeth Lake Road is presently designated by the City as a scenic highway.

Leona Valley, with its eastern boundary at approximately 50th Street West, presently has approximately 500 homes and 880 registered voters, as well as an active Town Council (Leona Valley Town Council, September 16, 1990).

The Leona Valley residents rely mainly on groundwater wells for drinking water. Residents and the Leona Valley School (K-5) utilize the project area for its recreational, scenic and educational value. The Town Council, in an effort to preserve the rural lifestyle, has a Community Standards District, approved by the County of Los Angeles. Relevant standards include:

- 2.5 acre minimum lot size (using slope criteria)
- 26 foot maximum road width
- no curb, gutters or sidewalks
- minimum street lighting
- minimum creek grading

IMPACTS

Short-Term Construction Impacts

Temporary short-term construction impacts will occur due to the road widening, flood control improvements and placement of utilities. The following are short-term impacts anticipated to occur: 1) dust and noise created by construction activities that may disturb motorists and residences along Elizabeth Lake Road; 2) dust generation due to construction and grading activities would increase local airborne particulate matter; 3) increased truck traffic for hauling dirt, lane closures would occur along with detours on Elizabeth Lake Road due to construction activities may delay traffic and effect access along the roadway; 4) necessary grading activities would expose bare surface soils to possible wind and water erosion; and 5) temporary utility re-routing to above-ground poles is required. These temporary significant impacts will be substantially reduced but not eliminated with implementation of required mitigation measures as identified in Sections 4.1. EARTH RESOURCES, 4.2. AIR RESOURCES, 4.3. WATER RESOURCES, 4.5. NOISE, 4.6. AESTHETICS/LIGHT AND GLARE, and 4.9. TRAFFIC AND CIRCULATION.

4.7.1 - Short-term construction impacts will be significant, although mitigation measures will substantially reduce the impact.

4.7.2 - Grading impacts associated with the Borrow Areas are significant, although these impacts have been addressed in the certified Ritter Ranch Specific Plan EIR.

In addition, the project proposes three "Borrow Area" locations. Two of the "Borrow Areas" are located in the 40th Street West to Planning Area 3 segment. The first is located south of Lazy-T Ranch. The second one is located northeast of the Planning Area 3 access road (see Exhibit 3.0-3, PROJECT OVERVIEW). The third "Borrow Area" is just south of the area located between Planning Area 3 and Planning Area 2. These "Borrow Area" locations have been selected because they are proposed for future development by the Ritter Ranch Specific Plan project. The grading impacts in these areas are short-term in nature and will

cease upon project completion and development of the proposed Ritter Ranch project (notwithstanding potential Ritter Ranch development, the Borrow Areas represent a significant impact to existing open space resources). Although the surrounding area is generally undeveloped, these aesthetic impacts are considered significant.

Project Impacts

Significance Determination

- 4.7.3 - Impacts resulting from right-of-way acquisition are significant, and can be substantially reduced but not eliminated by the recommended mitigation measures.
- 4.7.4 - Impacts to access roads and driveways off of Elizabeth Lake Road are not considered significant with implementation of the recommended mitigation measures.
- 4.7.5 - Project development impacts which result in conflicts with key provisions of the ~~proposed~~ Leona Valley Community District Standards are unavoidable significant impacts.
- 4.7.6 - Project implementation will alter the existing natural character of the area, which will remain significant following implementation of the recommended mitigation measures.

The Amargosa Creek Improvement Project will result in a variety of long-term land use impacts. Several driveways and access roads off of Elizabeth Lake Road will require improvements to be compatible with the proposed roadway. This is not considered a significant impact as access points will be provided to all parcels (although modified) with the project, as plans include improvements to the affected driveways. However, significant long-term impacts will result due to substantial physical changes resulting from the 100-foot to over 250-foot wide corridor of grading associated with the project and channelization north of 25th Street West. These impacts include direct impacts to Lazy-T Ranch, right-of-way acquisition necessary from adjacent private land and potentially significant impacts to the rural Leona Valley lifestyle due to the growth facilitated by the project. The project will require easements for slope maintenance (typically 10-feet beyond the road slope), drainage basins and drainage flow easements. These impacts may be reduced to less than significant with implementation of the proposed mitigation measures, though some impacts will remain

unavoidable and significant. The project, although considered consistent with the City of Palmdale General Plan, would conflict with key provisions of the ~~proposed~~ Leona Valley Community District Standards (including road width, road improvements and grading of creek beds). This would result in an unavoidable significant impact. Flood Control basins may be considered an "attractive nuisance" during storms, although this is not considered a significant impact due to relatively rapid basin draining (within 24 to 48 hours).

- ***Godde Hill Road to Planning Area 2 Access Road***

Long-term land use impacts will occur due to the alteration of the land's character by the creation of Flood Control Basin "B" and the widening of Elizabeth Lake Road. The 124-acre Basin "B" will be excavated out (deepened) to increase its storage capacity (necessary for large storm events). A portion of the Basin will be used for the planned Ritter Ranch golf course, with the remainder revegetated as part of the biological resource mitigation (see Section 4.4, BIOLOGICAL RESOURCES). Significant impacts will also occur due to road widening to a 100-foot right-of-way (ROW), requiring up to a 200-foot wide area of grading including slopes in the western portion of this segment. Elizabeth Lake Road will be widened at its existing grade which will minimize grading impacts.

- ***Planning Area 2 Access Road to Planning Area 3 Access Road***

The flood control basin proposed in this area is a natural depression which will not require significant grading. Disruption of the land will occur with construction activities associated with the realignment/widening of Elizabeth Lake Road and the entrance road to Messer Ranch which will require realignment. Realignment of the Messer Ranch entrance road will require a portion of the knoll in this area to be graded.

Long-term land use impacts will occur on the north side of Elizabeth Lake Road due to the grading of approximately 14 feet of an existing knoll required for road widening. This will permanently alter the existing character of the land in this area. The homes located at the base of the knoll will be significantly impacted as they will be located within 80 to 150 feet of the proposed road. Road construction will require grading of an approximately 140- to 260-foot wide corridor, including road slopes. Also, the proposed roadway will be constructed from 0 feet to over 20 feet above the existing grade which will give residents direct views of the road compared to their existing views.

No impacts to the natural Amargosa Creek channel will occur along this segment as this portion of road widening is not within the Amargosa Creek (although portions of a tributary will be impacted).

- ***Planning Area 3 Access Road to 40th Street West (Extension)***

Significant long-term land use impacts to the Lazy T Ranch will occur due to road widening, road realignment and the partial modification of the drainage channel in this area. These improvements will require the removal of the barn and several of the associated structures on the Lazy T Ranch property. Lazy T Ranch will be further impacted as the remaining structures will be located adjacent to the fill slopes for Elizabeth Lake Road upon its widening. This is a significant land use impact because these structures include horse stalls which may be disturbed due to the proximity of roadway vehicle traffic.

The channel will remain essentially in its existing location in this segment (although some channel modification will be necessary due to roadway grading and to protect road slopes which encroach into the floodplain). This road alignment will minimize direct land use impacts, although Lazy T Ranch will still experience significant flooding due to its remaining within the existing the 50-year flood. Impacts to Lazy T Ranch are considered significant, although they will be mitigated through compensation to the land owner for the loss of property, structures and use of land, as appropriate.

Long-term land use impacts along this segment will also occur due to the alteration of the land's undeveloped nature. The proposed road widening will replace the existing land use with approximately a 150-foot wide roadway including fill slopes. The improved road will be constructed from 7 feet to over 20 above the existing road, which will further alter this area's current appearance.

The existing open space area along the Planning Area 3 access road will be altered due to the construction of the box culvert under the road and the outlet structure (for the channelization of Amargosa Creek). This is not considered a significant impact.

- ***40th Street West (Extension) to 30th Street West (Extension)***

Long-term land use impacts will occur in this area due to the permanent alteration of the land's character. Existing open space will be replaced with the widened portion of Elizabeth Lake Road and fill slopes to be created along the roadway (although this segment requires the least grading of all project areas). Although the majority of Amargosa Creek in this

portion of the project will remain natural, portions of the channel will be modified for road protection. The proposed outlet structure associated with the transition from the improved to the natural channel will also alter the existing undeveloped character of the land.

- ***30th Street West (Extension) to 20th Street West (Extension)***

Disruption of the existing land use will occur due to the widening of Elizabeth Lake Road and Amargosa Creek improvements. The widening of Elizabeth Lake Road will replace the existing open space with the widened portion of the roadway. In addition, Amargosa Creek will be channelized in the "Basin F" vicinity and east of 25th Street West. Significant long-term land use impacts will occur due to the alteration of the land's character in this area.

No significant impacts are expected for the "Basin F" or interim basins due to limited grading and draining time. However, with roadway elevation increases of 5 to 15 feet, significant road fills and associated land use impacts will occur. No significant land use impacts are expected for the two proposed pumping stations and aqueduct "turn out" due to the relatively small size of the facilities.

- ***20th Street West to Antelope Valley County Club***

The existing land use of the project area will change from a natural drainage channel to an improved concrete flood control channel, which is an unavoidable significant impact. The project area currently provides a strip of natural open space between residential and commercial buildings. After construction, this natural space will be replaced by a man-made concrete structure. The segment of the project that runs through the Antelope Valley Country Club will not affect current land use conditions since the nuisance drainage system will run underneath the existing golf course in underground pipes.

MITIGATION MEASURES

Short-term Construction

4.7.1 Mitigation for short-term construction impacts are provided in Sections 4.2, AIR QUALITY, 4.5, NOISE, and 4.6, AESTHETICS/LIGHT AND GLARE.

4.7.2 Grading in Borrow Areas shall be subject to approval of a Grading Plan by the City Planning Department, and shall only occur within areas designated for development within the Ritter Ranch Specific Plan or in areas otherwise determined appropriate

for Borrow Area grading by the Planning Department. Any Borrow Area grading in areas designated "Open Space" in the Ritter Ranch Specific Plan shall not be permitted.

Project

4.7.3 The City shall provide appropriate compensation to the affected landowners with respect to the following: 1) Right-of-Way Acquisition - City shall compensate property owner for all land on a per unit basis based on fair market value; 2) loss of use or structures shall be compensated for based on a fiscal impact assessment or in lieu compensation subject to agreement by the City and landowner (such as relocation or replacement of affected structures, onsite improvements or equivalent amenities).

4.7.4 Improved access to all parcels will be provided, to the satisfaction of the City Engineer.

4.7.5 To the extent that public safety and road capacity would not be substantially affected, the City shall consider implementing the following design features for Elizabeth Lake Road, including:

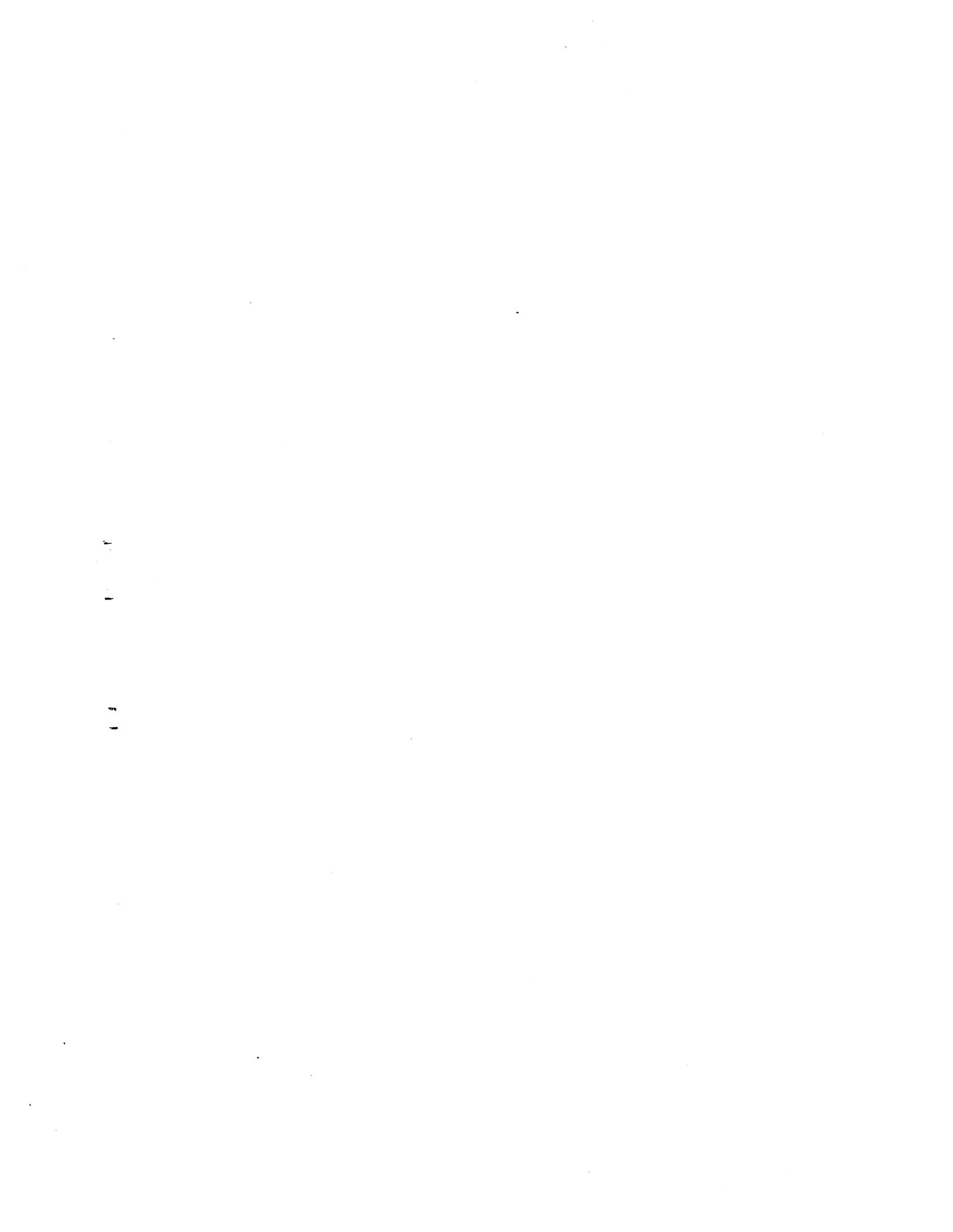
- median landscaping that, when mature, will not exceed three (3) feet in height (to avoid viewshed impacts).
- consideration of native local vegetation for median and slope landscaping.
- minimum lighting while maintaining public safety.
- consideration for undergrounding of all utilities.

4.7.6 Refer to Mitigation Measure No. 4.7.5.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Temporary construction impacts due to the magnitude of grading operations may remain significant with implementation of available mitigation measures. Land use impacts to Lazy-T Ranch and the existing homes north of Elizabeth Lake Road between Planning Area 3 and Planning Area 2 are considered significant after implementation of proposed mitigation

measures. The project will result in significant land use impacts to the Amargosa Creek area due to direct physical impacts, as well as significant secondary impacts from growth facilitated by the project.



4.8 RISK OF UPSET

The following discussion is based on the U.S.G.S. topographic maps, aerial and ground photographs for the onsite and surrounding land uses, specific geologic and hydrologic data for the project area, in addition to comments provided by the City Geologist and State Department of Water Resources - Division of Safety and Dams.

EXISTING CONDITIONS

Areas of potential risk of upset that currently exist within the Amargosa Creek Improvement Project area include seismic and flood hazards.

Known active or potentially active faults have been identified in the project area and have a moderate to high potential for future rupture. The fault zones encompass the San Andreas, Leona Avenue, Powerline Thrust, and San Francisquito faults. The entire length of Elizabeth Lake Road lies within or in close proximity to the San Andreas Fault Zone. Portions of this fault have been mapped in detail as part of this project and the Ritter Ranch Specific Plan project. Additional faults are located north of 25th Street West. For more information regarding seismicity in the project area, refer to Section 4.1, EARTH RESOURCES.

The entire drainage channel of Amargosa Creek, and portions of adjacent more level areas are located within the 100-year flood zone. This area is, therefore, subject to risks associated with flooding. For more information regarding flood hazards in the project area, refer to Section 4.3, WATER RESOURCES.

IMPACTS

Significant Impacts

4.8.1 - In the event of a severe earthquake and/or flood, significant impacts associated with sewer line rupture and flood control basin failure could potentially occur. However, the proposed mitigation measures will reduce the risk of sewage release and basin failure to the lowest levels possible.

The primary public health and safety hazards which could occur as a result of the Amargosa Creek Improvement Project can be defined as any natural disaster, human error or mechanical malfunction which would cause facility failure (loss of power and/or rupture of

water, sewer, electric, gas, telephone or cable lines) or potential flood control basin failure. Although the occurrence of such an event cannot be predicted, the project will include available mitigation measures to minimize potential impacts to the extent possible.

The potential for flood control basin failure is considered to be less than significant due to the short period of time water will be detained in the basins. The basin is designed to drain within approximately 33 hours following the Los Angeles County 50-year capital flood, from peak depth to zero depth, making the probability of a concurrent major earthquake and flood in the area less than significant. Due to a portion of the project area's location in an active fault zone area, risks associated with earthquakes are considered severe.

Potential hazards associated with the proposed Flood Control Basin "B" consist of road embankment failure in the event of flooding or an earthquake. In the unlikely event of flood control basin failure, downstream impacts to residential, commercial and public land uses could occur. A basin failure during a major flood could result in property damage and/or in the very extreme case, loss of life, although the probability of loss of life is considered remote. These impacts will be mitigated through adherence to the most current design requirements as specified by the City, the State Department of Water Resources-Division of Safety and Dams and the implementation of the required monitoring program(s). The flood control basins will be designed to prevent potential failure hazards and to withstand the probable maximum flood.

Rupture of sewer lines due to an earthquake or other emergency condition could also result in adverse impacts. Risk of upset associated with sewer line rupture includes potential sewage spill into downstream waterways. Wastewater pipelines are designed to withstand stress associated with seismic activity; however, in the event of a major earthquake in the immediate vicinity, untreated wastewater could be released into the environment. Amargosa Creek drains to Rosamond Dry Lake, which could be contaminated with wastewater in such conditions, as well as groundwater supplies in Leona Valley and Antelope Valley (particularly where groundwater wells are proximate to Amargosa Creek).

Damage of electric, gas, telephone or cable lines in the event of an emergency condition could result in the loss of power to the affected areas. These impacts can be mitigated through the provision of back-up systems and adequate emergency service for the repair of the utility and service lines.

MITIGATION MEASURES

- 4.8.1a Pipelines shall be buried below the scour line within streambed limits.
- 4.8.1b Pipelines shall be encased in concrete within streambed limits.
- 4.8.1c Isolation valves for the pipelines shall be installed on each side of stream crossing or top and bottom of steep slopes.
- 4.8.1d The type of pipe and joint best suited for the construction situation shall be selected during design, to the satisfaction of the City Engineer.
- 4.8.1e Pipeline plans and specifications shall be inspected by a corrosion engineer.
- 4.8.1f Back-up (redundant) systems and monitoring devices (telemetry and alarm system) shall be installed for utilities (such as a standby energy source, standby pump(s), provisions for operational flexibility and operational design to minimize duration of system failure(s)).
- 4.8.1g Installation of water lines will adhere to health regulations regarding placement of water pipelines in proximity to wastewater conveyance pipelines.
- 4.8.1h Construction of the flood control basins will adhere to required design standards and monitoring requirements as established by the City Engineer and/or Division of Safety of Dams.
- 4.8.1i Utilities will be regularly inspected to assure that they are functioning properly.
- 4.8.1j An emergency spill response plan will be required prior to completion of final design plans, to include the following: provisions for spilled sewage retention, spill response measures, cleanup and disinfection measures, and training and funding for implementation of the spill plan.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Impacts associated with seismic risks will be reduced to the lowest extent possible through adherence to the most current design requirements and implementation of a monitoring program. However, in the event of a major earthquake in the immediate vicinity, or major

flood, potential impacts associated with sewer line or flood control basin failure are considered significant.

4.9 TRAFFIC AND CIRCULATION

This section is based on the Circulation and Transportation Needs Study for the Palmdale Southwest Planning Area, prepared by DKS Associates in July, 1990 the Ritter Ranch Specific Plan Final EIR, and the City of Palmdale Circulation Element adopted January 25, 1993 (available for review at the City of Palmdale). The following data presents a description of the existing transportation conditions in the general project vicinity, evaluates the circulation conditions at buildout, identifies the impacts of the project, and proposes mitigation measures for these impacts.

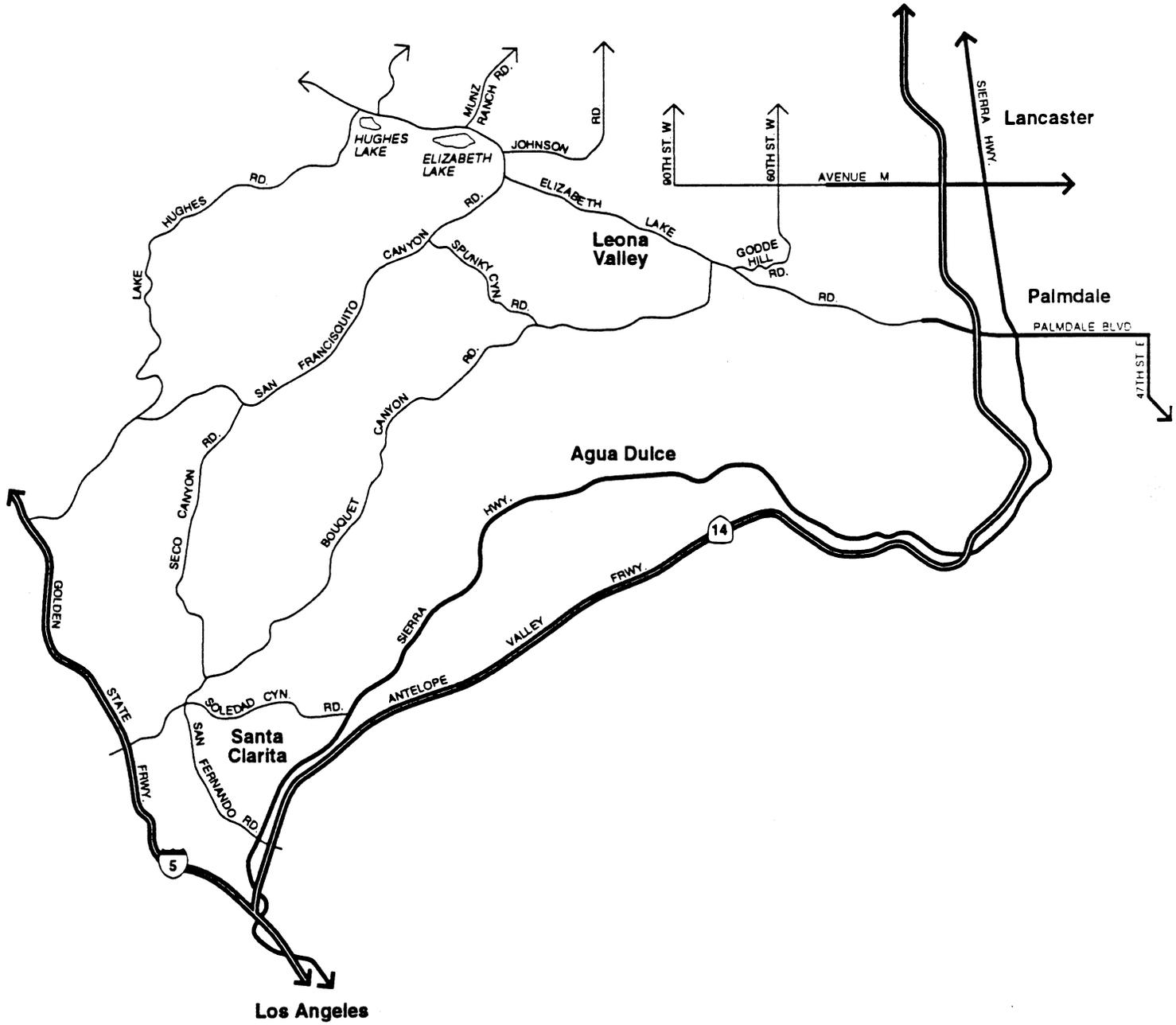
EXISTING CONDITIONS

Currently, the project vicinity is generally undeveloped. Existing development primarily consists of single-family residences situated on large lots. This is the primary reason for the present light volumes of traffic in this area of the City (development and associated traffic levels are greater north of 20th Street West). Through traffic (between Santa Clarita and Antelope Valley) using Bouquet Canyon Road and Elizabeth Lake Road contribute significantly to existing traffic levels in the area.

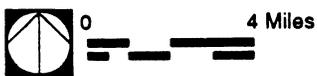
Surrounding Circulation System

Since the study area is mostly unincorporated and generally outside the southwestern edge of the developed area in the Antelope Valley, there is no developed arterial roadway system through the general area. Several facilities, however, skirt and/or pass through the outer boundaries of the project site. A description of the characteristics of the adjacent arterial system is presented in the following paragraphs (see Exhibit 3.0-2, SITE VICINITY, Exhibit 4.9-1, REGIONAL CIRCULATION, and Exhibit 4.9-2, EXISTING TRAFFIC CONDITIONS). Please note the ultimate lane geometrics for the Palmdale General Plan Circulation Element: regional arterial = eight lanes, major arterial = six lanes, and minor or secondary arterial = four lanes.

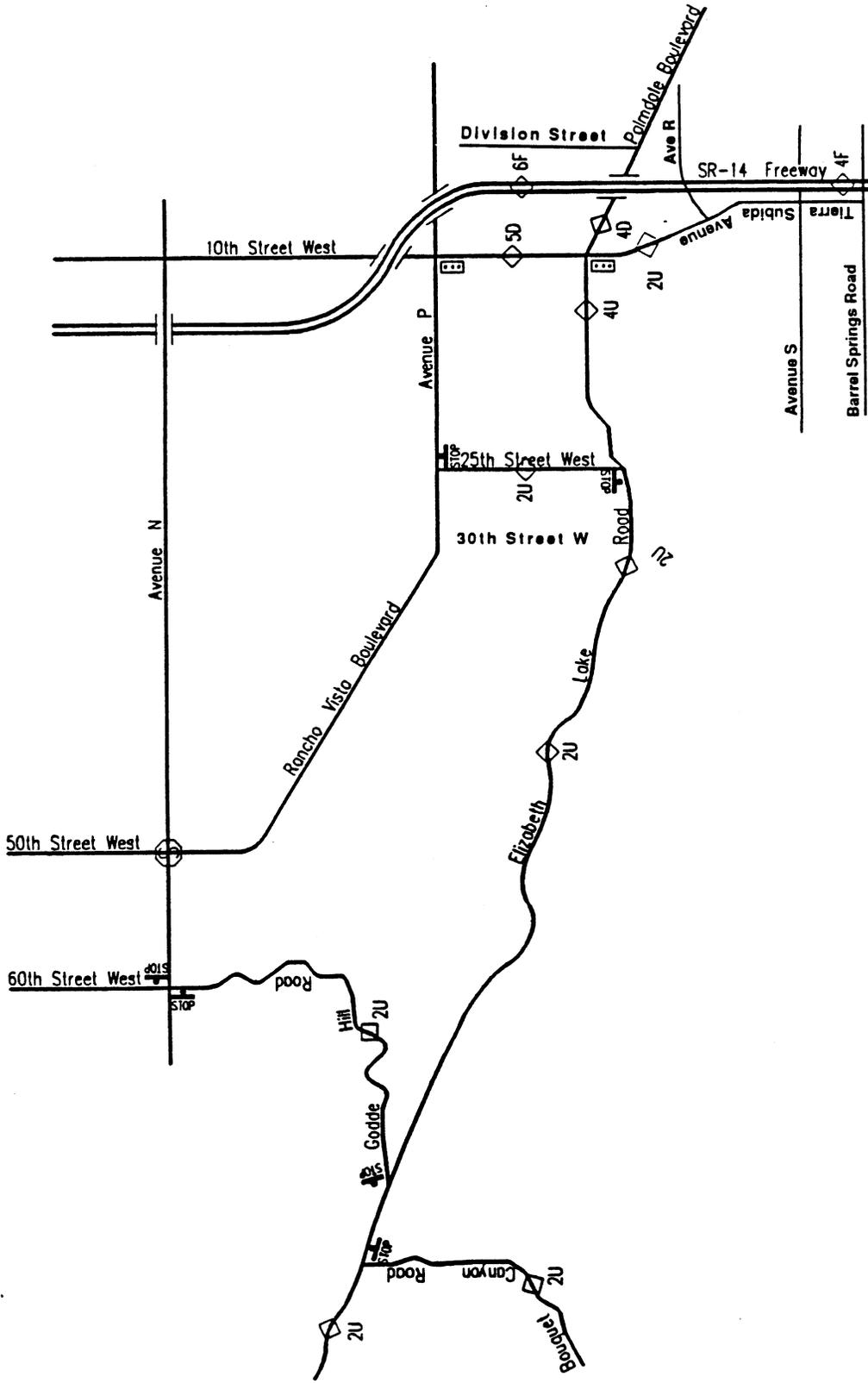
- Elizabeth Lake Road, which is the main east-west artery through most of the study area, is a continuous regionally significant thoroughfare in the Antelope Valley. The City of Palmdale's Circulation Element classifies it as a major arterial west of 25th Street West and east of Division Street. It is classified



-  Freeway
-  Major Arterial
-  Local Roadways



AMARGOSA CREEK IMPROVEMENT PROJECT • EIR
Regional Circulation



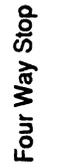
-  2U
-  Traffic Signal
-  U - Undivided
-  D - Divided
-  F - Freeway
-  Four Way Stop
-  Stop Sign

Exhibit 4.9-2

AMARGOSA CREEK IMPROVEMENT PROJECT • EIR
Existing Traffic Conditions

Source: Kunzman and DKS Associates



as a regional arterial between 25th Street West and Division Street. It extends from the Golden State Freeway (I-5) near the Ventura County border to the City of Palmdale, where it changes its name to Palmdale Boulevard at 10th Street West. Running through the heart of Palmdale, it extends east to the San Bernardino County border where it intersects Avenue P which reaches into San Bernardino County and to Victorville. Palmdale Boulevard has a full (partial cloverleaf) interchange with the Antelope Valley Freeway (SR-14), providing a regional connection to Kern and Los Angeles Counties. In the project area, this arterial has a total of two through lanes (one in each direction) west of Foxholm Drive near the City line, and is generally described as a winding rural road.

- Avenue R is classified as a major arterial and extends from Tierra Subida Avenue about three miles east of the project, to about 3,000 feet east of 47th Street East. It has four lanes between 22nd Street East and 30th Street East and two lanes east of 30th Street East. The arterial crosses under, but does not have an interchange with, the Antelope Valley Freeway.
- Avenue S, which begins just over a mile east of the eastern boundary of the project at 20th Street West, extends to about 3,800 feet east of 47th Street East. It is designated a major arterial. The arterial has a full-diamond interchange with the Antelope Valley Freeway, providing regional connections to the north and south.
- 25th Street West runs north-south and has two discontinuous segments: from north of Avenue K to Avenue L in Lancaster, and from Avenue P to Elizabeth Lake Road. Both segments have two through lanes. It is classified as a major arterial south of Avenue P-8, and a secondary arterial north of Avenue P-8.
- 10th Street West/Tierra Subida Avenue is the main continuous north-south arterial in the vicinity of the project. 10th Street West extends south from Avenue G in Lancaster, has an interchange with the Antelope Valley Freeway near Avenue P, then changes its name to Tierra Subida at Palmdale Boulevard/Elizabeth Road and continues south to Barrel Springs Road. It is classified as a major arterial between Elizabeth Lake Road and Avenue S, and as a minor arterial south of Avenue S. It is a regional arterial north of Elizabeth Lake Road/Palmdale Boulevard. It has two lanes over most of its

length, except for a half-mile segment south of Elizabeth Lake Road, which has two lanes southbound and one lane northbound. This street has recently been widened to a 5 and 6 lane divided arterial between Avenue P-8 and Palmdale Boulevard.

- Godde Hill Road is an extension of 60th Street West, which extends from north of Avenue A, outside the City boundary, to Avenue N where it becomes Godde Hill Road. It has two through lanes at present and is classified as a future, undivided secondary arterial with 4 lanes.
- Bouquet Canyon Road is a two-lane road which extends southwesterly from Elizabeth Lake Road along the alignment of 80th Street West, winding through the canyons west of the property to the Santa Clarita Valley. It is classified as a major arterial.
- Barrel Springs Road is currently a two-lane road. It has two unconnected segments: from Tierra Subida Avenue to Sierra Highway, and from west of Pearblossom Highway to Cheseboro Road. It is classified as a future 4-lane secondary arterial.
- The SR-14 Freeway is the major transportation facility in the Antelope Valley. It provides access to Lancaster to the north and to Los Angeles to the south. North of Palmdale Boulevard, SR-14 has 6 lanes. It is a 4 lane facility south of Palmdale Boulevard.

Daily Traffic Volumes

As mentioned earlier, since the project area is relatively undeveloped, existing traffic volumes in the immediate area of the project area is fairly light. The exception is Palmdale Boulevard between the Antelope Valley Freeway and 30th Street East which operates at LOS F. Table 4.9-1, EXISTING DAILY VOLUMES AND LEVELS OF SERVICE, contains a capacity analysis for Elizabeth Lake Road and Palmdale Boulevard in the general vicinity of the project. This table identifies the existing Average Daily Trips (ADT), the volume to capacity ratio and the level of service for each arterial and its various distinct segments (based on data in the City of Palmdale General Plan Circulation Element).

Table 4.9-1

EXISTING DAILY VOLUMES AND LEVELS OF SERVICE

| ROADWAY | ADT | VCR | LOS |
|---|--------|------|-----|
| Elizabeth Lake Road | | | |
| • West of Bouquet Canyon Road* | 3,600 | 0.24 | A |
| • Bouquet Canyon Road/Godde Hill Road* | 3,100 | 0.45 | A |
| • Godde Hill Road/30th Street West | 4,600 | 0.31 | A |
| • 30th Street West/Foxholm Drive | 2,900 | 0.19 | A |
| • Foxholm Drive/Palmdale Boulevard | 11,500 | 0.38 | A |
| Palmdale Boulevard | | | |
| • Elizabeth Lake Road/Antelope Valley Freeway | 15,200 | 0.42 | A |
| • Antelope Valley Freeway/30th Street East | 35,400 | 0.98 | F |

ADT= Average Daily Trips
 VCR= Volume to Capacity Ratio
 LOS= Level of Service

Source: City of Palmdale General Plan Circulation Element (1993) Table C-5.

* Source: DKS Associates: Circulation and Transportation Needs Study for the Palmdale Southwest Planning Area, July 1990.

NOTE: Traffic Volume and LOS data for additional roadway segments is available in Table C-5 of the City of Palmdale General Plan Circulation Element (1993).

Existing Capacities and Levels of Service

• *Descriptions of Assumed Roadway Capacities*

The capacity of a roadway is affected by a number of factors, including the width of the roadway, the number of crossing arterials and collectors, the amount of green time given to the street at each signal, the presence or absence of on-street parking, the number of turning lanes at each intersection, and the number of driveways.

Daily traffic capacity standards for arterials as defined by the City of Palmdale Draft Circulation Element (1993) are reflected in Table 4.9-2, **DAILY CAPACITIES FOR PALMDALE MAJOR AND MINOR ARTERIALS**.

The table shows daily capacities for operating Level of Service (LOS) E, which is considered to be the maximum acceptable street LOS capacity by the City. It is City of Palmdale policy that, for daily traffic analysis, LOS C is the basis for identifying whether a capacity problem exists at a mid-block location. For the purposes of this evaluation, the maximum volume for LOS C is defined as 80 percent of the capacity of LOS E. A complete definition of levels of service, as they relate to various ranges of volume-to-capacity ratios, is provided in Table 4.9-3, **LEVEL OF SERVICE DESCRIPTION**.

Table 4.9-2

DAILY CAPACITIES FOR PALMDALE ARTERIALS

| <u>Facility Geometrics</u> | <u>Level of Capacities</u> |
|---------------------------------|----------------------------|
| 8-lane Regional Arterial | 72,000 - 80,000 |
| 6-lane Major Arterial | 36,000 - 54,000 |
| 4-lane Minor/Secondary Arterial | 24,000 - 36,000 |

* Source: City of Palmdale General Plan Circulation Element (adopted January 25, 1993) Exhibit C-2 and Table C-4.

- *Arterial Operations*

As noted in Table 4.9-1, EXISTING DAILY VOLUMES AND LEVELS OF SERVICE, the arterial network in the general area of the project currently operates at acceptable levels of service, i.e. at or better than Level of Service C, except a portion of Palmdale Boulevard east of Antelope Valley Freeway, and Avenue S. The segment of Palmdale Boulevard between the Antelope Valley Freeway and 30th Street East currently operates at LOS F, indicating significant levels of congestion for motorists. This section of Palmdale Boulevard has four through lanes with a paved median island on an 84-foot cross section. By eliminating on-street parking, this section can be re-striped to six through lanes and a median, which would accommodate the traffic and provide a higher level of service. Avenue S, between the Antelope Valley Freeway and Sierra Highway, is the only other segment operating at LOS D or below. Due to relatively light daily traffic volumes, a majority of the roadway segments currently operate at Level of Service A, with ample reserve capacity.

- *Existing Intersection Capacity Utilization*

The technique used to assess intersection operation is Intersection Capacity Utilization (ICU). To calculate an ICU the volume of traffic using the intersection is compared with the capacity of the intersection. ICU is usually expressed as a percent which represents that portion of the hour required to provide sufficient capacity to accommodate intersection traffic if all approaches operate at capacity. The ICU's listed in Table 4.9-4, EXISTING INTERSECTION CAPACITY UTILIZATION AND LANE GEOMETRICS, show that intersections in the vicinity of the site are operating at Level of Service A during the peak

Table 4.9-3

LEVEL OF SERVICE DESCRIPTION

| <u>Level of Service</u> | <u>Description</u> | <u>Volume to Capacity Ratio</u> |
|-------------------------|--|---------------------------------|
| A | LEVEL OF SERVICE A occurs when progression is extremely favorable and vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay. | 0.60 and below |
| B | LEVEL OF SERVICE B generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay. | 0.61 to 0.70 |
| C | LEVEL OF SERVICE C generally results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping. | 0.71 to 0.80 |
| D | LEVEL OF SERVICE D generally result in noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable. | 0.81 to .90 |
| E | LEVEL OF SERVICE E is considered to be the limit of acceptable delay. Thee high delay values generally indicate poor progression, long cycle lengths, and high volume to capacity ratios. Individual cycle failures are frequent occurrences. | 0.91 to 1.00 |
| F | LEVEL OF SERVICE F is considered to be unacceptable to most drivers. This condition often occurs with over-saturated, i.e., when arrival flow rates exceed the capacity at high volume to capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels. | 1.01 and up |

Source: "Highway Capacity Manual" Special Report 209, Transportation Research Board, National Research Council, Washington, D.C., 1985, Pages 9-4 to 9-5.

Table 4.9-4

**EXISTING INTERSECTION CAPACITY UTILIZATION
AND LANE GEOMETRICS**

| INTERSECTION | INTERSECTION APPROACH LANES ¹ | | | | | Peak Hour ICU - LOS ² | |
|--|---|-------------------|------------------|------------------|---------|-------------------------------------|--|
| | Northbound TRL | Southbound TRL | Eastbound TRL | Westbound TRL | AM | PM | |
| Godde Hills Road (NS) at Elizabeth Lake Road (EW) | * * * | * 1 1 | 1 * 0 | 1 0 * | 0.21(A) | 0.25(A) | |
| 25th Street West (NS) at Elizabeth Lake Road (EW) | * * * | * 0 1 | 1 * 0 | 1 0 * | 0.24(A) | 0.29(A) | |
| 10th Street West (NS) at Palmdale Boulevard (EW) | 2 1 1 | 2 1 1 | 2 1 1 | 2 1 1 | 0.32(A) | 0.39(A) | |
| SR-14 SB Off Ramp (NS) at Palmdale Boulevard (EW) | * * * | * 1 1 | 2 0 * | 2 * * | 0.32(A) | 0.51(A) | |
| SR-14 NB Off Ramp (NS) at Palmdale Boulevard (EW) | * 1 1 | * * * | 2 * * | 2 0 * | 0.23(A) | 0.39(A) | |

¹ When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

² Intersection Capacity Utilization (ICU) - Level of Service (LOS)

T = Through
R = Right
L = Left
SB = Southbound
NB = Northbound
* = Movement not possible

hours. An explanation of ICU on Level of Service is included in Appendix 12.9, TRAFFIC ANALYSIS. The ICU data were obtained from the Kunzman Associates Traffic Study (1991), as the General Plan Circulation Element does not contain such data.

Public Transit Services

Bus transit in the project area is provided by DAVE Transportation Services. Service parameters such as routes, schedules and hours of operation are determined by the Antelope Valley Transit Authority (AVTA). The Blue Line local bus route utilizes Palmdale Avenue between 10th Street West and 50th Street East. The Red Line crosses Palmdale Boulevard at 10th Street East. The bus frequency is two trips per hour. Service hours are from 5:30 a.m. to 8:00 p.m. weekdays and from 8:00 a.m. to 6:00 p.m. Saturdays.

Bicycle Facilities

Currently, no striped bicycle lanes exist in the vicinity of the project; however, the California Aqueduct Bikeway is located just south of the Palmdale city limits alongside the California Aqueduct (this facility is presently not open for public use). The California Aqueduct Bikeway has been developed on the paved service roads which run beside the canal sections of the State Water Project. The City will adopt and implement a bikeway plan to encourage non-vehicular travel.

Truck Routes

The following arterial segments in the vicinity of the project are designated as truck traffic routes:

- 10th Street West from Avenue P to Avenue M
- Sierra Highway
- Avenue M from 10th Street West to 50th Street East
- Avenue P from 10th Street West to 50th Street East
- Palmdale Boulevard from SR-14 to 90th Street East

- City Ranch Road, Tierra Subida, Rayburn Road and Avenue R from the Antelope Valley Landfill to Sierra Highway
- Avenue S from the Antelope Valley Freeway to Sierra Highway

With the passage of Proposition 111 in June 1990, the Los Angeles County Transportation Commission (LACTC) began preparation of a Congestion Management Plan (CMP) for the Los Angeles County area. The intent of this legislation is to maintain specified levels of service on roadways identified as regionally significant. The legislation compels local governments to comply with the provisions of the regional CMP; those cities that do not comply risk the potential loss of gas tax revenues.

The CMP has been released by the LACTC, and indicates that affected local roadways will include State Route 14 and Highway 138. Projects that affect the levels of service on these roadways will be subject to the provisions of the CMP, and any subsequent ordinances adopted by the City which implement the CMP.

IMPACTS

Short-term Construction Impacts

Significant Impacts

- 4.9.1 Project construction will cause significant disruption to traffic flow in the area although this can be mitigated by the required traffic control plan.

The proposed project will temporarily affect traffic and circulation in the project area due to increased truck traffic and detours around the construction area. However, implementation of an approved Traffic Control plan will reduce these short-term impacts to less than significant levels.

Circulation, Access and Safety Issues

- *Access to Elizabeth Lake Road*

As noted in Section 4.7, LAND USE, several driveways and access roads will be impacted by road realignment, widening, and elevation changes. However, this is not considered a

significant impact due to the project including preliminary designs for necessary improvements to these access points.

- *Equestrian Access*

Equestrian traffic is expected to utilize either the off-street meandering bikeway/pedestrian path, on-street bikelane, or proposed multi-use trail planned on the south side of the road. This is considered a positive impact (it should be noted that road widening will improve safety for motorists, pedestrians, bicyclists and equestrian traffic).

- *Safety*

As noted above, the project will improve public safety conditions by providing widened, and lit flood-protected circulation for motorists, pedestrians, bicyclists and equestrian traffic. Safety will be further enhanced by providing traffic signals, signage, and crosswalks at key locations along Elizabeth Lake Road, allowing safer passage across the roadway. As road slopes will be at City design standards of 2:1 and generally will not exceed 30 feet in height, no significant safety hazards are anticipated. Appropriate signage meeting City design standards is anticipated to reduce potential "bad weather" safety hazards to less than significant levels. Although the volume of traffic will increase substantially, this and other potential adverse safety factors are considered to be offset by the positive safety factors.

- *General Plan Consistency*

The project is consistent with the proposed Palmdale Draft General Plan Circulation Element, which designates Elizabeth Lake Road as a "regionally significant" major arterial roadway. Therefore, although the project will allow increased traffic volumes, and will likely result in greater traffic volumes on rural roads to the west (such as Bouquet Canyon road), this is consistent with General Plan circulation system improvements (as discussed in the following "Future Conditions" section, Bouquet Canyon Road is projected to operate at LOS A with widening to four lanes). The increase in traffic, as addressed throughout the EIR, is nonetheless considered a significant impact to surrounding communities (particularly with respect to increased congestion and noise). In addition to implementing the Circulation Element, the project also provides for substantial public safety benefits through flood protection of Elizabeth Lake Road and downstream areas in Palmdale and Lancaster.

Future Conditions - Buildout of Proposed General Plan

Significant Impacts

4.9.2 Project implementation would result in significant changes to the existing circulation system, though this will improve the overall circulation system and is not considered significant with implementation of the proposed mitigation measures.

- *Identification of Future Developments*

One of the main tasks in the Palmdale Southwest Area Study (DKS July, 1990) was to identify the potential total development which might occur by the year 2010 and by the subarea's build-out (see Section 5.4, CUMULATIVE IMPACTS, for information on forecast buildout traffic volumes and level of service). The area for detailed land use study was generally determined by City staff as the area south of Avenue P, Rancho Vista Boulevard and Avenue N, and west of the Antelope Valley Freeway. The land use forecasting task was a comprehensive and cooperative effort consisting of several meetings and workshops. Through these workshops, projected land uses for 2010 and build-out were determined for each known development and other various properties (some differences in the land use were foreseen in the study, although the study examined a worst-case scenario). This was accomplished through a detailed examination of the available vacant land and topography in the area, considering developable land, general plan and allowable development densities, proposed known projects, likelihood of their full development and development horizon years. The resultant land use forecasts were arranged according to the Transportation Analysis Zones (TAZ) of the City's travel demand model. For the purposes of this study, the original zones were generally desegregated to several smaller zones to reflect the refined level of detail in land uses. Likely traffic routings and project access points were also determined for each zone and development. This information was input into the City's model to allow for the most reasonable and reliable traffic distribution and loadings onto the future circulation system.

Table 4.9-5, FORECAST BUILDOUT LAND USES, lists the land uses projected to occur in each analysis zone of the study area by General Plan buildout. Total projected development amounted to over 15,900 single-family and 4,003 multi-family residential units in addition to over 84.7 acres of retail uses, 7,800 students, and 401 acres of park uses.

Table 4.9-5

FORECAST YEAR 2010 LAND USE

| Project Area | Single-Family (Units) | Multi-Family (Units) | Retail (Acres) | School (Students) | Park (Acres) |
|---------------------------|-----------------------|----------------------|----------------|-------------------|--------------|
| Villages of Ritter Ranch | 6,305 | 895 | 63.0 | 1,800 | 198.0 |
| City Ranch North | 400 | | | 600 | |
| City Ranch South | 3,558 | 1,642 | 17.9 | 2,400 | 98.4 |
| Valley Ranch | 1,137 | | 3.8 | 600 | 37.4 |
| South Elizabeth Lake Road | 1,120 | | | | |
| Santa Fe Hills | 684 | 1,466 | | 1,200 | 17.2 |
| Ana Verde | 425 | | | | |
| Leona Valley | 412 | | | 600 | |
| Kinoshita | 412 | | | | |
| Lane Ranch | 400 | | | | |
| Sagebrush | 350 | | | | |
| Messer Ranch | 160 | | | | |
| City Thrift | 135 | | | 600 | |
| Godde Hill | 125 | | | | |
| San Andreas | 100 | | | | |
| Bouquet Canyon | 45 | | | | |
| North Elizabeth | 40 | | | | 50.0 |
| North Santa Fe | 25 | | | | |
| Northridge West | 20 | | | | |
| Portal Ridge South | 20 | | | | |
| Stable Area | 17 | | | | |
| Peterson | 5 | | | | |
| Lazy T | 5 | | | | |
| Total | 15,908 | 4,003 | 84.7 | 7,800 | 401.0 |

Note: Forecast land uses are based on a project list prepared in July, 1990. Subsequent changes in dwelling unit numbers have occurred; however, these alternatives do not significantly modify the above estimates or end the result of the cumulative analysis.

Since this land use forecast was prepared, several of the projects within the area have further refined their proposals. (See listing of projects in Section 5.4, CUMULATIVE PROJECTS). The result of this refinement is that the actual number of dwelling units now expected to be constructed within the southwest area is slightly less than projected in the original forecast. Now, the original forecast represents a worst-case scenario. However, the reduction in units is not significant enough to change the proposed roadways as described below.

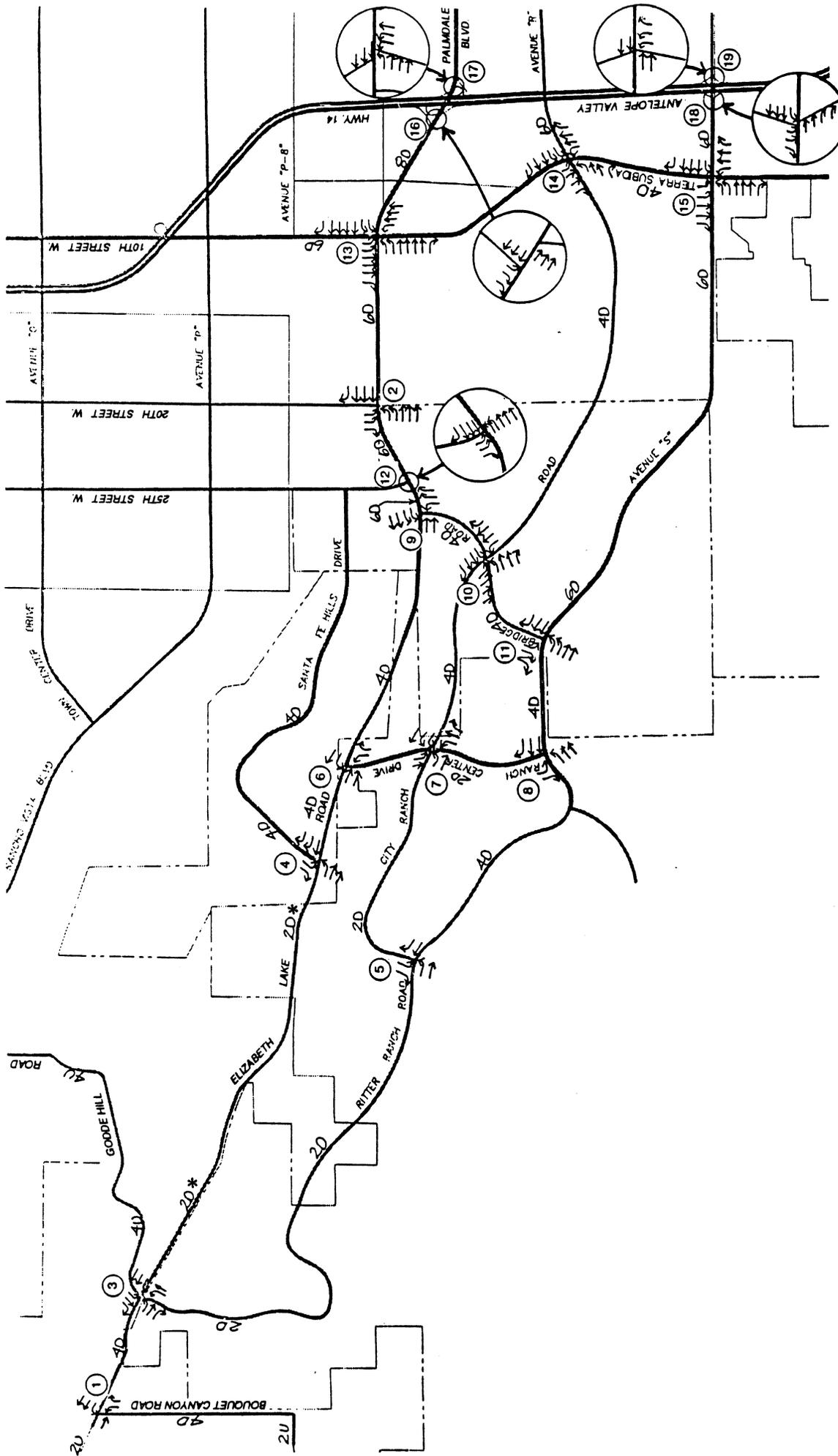
- *Assumed Circulation System*

For the purposes of regional continuity and consistency, the circulation system proposed in the southwest area is planned to follow the basic philosophy of the City of Palmdale Traffic Impact Fee Assessment and Master Traffic Level Maintenance Plan. In coordination with the adjacent developments, the Circulation Plan proposes to generally expand and/or extend the existing basic arterial grid system of the southwestern area of Palmdale. As such, to the extent allowed by the rugged topography of the project area and other natural factors, the proposed circulation system provides one-mile spaced major arterial and one-half-mile secondary arterial configurations along with the appropriate level of support provided by the proposed collector and local streets. Particulars of the proposed system are described in Section 3.0, PROJECT DESCRIPTION.

Exhibit 4.9-3, YEAR 2010 CIRCULATION CONDITIONS shows the proposed circulation system serving the study area. A brief description of the proposed streets follows:

Ritter Ranch Road/Avenue S is proposed as the major east-west artery of the study area, extending from the western terminus of Avenue S through Ritter Ranch connecting to the Elizabeth Lake Road/Godde Hill Road intersection. Ritter Ranch Road is proposed as a six-lane divided arterial from Bridge Road to the western terminus of Avenue S. Avenue S is proposed to be widened to a six-lane road from its west terminus to the Antelope Valley Freeway.

City Ranch Road/Avenue R a divided arterial, is proposed as a secondary east-west facility, as an extension of Avenue R/Rayburn Road, through the adjacent City Ranch development, terminating at Ritter Ranch Road within the Ritter Ranch project. Avenue R/Rayburn Road is planned to be widened to six lanes from its intersection with Tierra Subida to the Antelope Valley Freeway. City Ranch Road will be a four-lane facility west of Tierra Subida to Ranch Center Drive and a two-lane facility from Ranch Center Drive to Ritter Ranch Road.



1 Traffic Signal

* Improved to 4D by project.

Source: Kunzman and DKS Associates

AMARGOSA CREEK IMPROVEMENT PROJECT • EIR Year 2010 Circulation Conditions

Exhibit 4.9-3



Ranch Center Drive will provide north-south circulation. It is proposed as a four-lane divided major arterial extending south from Elizabeth Lake Road, generally along the alignment of 40th Street West, providing connection to both City Ranch Road and Ritter Ranch Road.

Bridge Road is proposed as the main north-south arterial serving the City Ranch South project. This four-lane divided major arterial is proposed to extend southerly from Elizabeth Lake Road from just west of 25th Street West connecting with both City Ranch and Ritter Ranch Roads.

Santa Fe Hills Drive is proposed as a divided four-lane minor arterial that would run east-west between Elizabeth Lake Road and 25th Street West, through the Santa Fe property, north of Elizabeth Lake Road.

A number of other north-south and east-west collectors are also proposed to fill in and complete the circulation system network. Access to the east and south to the Palmdale area and the Antelope Valley Freeway is the most essential circulation and access need of the proposed development. The two proposed east-west arterials, City Ranch Road (extension of Avenue R) and Ritter Ranch Road (extension of Avenue S), along with the improvement of Elizabeth Lake Road to urban major arterial standards, are aimed at providing adequate capacity for the projected demand.

- *Projected Operating Conditions*

This section describes the future circulation and operating conditions, and potential deficiencies in the study area based on the forecast traffic volumes for the build-out of the area.

Traffic forecasts and preliminary capacity and circulation deficiency analyses were conducted using the City of Palmdale's Travel Demand Model. Travel demand on the area's circulation system will increase substantially as a result of overall development of the study area as well as within the Antelope Valley in general, which would contribute heavily to increases in through traffic. However, since relatively little additional development (only ten percent) is forecast for the immediate study area beyond 2010, this traffic increase would mainly be a result of additional growth elsewhere within the Antelope Valley, which would contribute heavily to increases in "through traffic". Impacts and additional trips would be more significant on arterials carrying heavy through traffic volumes and especially on segments near the Antelope Valley Freeway and at the western end of the study area.

Major routes which would experience the heaviest increases would include Palmdale Boulevard (+15,000 trips east of 10th Street West), Elizabeth Lake Road (+12,400 trips west of 20th Street West), Avenue R (+12,700 trips east of Tierra Subida), Avenue S (+2,700 trips east of Tierra Subida), in addition to Bouquet Canyon Road, and 10th Street West/Tierra Subida Avenue.

Table 4.9-6, FORECAST BUILDOUT DAILY TRAFFIC VOLUMES AND LEVELS OF SERVICE, indicates forecast build-out daily volumes and levels of service for the year 2010 circulation system based on the capacity criteria previously discussed. The majority of the internal study area arterials are projected to operate at an acceptable daily level of service by the year 2010 (LOS C or better) through the area build-out. The facilities that are projected to operate at an unacceptable level are limited to the eastern end of the study area, near the Antelope Valley Freeway. These deficient arterial segments are indicated with an asterisk in Table 4.9-6.

Several more arterial links would become deficient by the build-out of the area. Additional links on City Ranch Road, Avenue R, 20th Street West, 25th Street West, Elizabeth Lake Road, and Godde Hill Road would have operations worse than LOS C. The following paragraphs further discuss these deficient segments and suggest arterial geometrics which would be required on these facilities to improve operations to LOS C.

Table 4.9-6

FORECAST BUILD-OUT DAILY TRAFFIC VOLUMES AND LEVELS OF SERVICE

| Roadway | Striping/ Geometrics | Facility Type | Capacity | Volume | V/C ¹ | LOS ² |
|---|-------------------------|------------------|----------|--------|------------------|------------------|
| Elizabeth Lake Rd. | | | | | | |
| Godde Hill Road/Bridge Rd. | 4 LANES | MAJOR | 36,000 | 18,000 | 0.50 | A |
| Bridge Rd./25th St. W | 6 LANES | REGIONAL | 54,000 | 53,000 | 0.98 | E* |
| 25th St. W/Foxholm Drive | 8 LANES | REGIONAL | 72,000 | 50,000 | 0.69 | B |
| Foxholm Drive/Palmdale Blvd. (10th St. W.) | 8 LANES | REGIONAL | 72,000 | 55,000 | 0.76 | C |
| Palmdale Blvd. | | | | | | |
| Elizabeth Lake Road (10th St. W)/ Antelope Valley Fwy. | 8 LANES | REGIONAL | 72,000 | 49,000 | 0.68 | B |

Notes: 1 Volume to Capacity Ratio Source: DKS (July, 1990)
 2 Level of Service Ritter Ranch Specific Plan Final EIR
 * Exceeds acceptable Level of Service value.

Improvements shown are per City Circulation Element (1993). Please note that the project will not be improving the Bouquet Canyon/Godde Hill portion of Elizabeth Lake Road.

- Elizabeth Lake Road is projected to operate at LOS A from Godde Hill Road to Bridge Road with an ADT of 18,000. Between Bridge Road and 25th Street West, this arterial is projected to operate at LOS E with an ADT of 53,000. Elizabeth Lake Road is projected to carry ADT's of 50,000 at LOS B from 25th Street West to Foxholm Drive. Between Foxholm Drive and Palmdale Boulevard, a projected ADT of 55,000 and a LOS C is anticipated.
- City Ranch Road is projected to operate at LOS A from Ritter Ranch Road to Ranch Center Drive, with a daily traffic volume of 18,000 vehicles. Between Ranch Center Drive and Bridge Road this arterial is projected to operate at LOS B with an ADT of 25,000. City Ranch Road is projected to carry ADT's of 11,000 at LOS A from Bridge Road to Tierra Subida Avenue.
- Avenue R is projected to operate at LOS C between Tierra Subida Avenue and Division Street with a daily traffic volume of 40,000 vehicles. Three lanes each way are recommended for this roadway section.
- Ritter Ranch Road is projected to operate at LOS C west of Tierra Subida Avenue to Bridge Road, with a daily traffic volume of 43,000 vehicles. Three lanes each way would be necessary for this segment to function at this level of service. A four-lane divided roadway is recommended for Ritter Ranch Road from City Ranch Road to Elizabeth Lake Road. It is projected that this segment of Ritter Ranch Road will operate at a LOS A, with an ADT of 14,000.
- Godde Hill Road is projected to operate at LOS B between 60th Street West and Elizabeth Lake Road with a daily traffic volume of 23,000. This roadway segment is required to be constructed as a four-lane divided facility.
- 10th Street West is projected to operate at LOS B with a traffic volume of 45,000 north of Palmdale Boulevard to Avenue P. Proposed mitigation measures at the intersection of 10th Street West and Palmdale Boulevard will mitigate the traffic congestion on this segment.
- Tierra Subida Avenue is projected to operate at LOS A south of Avenue S with an ADT of 11,000. This roadway segment would require two lanes each.

Future Conditions at Area Buildout

Significant Impacts

- 4.9.3 Project development would result in increased traffic, upon build-out of the area. This would produce significant safety impacts which would be reduced to less than significant levels upon implementation of proposed mitigation measure 4.9.3.

Although the majority of the immediate study area is planned to be built out by the year 2010 (the horizon year for this study) there would still remain further developable area within the City's General Plan and Sphere of Influence area. Build-out of these areas would undoubtedly add more traffic to the circulation system of the southwestern Palmdale area. Several segments of the area's planned year 2010 network would most likely require further capacity improvements due to additional traffic at the full buildout of the City's General Plan. By the year 2010, LOS E would occur on Elizabeth Lake Road between Bridge Road and 25th Street West. A complete analysis of the further incremental impacts of the General Plan buildout will determine all future additional right-of-way needs, especially on arterials most heavily impacted by through traffic. Timing of the construction of these additional lanes should be determined based on future analysis of the demand as projected developments within the area are implemented.

To assess the potential deficiencies in the study area based on the forecast traffic volumes for the probable build-out of the area, the same circulation system as of the year 2010 was assumed for the build-out scenario. The results of that analysis show that several segments of the year 2010 circulation system may require further capacity enhancement.

MITIGATION MEASURES

Access and road design standards are addressed in Section 4.7, LAND USE.

Short-term Construction

- 4.9.1 A Traffic Control and Detour Plan, for review and approval by the City Traffic Engineer, shall be prepared prior to issuance of grading permits to minimize construction-related traffic impacts. Access for adjacent residents shall be maintained at all times.

Buildout of Proposed General Plan

4.9.2 All project road improvements shall be provided in accordance with City design standards to the satisfaction of the City Engineer, prior to issuing grading permits.

Future Conditions at Area Buildout

4.9.3 Where warranted by the City Engineer, appropriate safety warnings shall be placed along Elizabeth Lake road (such as identifying pedestrian and equestrian crossings).

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of the proposed project would accommodate a significant increase in daily traffic in the project vicinity; however, the nature of the project is to accommodate growth in the area by providing additional capacity on Elizabeth Lake Road and necessary flood control protection. Elizabeth Lake Road would operate at LOS E between Bridge Road and 25th Street West by the year 2010. Four lanes (an additional two) would be necessary along this roadway segment to achieve LOS C.

4.10 CULTURAL RESOURCES

This section is based on a report prepared by RMW Paleo Associates, which is contained in Appendix G, CULTURAL RESOURCES ASSESSMENT. In addition, RMW Paleo Associates prepared an Exploratory Excavation of site CA-LAn-767 in August, 1991, and is contained in Appendix G. The discussion of sites east of 25th Street West is based on The Amargosa Creek Improvement Project and Assessment District Draft EIR, the Archival Update for Archaeological Resources along a Segment of Amargosa Creek and Proposed Detention Basin, prepared by Leslie Mouriquand Blodgett, Consulting Archaeologist, in October 1989, A Cultural Resources Investigation of a Portion of Amargosa Drainage System, prepared by R.W. Robinson, Consulting Archaeologist, in April, 1990 and the Archaeological Assessment Report For a 9.8-Acre Property Located in Palmdale, California, prepared by James Brock in April, 1990. This section will attempt to identify potential impacts to cultural resources which might be affected by the proposed project, and to suggest reasonable mitigation measures designed to preserve and protect any onsite cultural resources.

EXISTING CONDITIONS

History

Leona Valley was quite attractive to prehistoric populations. Amargosa Creek provided water during at least a portion of the year. The water supported many desirable plants and would also have attracted game animals to the area. The valley itself offered a relatively easy route of travel to and from the Antelope Valley and to areas to the northwest.

The distribution of people in the study area vicinity at the time of arrival of the Spanish is not clear. The study area was occupied by a group known as the Tataviam. Little is known of Tataviam culture, society or environmental adaptations. Apparently, they were quite similar to groups to the northeast, east and south. The Kitanemuk were located to the north and east of the Tataviam. Both groups subsisted through hunting of small game and collecting of seeds and other vegetable products. Local yucca appears to have been a dietary staple.

Based on work from the western Antelope Valley, a "Rhyolite Tradition" has been identified. The name derives from the predominate material found in collections from the period, which roughly spans the years 4000 to 2000 B.C. Knives, choppers, scrapers and

cores are the primary constituents of Rhyolite Tradition collections, but grinding implements are also known.

The Late Prehistoric Period, defined from work in the western Antelope Valley (including at least two sites near the study area), covers the period from about 250 B.C. to A.D. 1650. The period between the Rhyolite Tradition and the Late Prehistoric Period (for which there is a lack of data) is one of the major research questions pertinent to the local area. The Late Prehistoric Period sites contain quantities of material that is not locally available. Obsidian, Pacific Ocean shell, and Channel Island steatite are examples. The presence of this material in local sites has led some researchers to the conclusion that trade was a major reason why people were present in the study area during Late Prehistoric times. Analysis of such trade is another important research objective for future local study effort. Only a few scattered ranches, none of which were within the present study area, were operational during the Spanish/Mexican era.

The arrival of the railroad in 1876 provided the stimulus for some development in Palmdale. The lack of reliable water resources, however, kept growth at a very slow pace until World War II. Widespread development appears to be confined to the 20th Century. Ranches were operational in some of the local valleys, while grains, grapes, almonds and pears were grown as cash crops. The Ritter family arrived from Germany, apparently in the 1880s, and established themselves on a 160 acre homestead in Leona Valley, just south of the study area. The Ritter family made other land acquisitions over the subsequent decades, and finally became the major area land owners. Ranching and agriculture were the major activities. The Ritter family operated a hunting club on the property, but the date of construction is uncertain. The hunting club, adjacent to the current study area, is identified as the Ritter Ranch on current maps. The original ranch was about one mile to the east in Ritter Canyon.

Prior Cultural Resources Research

Ten reconnaissance projects have been completed that cover portions of the project area. Each of these surveys is discussed in Appendix 12.7, CULTURAL RESOURCES ASSESSMENT.

Archaeological Sensitivity

Less than a decade ago the prevailing opinion was that the Antelope Valley and surrounding areas had seen very little prehistoric use. Recent rather extensive survey work and limited

excavation in the area has established that such a picture of the study area vicinity is incorrect. At least 17 archaeological sites are known that could be impacted by the proposed improvements involved in the project area. This does not include the sites within the Borrow Area and the two Potential Borrow Areas. These sites are addressed within the Ritter Ranch Specific Plan EIR. A great many other sites are known in the immediately surrounding area. Only a few of the local sites have been test excavated and none have been subjected to data recovery excavation and complete analysis. Nevertheless, sufficient data is available to make clear that a full range of site types exist in the area, including habitation sites, specialized use stations and at least one cemetery. A rather large population is indicated, at least for the Late Period.

The study area is very sensitive from an archaeological standpoint. Site density and distribution is such that deposits may be encountered anywhere within the study area.

Known Archaeological Site Descriptions

Following are brief descriptions of the known archaeological and historic deposits within and near the project area. Each description contains a statement of what is known regarding the significance of the site.

CA-LAn-767: This significant site is a cemetery located immediately south of Elizabeth Lake Road in the east central part of the study area. Eleven human burials were removed from this site by the Antelope Valley College in 1975. The burials were removed from a block excavation, so it appears that other burials may exist at the site. However, subsequent site excavation conducted by RMW Paleo Associates revealed that this site has been badly damaged by previous excavations and, apparently, by illegal collecting activity (pot hunting). Due to the severe damage onsite, it was determined that little likelihood exist that any extensive deposit remains can be found. During subsequent excavations conducted for this report, only two small fragments of apparently human bone were discovered and no beads were recovered. (It should be noted that the original excavators of the site reportedly recovered thousands of such artifacts). The findings of the Exploratory Excavation are as follows:

Surface Examination. Detailed examination of the surface of the site and surrounding area produced only a single artifact. This tool is a pestle recovered from an undisturbed area about 70 meters south of the site datum. The pestle is made of schist and is badly damaged.

Unit Excavations. Excavations were completed between April 22nd and April 29th, 1991. A brief description of each excavation unit follows.

Unit 1: This unit was placed to the northeast of the previously excavated part of the site in the direction of the nearest approach of Amargosa Creek. The unit was within the impact area of the proposed street improvements. The area of Unit 1A appeared to be undisturbed.

The unit was excavated to a depth of 90 centimeters and a central post hold extended the depth an additional 20 centimeters. A few fragments of small rodent bones were found in the upper 40 centimeters of the unit, but the excavation was otherwise sterile. No artifactual material was found.

Unit 2A: This unit was placed between Unit 1A and the edge of the earlier excavations. The unit is near the edge of the expected impact area of the proposed improvements to Elizabeth Lake Road. Unit 2A was excavated to a depth of 100 centimeters and a central post hole extended the depth by 45 centimeters. A few small animal bone fragments were found in the lower levels of the unit. Otherwise, the unit was sterile.

Unit 3A: Unit 3A was placed within the disturbed area thought to contain the original excavations and in line with Units 1A and 2A.

The unit was excavated to a depth of 120 centimeters and a central posthold extended the depth by about 30 centimeters. Rodent bone fragments, including one tooth, were found between 30 and 70 centimeters depth. All of these appeared to be modern intrusives. A fragment of a bowl or mortar was recovered from the 30 to 40 centimeter level. The tool, made of steatite, is Artifact Catalog Number 36. The fragment was once part of a much larger tool that was broken in antiquity. The surviving fragment was then used as a small bowl or mortar. A steatite pendant blank was also recovered from the 30 to 40 centimeter level. This object, is unfinished, but has been shaped and the beginning of a drilled hole can be seen on one surface. Hematite was recovered from the 20 to 30 centimeter level, the 30 to 40 centimeter level and the 40 to 50 centimeter level. Hematite was aboriginally used as pigment.

Unit 4A: It was fully expected that Unit 3A would encounter considerable archaeological material. Large quantities of shell beads had been recovered

during the original excavations. Small artifacts such as shell beads can migrate considerably over long periods of time. However, no such material was recovered. Steatite pendants were found with the burials, but the artifact from Unit 3A is unfinished. Given this situation it was determined that Unit 4A should be placed directly in the center of the area thought to have been previously excavated. The soil of Unit 4A had been disturbed by previous excavation to a depth of about 140 centimeters.

Some fragments of modern rodent bone were found between 30 and 50 centimeters depth. Two fragments of larger bone were recovered from the 60 and 70 centimeter level. These fragments had structure and wall thickness to indicate they were part of a human sized animal. However, they were so fragmentary that they could not be definitely identified. The two bone fragments were returned to the unit prior to backfilling.

Unit 5A: Unit 5A was placed roughly in line with Units 1A through 4A, but was located to the southwest of the area thought to be previously excavated. Modern bone fragments from small animals were found to depths of 50 centimeters. A small secondary flake of chalcedony was recovered from the 10 to 20 centimeter level of the unit. Fragments of carbonized material were retrieved from the 30 to 40 and the 40 to 50 centimeter levels. However, this material was not in association with artifactual material and may be natural in origin.

Unit 1B: Unit 1B was placed north of the area excavated in 1975, approximately one half the distance between the bank of Amargosa Creek and the 1975 excavations. A granite bifacial mano was found in the northeast corner of Unit 1B at a depth of 90 centimeters. The mano is not stream eroded. A fragment of unworked shell was recovered from the 90 to 100 centimeter level. Rodent bone fragments were found between 50 and 100 centimeters below unit datum.

Unit 2B: This unit was placed in line with Unit 1B and the area thought to contain the 1975 excavations and immediately adjacent to the latter feature. Unit 2B was excavated to depth of 110 centimeters and a central post hole extended the depth by about 20 centimeters. Rodent bone was found throughout the unit.

No artifacts were recovered from Unit 2B, but a fragment of apparently human bone was found in the 100 to 110 centimeter level. The fragment is a portion of a long bone and has the correct structure and wall thickness to indicate it is from a human sized animal, but it lacks the features required for positive identification. The bone was interpreted as human and returned to the excavation unit prior to backfilling. A fragment of hematite was recovered from the 10 to 20 centimeter level.

Unit 1C: Unit 1C was placed to the northwest of the area thought to contain the 1975 excavations. Unit 1C was excavated to a depth of 100 centimeters and a central post hole extended the depth by about 25 centimeters. Bones of small mammals and rodents were found throughout the unit. A granite bifacial mano was recovered from the 30 to 40 centimeter level. A small portion of one corner of the tool is missing.

Unit 1D: Unit 1D was placed in the northwestern part of the study area. Unit 1D was excavated to a depth of 100 centimeters and a central post hole extended the depth of about 30 centimeters. Small mammal and rodent bone was found throughout the unit, but the excavation was otherwise sterile.

Shovel Test Pits: Six shovel test pits were excavated in areas to the east of the cemetery and on both banks of Amargosa Creek. These excavations were made to determine the probability of archaeological deposition in those areas. All of the shovel test pits were sterile.

CA-LAn-948: This site is located south of Elizabeth Lake Road and about 600 meters southeast of CA-LAn-767, discussed above. The site was described as some 50 by 50 meters in extent, containing a lithic (rock) scatter of obsidian and silicates. CA-LAn-948 has been somewhat damaged by local ranching activity, but appears to be largely intact. The significance of the deposit is not known, since no exploratory excavation has been accomplished. However, adequate mitigation can be provided by monitoring during grading as the site is not within project grading limits.

CA-LAn-949: This site is located south of Elizabeth Lake Road near the eastern end of the study area. Van Horn examined CA-LAn-949 in 1989 and estimated the site at 50 by 50 meters. Manos, mano fragments, metage fragments, a pestle fragment, cores hammerstones, flakes and a cottonwood triangular projectile point fragment were seen in the site area. Van Horn (1990) has recently completed test excavation work at CA-LAn-949, which established

that a subsurface deposit including two small midden areas exist at the site. The site has been determined to be significant and Van Horn recommends that the site be preserved or that a thorough mitigative program be completed if preservation is not possible. Van Horn's analysis of the site is not complete, so the interpretations given above must be regarded as preliminary.

CA-LAn-950: This site is located immediately adjacent to Elizabeth Lake Road, southeast of CA-LAn-767, the cemetery site discussed above. The site is described as a lithic scatter containing silicates and obsidian some 40 by 40 meters in extent. A ranching operation including small buildings, corrals and an access road have impacted the surface portion of CA-LAn-950. The significance of CA-LAn-950 is not known, since no exploratory excavation has been accomplished.

CA-LAn-951: This site, located north of Elizabeth Lake Road in the central portion of the study area, was recorded as a thin lithic scatter some 100 by 100 meters in size. Rhyolite projectile points, burned bone, schist and steatite pendant blanks were noted in the site area. Some of this material was collected and is currently curated at Antelope Valley College. However, archaeological site CA-LAn-951 has since been destroyed by a large custom made home which has eliminated all traces of the deposit.

CA-LAn-952: This site is located south of Elizabeth Lake Road in the east central part of the study area. It is a short distance northwest of the cemetery site, CA-LAn-767, discussed above. The site is a dark midden deposit some 30 by 30 meters in extent. No depth assessment was made, but olivella beads and one stone bead were collected and are curated at Antelope Valley College. The site has been damaged by illegal collecting activity and by ranching activity. The significance of CA-LAn-952 is unknown, since no test excavation has been accomplished. The site has been heavily damaged in recent decades by ranching activity.

CA-LAn-953: This site is located south of Elizabeth Lake Road in the east central part of the study area. This site is about 40 meters in diameter and is described as a lithic scatter and steatite processing center. Chert, quartz and rhyolite flakes were seen in the area by LSA, as was an incised sandstone fragment and a shaped schist slab with a single cupula. The site has been damaged by a dirt road and by illegal collecting activity (pot hunting). The "pot hunting" significance of CA-LAn-953 is unknown.

Field activities included surface collecting, site mapping, and excavating six 1 x 1 meter units and 27 auger holes. The field work resulted in collecting and mapping surface artifacts

including many quartz flakes, ground stone fragments, and bone fragments and recovering artifacts from excavation units 1, 2, 3, and 5. The collection also includes several pieces of debitage and shatter.

CA-LAn-954: This site is also located just south of Elizabeth Lake Road in the east central portion of the study area, consisting of a dark midden deposit some 40 by 40 meters in extent. Steatite ornament fragments, a blade and a single pottery shard were collected and are curated at Antelope Valley College. Bone, charcoal and a bedrock mortar were also seen in the site area. The significance of CA-LAn-954 is unknown, since no test excavation has been accomplished. The site has been heavily damaged in recent decades by ranching activity.

CA-LAn-955: This site is located south of Elizabeth Lake Road in the vicinity of the cemetery site, CA-LAn-767, described above. The site consists of a single bedrock mortar. The significance of this site is unknown. A bedrock mortar is the only known site element, but a subsurface deposit may well be hidden by stream deposits.

CA-LAn-959: This site is located south of Elizabeth Lake Road a short distance northwest of the cemetery site, CA-LAn-767. This site is an occupation area with obvious midden. A surface collection has been made at the site, with the collected material being curated at Antelope Valley College. Shell beads, steatite pendants, a shaft straightener and many chipped stone remained. One cupula boulder and a bedrock mortar are also found at the site. LSA found that the site had been damaged by recent backhoe work. The significance of the site is unknown. Though a collection has been made from the surface, no report on the work is available. The previous collections should be examined and incorporated into this effort.

Field activities included surface collection, site mapping, excavation of two 1 x 1 meter units, and documentation of five boulders with cupolas. Surface artifacts were collected and mapped, including quartz, chalcedony, and jasper flakes, ground stone fragments and a shell bead. Unit 1 yielded many subsurface artifacts including a shell bead, a steatite arrow straighter, chalcedony, jasper, and quartz flakes, burnt bone, a chert point fragment, and one obsidian flake. Five cupula boulders were photographed and drawn, and a total of 24 cupolas and 1 mortar were found among the boulders at this site.

CA-LAn-1644H: A representative sample from the trash deposit was recovered and the area was photographed and mapped. Historic resources found appear to date from 1930-1960 and are a mixture of domestic, automotive and ranching refuse.

This site is a deposit of historic refuse located in an erosional gully on the north side of Amargosa Creek in Leona Valley. The objective of this phase of the investigation was to retrieve a representative sample of the material comprising the deposit, in order to determine its time span and functional origin.

The sampling strategy involved three tasks 1) detailed mapping of the deposit to note evidence of depositional and erosional processes; 2) inventory of the range of materials included in the deposit; and 3) collection of diagnostic artifacts for temporal and functional analysis. The materials retrieved included bottles, cans, ceramics, barbed wire, and miscellaneous items which were capable of yielding meaningful data. These artifacts were removed to the laboratory, where they were cleaned, sorted, identified, described, and catalogued.

CA-LAn-1645: Recorded by Padon in 1989, this site was described as a scatter of obsidian, chert, rhyolite and quartz flakes located about 200 meters to the north of Elizabeth Lake Road in the central part of the study area. Padon (1990) returned to the site to accomplish test excavation work only to find that the site had been destroyed by secondary road construction. However, a similar deposit was found nearby, was tested and found to be not significant. The new deposit is identified by the temporary number RR-45, since it has not yet been recorded with the Archaeological Survey. No additional work is recommended at these deposits.

CA-LAn-1646H: This site is the Ritter hunting club, located south of Elizabeth Lake Road near the western end of the study area. The site is not of sufficient age to be of historic interest. No further research is required or recommended.

CA-LAn-1746: This site is located south of Elizabeth Lake Road near the eastern end of the study area. The site is some 50 by 20 meters in extent and included chert and quartz flakes, chert and quartz scrapers, a jasper core fragment and a quartz hammerstone. In 1990 Van Horn completed test excavations at CA-LAn-1746 and concluded that the test excavation amounts to total mitigation of the site.

CA-LAn-1747: This site is located south of Elizabeth Lake Road near the eastern end of the study area. The site is some 80 by 30 meters in size and included chert and quartzite scrapers, quartzite flakes and a leaf shaped projectile point fragment. The site was heavily damaged by historic activity. In 1990 Van Horn completed test excavations at CA-LAn-1747, and concluded that the test excavation amounts to total mitigation of the site.

CA-LAn-1748: This site is located south of Elizabeth Lake Road near the eastern end of the study area. The site was described as a low density lithic scatter, about 150 by 30 meters, containing chert, quartz and quartzite flakes, a granite mano, a quartzite hammerstone, a quartzite scraper and a quartzite core. In 1990 Van Horn completed test excavations at CA-LAn-1748, and concluded that the test excavation amounts to total mitigation of the site.

CA-LAn-1775H: The Amargosa Creek Improvement Project and Assessment District Draft EIR identifies the possible impact of channelizing the creek on one recorded historic site which could contain historical resources. Historical site LAN-1775H may be impacted by the channelization of the creek and the proposed project. However, according to CEQA, this site is not considered a significant historical resource due to its recent age. Therefore, no significant adverse impacts are anticipated to this site and CEQA does not mandate further research of this site.

CA-LAn-1837: A variety of material was seen in an area some 60 by 20 meters in size. The significance of the CA-LAn-1837 is not known.

Isolates: A series of isolated tools was found in the area north of Elizabeth Lake Road in Section 22 and the western half of Section 23. Several flakes of various materials, a granite portable mortar and a granite mano were seen. None of these tools are significant, but their presence, along with the known sites in the area, indicates intensive prehistoric use of the local vicinity. It is recommended that all ground disturbing activity in this area be monitored by an archaeologist.

Paleontology

Sedimentary rocks, generally located on the streambed and south of Amargosa Creek, are most likely to contain fossil remains (see Exhibit 4.1-1, GEOLOGY). These rocks include the Ritter Ranch Formation and the Anaverde Formation (some sources reference both rock units as the Anaverde Formation).

The majority of area to be graded is Quaternary alluvial deposits (Qdu) and the Ritter Formation (TQr). The Anaverde/Ritter Formation has a limited history of fossil production in the Palmdale area. A small assemblage of fossil plants is reported from this formation east of the study area, although there are no other records of fossils from this formation in the vicinity of the study area and no fossils were located during this study. However, ancient

soil horizons noted near the western end of the study area are commonly associated with vertebrate fossils.

Pleistocene age terrace deposits are located south of the project (Harold Formation primarily limited to isolated areas in Basin "B". Occasionally, the remains of Ice Age land animals are discovered in these deposits. A single bone fragment was located during a paleontological assessment of Ritter Ranch in these deposits north of the study area. No fossils were observed in these deposits in the study area.

Quaternary alluvium (Qdu) consists of thin deposits along the current Amargosa Creek drainage, and are typically too young to contain fossils. Due to the thin nature of these deposits in portions of the study area, it is likely that excavations associated with this project will penetrate the alluvium to the older rock units below.

Metamorphic and granite rocks (Pelona and Portal Schist) are exposed due to the uplift and erosion that has taken place in the region associated with the development of the San Gabriel Mountains. Because of the intrusive (volcanic) origins of these rocks, they do not contain fossils.

IMPACTS

Archaeology

Significant Impacts

- 4.10.1: The project would impact several known significant sites (see Table 4.10-1). Available mitigation cannot offset the loss of "in situ" significant archaeological sites.
- 4.10.2: Grading activities may disturb previously unknown sites, although this can be mitigated to less than significant levels.

Events causing archaeological resource impacts are generally described as natural, primary, secondary or combination. Natural impacts include erosion, landslides and resource decay over time. Primary impacts include grazing, grading, agricultural cultivation (discing/plowing), construction of roads and structures, and illegal artifact collecting ("pot hunting"). Secondary impacts are generally due to increased exposure to human activity and associated

incidental or intentional resource damage. Combination impacts result from two or more of the above events (such as increased erosion due to increased development).

Elizabeth Lake road is to be elevated in the vicinity of CA-LAn-767. This will require construction of a fill, the toe of which passes near the edge of the cemetery. Construction of the fill will require removal of soil until adequately compacted material is reached. The combination of the Robinson excavation and pothunting has apparently removed all of the burials from CA-LAn-767, excepting only scattered fragments of bone. The construction will have only negligible impact on this feature.

The early component of CA-LAn-767, characterized by grinding implements, extends from the cemetery area into the area where the fill will be constructed. Only limited controlled excavation has been accomplished within the area of impact, but two of the four units in the area produced grinding implements, a fragment of shell and a flake. Since these excavations cover only a tiny fraction of the area, it is likely that many additional artifacts exist in the subsurface. The area is in close proximity to Amargosa Creek and the existing excavations reveal many past episodes of alternating erosion and deposition. It is likely that the archaeological deposit in this area has been at least somewhat disrupted by the natural actions of Amargosa Creek. The impact of the proposed construction is difficult to assess since the true extent and condition of the archaeological deposits are not known.

The presence of an earlier component was not expected at CA-LAn-767. The primary thrust of the study was related to the cemetery. The earlier component became apparent only after a considerable portion of the field work was accomplished. Once the determination that no impact would be caused to the cemetery the remaining resources were used to study the earlier component. However, the study of the earlier component as presented in this report cannot be considered as extensive or complete, though it is adequate for the proposed undertaking, provided that the recommended mitigation measures are followed.

The proposed project will have negligible impact on the cemetery, since it is already essentially destroyed. The impact of the project on early component material is difficult to assess, since the extent and condition of the deposit are not well defined.

Table 4.10-1

ARCHAEOLOGICAL SITES

| SITE NUMBER | SIGNIFICANCE | CONDITION | IMPACT | RECOMMENDATIONS |
|---------------------------------|--------------|--|-----------|--|
| CA-LAn-767 ¹ | Significant | Partially excavated Some natural damage Severe damage from previous excavation and illegal collection activities- essentially destroyed | Secondary | Develop reinterment plan with Native American input prior to grading. Monitor grading in site area. |
| CA-LAn-767 "Early Component" | Unknown | Test excavated | Secondary | Monitor grading of area to insure mitigative actions are complete. |
| CA-LAn-948 | Unknown | Damaged by ranching | Secondary | Monitor grading in site area. |
| CA-LAn-949 | Significant | Test excavated | Secondary | Coordinate with Van Horn to insure mitigative actions are complete. Monitor grading in site area. |
| CA-LAn-950 | Unknown | Damaged by ranching | Direct | Test excavate to determine significance. Preserve if possible. Salvage excavate if preservation is not possible. |
| CA-LAn-951 | Unknown | Destroyed | None | No further action required. |
| CA-LAn-952 | Unknown | Damaged by ranching | Secondary | Monitor grading in site area. |
| CA-LAn 953 | Significant | Test excavated | Secondary | Coordinate with Padon to insure mitigation actions are complete. Monitor grading in site area. |

¹ This entry refers to the cemetery site.

Table 4.10-1 (continued)

ARCHAEOLOGICAL SITES

| SITE NUMBER | SIGNIFICANCE | CONDITION | IMPACT | RECOMMENDATIONS |
|--------------|-----------------|---------------------|-----------|---|
| CA-LAn-954 | Unknown | Damaged by ranching | Secondary | Test excavate to determine significance. Preserve if possible. Salvage excavate if preservation is not possible. Monitor grading in site area. |
| CA-LAn-955 | Unknown | Pristine | Secondary | Test excavate to determine significance. Preserve if possible. Salvage excavate if preservation is not possible. Monitor grading in site area. |
| CA-LAn-959 | Significant | Test excavated | Secondary | Coordinate with Padon to insure mitigative actions are complete. Monitor grading in site area. |
| CA-LAn-1644H | Not significant | Test excavated | None | No further action required. |
| CA-LAn-1645 | Unknown | Destroyed | None | No further action required. |
| RR-45 | Not significant | Test excavated | None | No further action required. |
| CA-LAn-1646H | Not significant | Pristine | None | No further action required. |
| CA-LAn-1746 | Not significant | Test excavated | None | Coordinate with Van Horn to insure mitigative actions are complete. |
| CA-LAn-1747 | Not significant | Test excavated | None | Coordinate with Van Horn to insure mitigative actions are complete. |

Table 4.10-1 (continued)

ARCHAEOLOGICAL SITES

| SITE NUMBER | SIGNIFICANCE | CONDITION | IMPACT | RECOMMENDATIONS |
|--------------------|---------------------|------------------|---------------|---|
| CA-LAn-1748 | Not significant | Test excavated | None | Coordinate with Van Horn to insure mitigative actions are complete. |
| CA-LAn-1837 | Unknown | Pristine | None | Monitor grading in site area. |
| Isolates | Not significant | Pristine | None | Monitor grading in site area. |

NOTE: Any site that cannot be preserved and must be destroyed is to be subjected to controlled destruction as described in the text.

Source: Appendix 12.7, CULTURAL RESOURCES.

Actions taken to mitigate adverse impacts generally include preservation, excavation or a combination of the two. Preservation can be accomplished by "no action" if the site is not threatened, fencing, burial (covering with a layer of dirt), project redesign (avoidance), planting, and erosion control. Excavation can be accomplished in a variety of manners, although careful brush clearing and initial mass grading of surface layers is preferred.

The following sites will be directly impacted by the project (also see Table 4.10-1, ARCHAEOLOGICAL SITES):

1. CA-LAn-767 (significant)
2. CA-LAn-950 (significance unknown)
3. CA-LAn-953 (significant)
4. CA-LAn-955 (significance unknown)
5. CA-LAn-959 (significant)

potentially impacted

The following sites will be potentially impacted by the haul road/borrow areas (addressed within the Ritter Ranch Specific Plan EIR):

1. CA-LAn-952
2. CA-LAn-954
3. Four other sites addressed in the Ritter Ranch Specific Plan EIR (see Appendix G)

The following areas will not be directly impacted, but monitoring in the vicinity is recommended due to archaeological sensitivity, or verification/coordination of studies by others to confirm previous mitigation is adequate:

1. CA-LAn-767 "Early Component" (significance unknown)
2. CA-LAn-948 (significance unknown)²
3. CA-LAn-949 (significant)^{1,2}
4. CA-LAn-1746 (not significant)¹
5. CA-LAn-1747 (not significant)³

² Monitoring by archaeologist required.

³ Verification/coordination with Van Horn required.

6. CA-LAn-1748 (not significant)²
7. CA-LAn-1837 (significance unknown)¹
8. Isolates Area (significant sensitivity)¹
9. Borrow Areas (significant sensitivity)¹

¹. Monitoring by archaeologist required.

². Verification/coordination with Van Horn required.

Paleontology

Significant Impacts

- 4.10.3: Project construction may damage significant paleontological resources, particularly in the Harold and Anaverde/Ritter Formations. Mitigation can reduce this impact to less than significant levels.

Excavations into the Anaverde/Ritter Formation, the Pleistocene terrace deposits (Harold Formation), and those portions of the Quaternary alluvium underlain by the Anaverde Formation may expose significant fossils. Because the Quaternary alluvium is so thin in portions of the study area, it is very likely that it will be penetrated by excavations and in some areas the Anaverde/Ritter Formation will be exposed. Therefore, in those areas the alluvium should be considered to have the same potential for fossils as the Anaverde/Ritter Formation. The presence of ancient soil horizons suggests that fossils may be discovered in the Anaverde/ Ritter Formation. Therefore, the Anaverde/Ritter Formation is considered to have a high paleontological sensitivity. Because of the presence of fossil bone in the terrace deposits (Harold Formation) they are considered to have a high potential for the discovery of significant fossils. Quaternary alluvium, except where it is underlain by the Anaverde/ Ritter Formation, is considered to have a low potential for the discovery of significant fossils. The metamorphic and granitic rocks have no potential for the discovery of significant fossils.

The improvements along Amargosa Creek will expose fossils; however, they will be destroyed unless proper mitigation measures are implemented. The destruction of the fossils would be a significant adverse impact on the region's paleontological resources, as these fossils can supply information on the age of the Anaverde/Ritter Formation, which is still in question, and on the timing of the movements of the San Andreas fault zone. Implementation of the recommended mitigation measures can reduce this adverse impact to an acceptable level.

MITIGATION MEASURES**Archaeology**

- 4.10.1a Individual known sites that could be subjected to impact from work in the Project area were discussed in some detail in a preceding section. The management recommendations pertinent to the individual sites are summarized in Table 4.10-1, ARCHAEOLOGICAL SITES. Other general recommendations related to the project area are:
- 4.10.1b CA-LAn-767: A monitoring team should monitor all ground disturbing activity in the vicinity of CA-LAn-767. It is recommended that the monitoring team include an archaeologist and a Native American Observer. The archaeologist must be prepared to implement full crew recovery operations if discoveries warrant. The earlier component extends into the impact area. Soil removals shall be made in a manner to allow recovery of the archaeological data. An appropriate method for the removal of the soil in this part of the deposit is contained in Appendix C, and is recommended for the use at CA-LAn-767.
- 4.10.1c Three areas are more critical than the balance of the study area, given the known distribution of sites and isolates. Archaeological monitoring of ground disturbing activity shall be on a full time basis while work is in progress in these areas. The three critical areas are:
- a. Immediately north of archaeological site CA-LAn-949. An area about one kilometer in length centered on the site shall be carefully monitored.
 - b. From a few hundred meters east of site CA-LAn-950 westward to a few hundred meters west of site CA-LAn-955.
 - c. From the vicinity of site CA-LAn-1837 eastward to where the power line crosses Elizabeth Lake Road.
- 4.10.1d The project archaeologist, City representatives and appropriate members of the Native American Community should meet well in advance of the recommended test excavation to insure that all methodologies and strategies related to the site are understood by all parties. Early development of a

strategy for recovery, scientific study and reinterment prior to grading for CA-LAn-767 will allow the project to proceed without unnecessary delay.

- 4.10.2a The study area is quite sensitive from a cultural resources standpoint. Archaeological deposits may be discovered anywhere within the project area. All ground disturbing activity related to the project shall be periodically inspected by an archaeologist. The inspecting archaeologist must be prepared to document and recover any significant cultural material that may appear as rapidly as is consistent with standard archaeological field methodology. This requirement may cause some delays in grading activity, but close coordination between the archaeologist and the contractor will keep such delays to a minimum.
- 4.10.2b Grading monitoring shall be on a full time basis while work is underway in the Borrow Area or the Potential Borrow Areas. These areas are primarily alluvial and cultural resources may be concealed in these areas.
- 4.10.2c Any ground disturbing activity within the detention basins shall be monitored on a full time basis by an archaeologist. Again, the basins are alluvial areas, and cultural resources may well be concealed.
- 4.10.2d If destruction of any archaeological site becomes necessary due to unavoidable impacts, the site shall be salvaged using controlled methods to allow collection of the maximum amount of data. One method of controlled excavation involves the use of a small scraper to remove the cultural deposit in very thin lifts. Following each scraper pass the surface is inspected, and artifacts pin flagged, surveyed and recovered. Surface scrapes with the material passed through fine mesh are also made after each scraper pass. This provides some control for the smaller items of cultural material. Exposed features or dense artifact concentrations are excavated using standard archaeological methods. This procedure is repeated until the entire cultural deposit is removed. Experience has shown the above method to be most viable in recovering the maximum amount of data from sites that must be destroyed. However, it is proper to implement this option only if all means of preserving the site have been explored and rejected for valid engineering or design reasons.

- 4.10.2e The project archaeologist must coordinate with the project archaeologists of the Ritter Ranch and City Ranch projects and/or City staff to insure that the project causes no undue impact to sites on the Ritter and City Ranches.
- 4.10.2f The City of Palmdale shall consider developing and adopting policies and procedures for the control of illegal collecting activities. At a minimum, police patrols should be increased in areas of active excavations. Sites that are in especially vulnerable areas should be fenced during excavations and also subject to increased police patrols, both during the excavation and for an extended period of time following the excavation. It is also suggested that sensitive sites in the area be visited by City staff on a routine basis.

Paleontology

- 4.10.3a A qualified paleontologist shall be retained to prepare a monitoring plan and perform periodic inspections, as directed by the monitoring plan, of excavations and, if necessary, salvage exposed fossils. The frequency of inspections, as directed by the monitoring plan, will depend on the rate of excavation, the materials being excavated, and the abundance of fossils.
- 4.10.3b The paleontologist shall be allowed to divert or direct grading in the area of an exposed fossil to facilitate evaluation and, if necessary, salvage.
- 4.10.3c Provisions for preparation and curation shall be made before the fossils are donated to their final repository.
- 4.10.3d All fossils collected should be donated to a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County.
- 4.10.3e The material collected during the current project shall be curated at Antelope Valley College. The balance of the collections from the site other than the material in private hands is at Antelope Valley College. Curation of the collection from the current excavation at that facility will keep all site material together.

- 4.10.3f Material collected during the recommended grading observation shall be described in a written report and should be curated at Antelope Valley College.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

Although the recommended mitigation measures will substantially reduce impacts to known significant cultural resource sites, significant impacts are considered unavoidable due to the concentration of significant sites in the project area and anticipated unintentional damage during grading and salvage operations.



4.11 PUBLIC SERVICES AND UTILITIES

Information in this section was obtained from correspondence received from public service and utility agencies involved with the Amargosa Creek Improvement project, and updated information obtained in February, 1993 (refer to Appendix 12.8, CORRESPONDENCE).

WATER

EXISTING CONDITIONS

The project lies within the sphere of influence of Los Angeles County Waterworks District No. 4 and County Waterworks District No. 34. District 34 presently obtains its water supply from three metered Antelope Valley-East Kern Water Agency (AVEK) turnouts. In addition, AVEK has a number of existing water lines which run parallel and cross Elizabeth Lake Road. The backup water supply is obtained from groundwater wells located in the Lancaster Subunit of the Antelope Valley Groundwater Basin. Leona Valley residents use private wells for water supply.

Untreated water is currently available from both an existing AVEK turnout located east of the property and from existing groundwater wells located in the Anaverde and Amargosa Valleys. The water at the turnout is pumped directly from the California Aqueduct. These sources of untreated water are suitable and can be used for landscape irrigation.

The "Los Angeles County Waterworks District Report on Existing and Projected Water Demands and Supply for the Antelope Valley", which is referred to hereinafter as the "LACWWD White Paper", was presented in early 1991. The LACWWD White Paper states that the natural recharge of the groundwater basin varies from a minimum of 40,900 acre-feet per year to a maximum of 76,000 acre-feet per year with an annual average recharge of 58,000 acre-feet per year. The recharge capability is substantiated by the U.S. Geological Survey "Water Resource of the Antelope Valley East Kern Water Agency" study by R.M. Bloyd, Jr., dated 1967, and also the U.S. Geological Report 84-4081, dated 1987. The recharge figure of 40,700 acre-feet was obtained from the U.S. Geological Report 84-4081, dated 1987, which was used to calibrate the mathematical model, does not represent the actual and should not be used as representing the average annual recharge.

The Antelope Valley United Water Purveyors Report has been reviewed by LACWWD. The LACWWD review of the water resource study of the Antelope Valley United Water Purveyors indicates that the purveyor's appraisal of the water resources, based on 1990 water

conditions, is very misleading. LACWWD's primary concern with the report is that 1990 was not a typical or representative year to evaluate long-term source of supply from the Antelope Valley. Cutbacks in SWP water deliveries due to the fourth year of the State-wide drought resulted in limitations on municipal and industrial water and a 50-percent reduction in agricultural deliveries. These cutbacks will obviously result in additional groundwater pumping to meet demands. This is normal with a conjunctive surface water - groundwater use program where you have two or more sources of supply. To use data from the fourth year of a State-wide drought as the basis to address long-term water availability in the aquifer is inappropriate. The groundwater levels in the vicinity of the backup wells has risen in excess of 30 feet from 1970 to 1987.

The aqueduct is an interruptible water source, but an important supplemental supply of water to the Antelope Valley. As pointed out in the LACWWD White Paper, in October, 1988, Glen M. Reiter & Associates prepared a water supply analysis projecting State Water Project (SWP) deliveries from 1995 to 2010. This water delivery analysis utilizes 56 years of hydrological records of the Sacramento River Index (SRI). This index is the sum total of the principal Sacramento River Basins (Sacramento, Feather, Yuba and American). This type of analysis indicates that during the period from 1995 to 2010, delivery of the full entitlement may occur only 6 to 16 years. The probability of occurrence is 38 percent. However, at least 90% of the entitlement may be available 11 of 16 years and 80% of entitlement may be available 15 of the 16 years. Plus, the State is aggressively working to increase the delivery capability of the SWP. The pumping capacity at its Banks Pumping Station in the Delta is currently being expanded which will significantly increase the capability to pump water from the Delta into the headwords of the California Aqueduct. Two additional projects, the Kern Water Bank and Los Banos Grandes Reservoir, will significantly increase the reliability of the SWP. The Kern Water Bank, which is located west of Bakersfield, will provide the capability to store excess SWP water underground for use during drought periods. This project is scheduled to be completed by 1995. The proposed Los Banos Grandes Reservoir which is located south of the SWP's San Luis Reservoir will provide additional surface storage capacity to increase the reliability of the SWP. The environmental document for this project has been drafted and is currently in the public review process. Construction of this project is scheduled to be completed by the Year 2000.

The stable water source for Leona Valley development such as Ritter Ranch will likely be the interconnection to the Waterworks District Nos. 4 and 34 water systems which conjunctively use SWP delivered through the Antelope Valley - East Kern Water Agency (AVEK) and local groundwater. Groundwater wells are essential to the District's

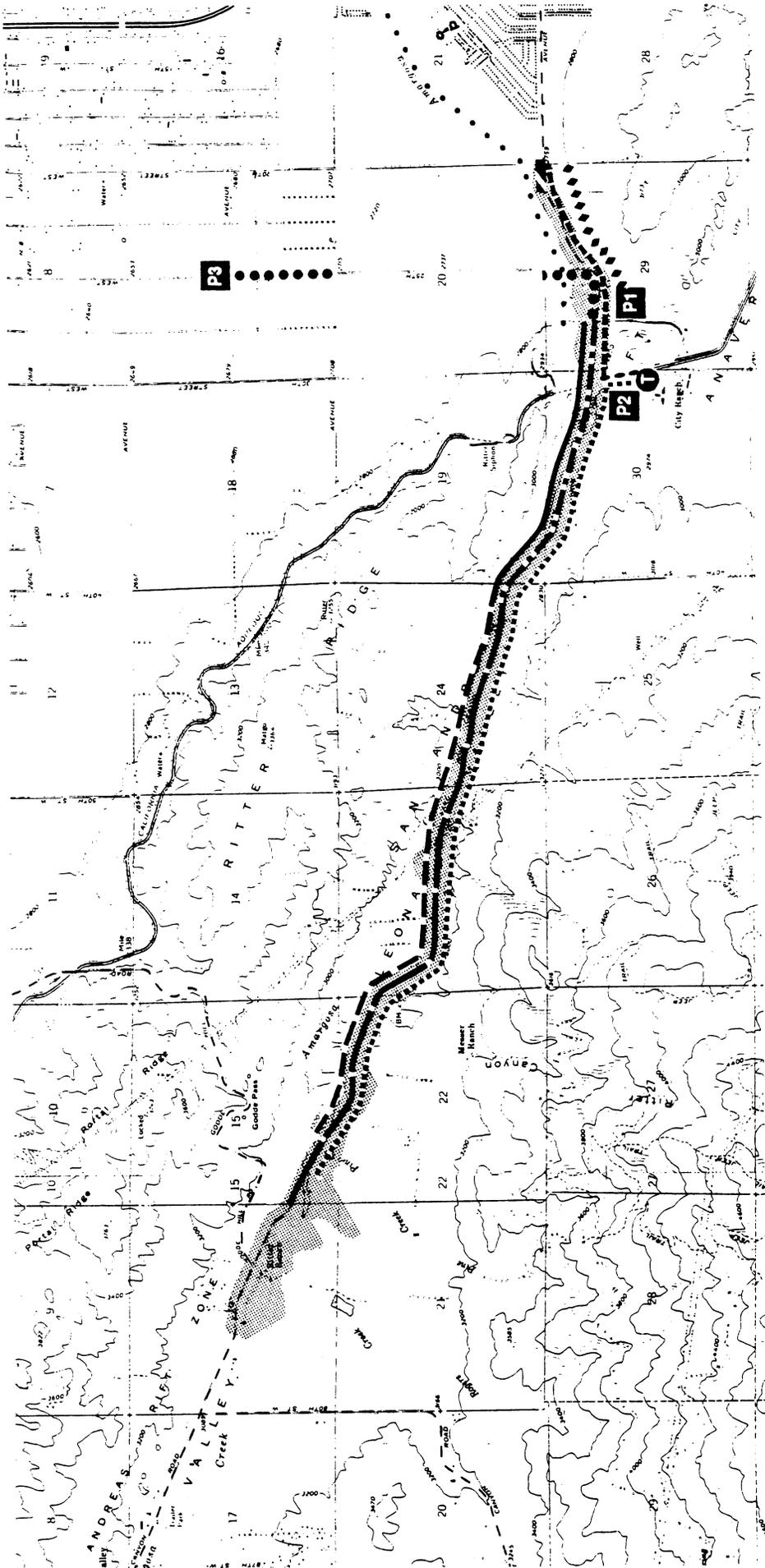
conjunctive use plans and will serve only as a backup source of water in the event of an interruption of the AVEK SWP supply. From 1970 to 1987, based on USGS monitored water well levels, the groundwater levels has risen 30 feet in the area of the valley where the wells are to be placed. Based on the above, there is an adequate and stable supply of water to support additional development in Leona Valley. This water supply meets the policy of the Districts and AVEK of balanced and conjunctive use of groundwater and surface water.

IMPACTS

Significant Impacts

- 4.11.1 Implementation of the proposed project would have significant growth inducing impacts which are discussed in Section 5.3, CUMULATIVE IMPACTS. Impacts to water services will be reduced to less than significant levels with implementation of the recommended mitigation measures.

The project will provide for a major water pipeline extension from 25th Street West to Godde Hill Road (see Exhibit 4.11-1, PRIMARY WATER AND SEWER FACILITIES, Section 3.0, PROJECT DESCRIPTION for additional information). Water mains will range between 36-inch diameter at 25th Street West between Avenue P and 5,300 feet south of Avenue P to 16-inch diameter at Godde Hill Road. The water system will accommodate approximately 22,200 Equivalent Dwelling Units, or a total average daily demand of approximately 24,200 gallons per minute (40,000 acre-feet per year). A non-domestic water system will also be provided, which will allow for a substantial reduction in domestic water use. No significant impacts are expected from minor facilities (pumping stations and AVEK turnout) due to their relatively small size and area affected). Although some AVEK facilities may require relocation or a redesign due to the widening of Elizabeth Lake Road, no significant impacts are expected from pipeline installation, as this will primarily occur within existing or future road rights-of-way. As discussed in Section 5.3, GROWTH-INDUCING IMPACTS, the project will have a significant growth-inducing impact.



SEWER FACILITIES

- 18" Sewer Trunk Line
- 21" Sewer Trunk Line
- 27" Sewer Trunk Line
- 8" Sewer Trunk Line
- Project Area

WATER FACILITIES

- 16" Water Trunk Line
- 20" Water Trunk Line
- 24" Water Trunk Line
- 30" Water Trunk Line
- 36" Water Trunk Line
- 20" Untreated Water Trunk Line
- 24" Untreated Water Trunk Line
- Water Pump Station (Treated - 20,000 gpm)
- Water Pump Station (Untreated - 7,000 gpm)
- Water Pump Station (Untreated - 10,700 gpm)
- AVEK Turnout (16 cfs)



Note: Locations and sizing are approximate.
Lines would generally be within future road rights-of-way.

AMARGOSA CREEK IMPROVEMENT PROJECT • EIR
Primary Water and Sewer Facilities

MITIGATION MEASURES

None required - the following measures should be implemented by the City as part of future project review processes:

4.11.1a As required by state law, the following water conservation measures will be incorporated into future projects within this area (betterment):

- Low-flush toilets and urinals
- Low-flow showers and faucets
- Insulation of hot-water lines in water recirculating systems
- All fixtures must be California Energy Commission certified
- Public lavatory facilities must be equipped with self-closing valves.

4.11.1b The following water conservation measures should be implemented and constructed by developments served by the project facilities, where applicable and feasible (betterment):

Interior

- Supply line pressure: Water pressure greater than 50 pounds per square inch (psi) will be reduced to 50 psi or less by means of a pressure reducing valve.
- Drinking fountains: be equipped with self-closing valves.
- Laundry facilities: water-conserving models of washers be used.
- Ultra low-flush toilets: 1-1/2 gallons per flush toilets installed in all new construction.

Exterior

- Landscape with low water-consuming plants wherever feasible.
- Minimize use of lawn by limiting it to lawn-dependent uses, such as playing fields. When lawn is used, require warm season grasses.
- Group plants of similar water use to reduce overirrigation of low-water-using landscaping.
- Provide information to project residents and tenants regarding benefits of low-water using plants and sources of additional assistance.

- Use mulch extensively in all landscape areas. Mulch applied on top of soil will improve the water-holding capacity of the soil by reducing evaporation and soil compaction.
- Preserve and protect existing trees and shrubs. Established plants are often adapted to low-water-using conditions and their use saves water needed to establish replacement vegetation.
- Install efficient irrigation systems which minimize runoff and evaporation and maximize the water which will reach the plant roots. Drip irrigation, soil moisture sensors and automatic irrigation systems are a few methods to consider in increasing irrigation efficiency and may be feasible for the project.
- Use pervious paving material whenever feasible to reduce surface water runoff.

SEWER

EXISTING CONDITIONS

Sewage treatment and trunk sewer facilities are owned and operated by the Los Angeles County Sanitation District No. 20. The nearest existing point of connection to the District's trunk sewers is located at Division Street and Avenue P-8 in the City of Palmdale. This sewer, Trunk A, connects to the Palmdale Water Reclamation Plant (WRP). The Amargosa Creek Trunk Sewer is proposed to be constructed along Amargosa Creek, between 10th Street West and 25th Street West, and connect to the Sanitation District's existing trunk sewer network near Avenue P and 10th Street West (at the Trunk "C" Relief Sewer, formerly known as the Diversified Center Trunk Sewer). The proposed Amargosa Creek Trunk Sewer (and the project's proposed extension of that sewer line to 80th Street West) will be constructed as a City of Palmdale project and, upon completion and acceptance, will be transferred to Sanitation District No. 20 for operation and maintenance.

The wastewater will be treated at the Palmdale Water Reclamation Plant (WRP), located on 30th Street East, between Avenue P and Avenue P-8, in the City of Palmdale. The Palmdale WRP currently has an average flow of 7.2 mgd (million gallons per day). In order to meet the current service demand, the Sanitation Districts are presently expanding the treatment capacity of the Palmdale WRP through surface aeration of the existing oxidation ponds. The Sanitation Districts will continue to incrementally expand facilities as needed to accommodate additional development, up to the allowable level addressed in the recently completed Addendum to the Final EIR and Supplemental Report Finalizing the Wastewater

Facilities Plan for Los Angeles County Sanitation District No. 20. This document provides for the treatment of influent wastewater flows up to 15 mgd at the Palmdale WRP.

The Sanitation Districts are empowered by the California Health and Safety Code to charge a fee for the privilege of connecting to the Sanitation District's sewage system. A connection fee is required in order that necessary expansions to the sewage system can be constructed to accommodate new development. Payment of a connection fee will be required before a permit to connect to the sewer is issued. The Sanitation Districts also have an annual service charge to fund the operation and maintenance of the Sewage System. The current service charge for a single-family home in District No. 20 is \$51.00. The service charge is subject to revision annually.

IMPACTS

Significant Impacts

- 4.11.2 Implementation of the proposed project would accommodate a projected significant increase in wastewater service demand, which will be reduced to less than significant levels with implementation of the specified mitigation measure.

Although the proposed Amargosa Creek Improvement Project individually will not generate any wastewater, this project is the precursor to the development of the west side of Palmdale (including Ritter Ranch and City Ranch), which will result in a significant increase in wastewater service demand estimated to be over 3.5 million gallons per day (mgd). This increase will constitute a significant increase over the current service demand of 7.2 mgd in District 20. This increase is mitigated by the construction of the sewer trunk line within Elizabeth Lake Road (and along Amargosa Creek from Bridge Road to 10th Street West. Sewer facilities are shown on Exhibit 4.11-1, PRIMARY WATER AND SEWER FACILITIES). Impacts to existing treatment plant capacity are mitigated by District expansion of the treatment plant through collection of required sewer connection fees (payable to the District when building permits are issued). The development facilitated by the project will use approximately 3.5 mgd, or 45% of the 7.8 mgd of planned treatment plant expansion capacity, which is a significant portion of future plant capacity.

MITIGATION MEASURES

- 4.11.2 In order to accommodate new development (facilitated by the project), Sanitation District No. 20 will implement its Connection Fee Program which will take the fees collected from all new users and finance expansions to the existing Sewerage System (including lateral connecting lines and treatment plant expansion).

No additional mitigation measures are necessary for trunk line construction, as this is included as part of the project.

ELECTRICITY

EXISTING CONDITIONS

The entire Amargosa Creek Improvement Project is located within the service territory of the Southern California Edison (SCE) Company and specifically in the Antelope Valley District. The majority of SCE's existing electrical facilities are located above ground (including two 220-kilovolt and one 550-kilovolt line crossing Elizabeth Lake Road, and numerous smaller lines traversing the project area along Elizabeth Lake Road).

IMPACTS

SCE facilities may require relocation and/or conversion to underground. Until SCE obtains plans with the proper detail to allow design of necessary modifications, impacts to SCE facilities or their customers cannot be fully assessed. Construction of the project will require temporary relocation of SCE facilities during construction, although there will actually be fewer temporary and permanent poles than currently exists due to temporary above-ground consolidation of electrical, telephone and cable lines and ultimate placement of new lines underground (see Section 3.0, PROJECT DESCRIPTION, for additional information). Currently, electrical loads of development to be served by the project are within the parameters of the overall projected load growth, which SCE plans to meet in the subject area. SCE facilities in the area will be adequate with tariff schedules filed with the California Public Utilities Commission. The City shall make sure that all necessary right-of-way easements are in place before any actual construction can begin.

Short-term construction impacts are expected with project implementation. However, with proper planning, SCE will be able to avoid any disruption of service to existing customers.

MITIGATION MEASURES

- 4.11.3 Overhead lines shall be placed underground in accordance with the City's undergrounding ordinance (betterment).

GAS

EXISTING CONDITIONS

Natural gas service to the project site will be provided by Southern California Gas Company (SCG). Gas mains are located offsite to the immediate east.

IMPACTS

The project includes provision of a 4-inch gas main within Elizabeth Lake Road. SCG believes they can serve the project area without a major impact on overall system capacity, service to existing customers, or the environment. The availability of natural gas service is based upon present conditions of gas supply and regulatory policies. As a public utility, the Southern California Gas Company (SCG) is under the jurisdiction of the California Public Utilities Commission (CPUC). Should these agencies (SCG or CPUC) take any action which effects gas supply or the condition under which service is available, gas service will be provided in accordance with the revised conditions. SCG has developed several programs which are available, upon request, to provide assistance in selecting the most effective applications of energy conservation techniques for a particular project.

MITIGATION MEASURES

None required.

TELEPHONE

EXISTING CONDITIONS

The proposed road widening project is located within the service area of Pacific Bell. Currently, there are not sufficient telephone facilities in the project area capable of handling future development projects in Leona Valley. Pacific Bell main conduit lines are located on Palmdale Boulevard and 10th Street West, but additional cable, conduit, and electronic

equipment will have to be built to supply phone services to Leona Valley. Buried and aerial telephone facilities are located along Elizabeth Lake Road.

Pacific Bell has a telecommunication system which extends through the majority of the project site along Elizabeth Lake Road. This easement extends from the exchange boundary of Palmdale/Leona Valley westerly to the Elizabeth Lake Road/Bouquet Canyon intersection.

IMPACTS

Prior to the widening of Elizabeth Lake Road, Pacific Bell will relocate their existing facilities to a temporary location. As noted in Section 3.0, PROJECT DESCRIPTION, and above under ELECTRICITY, the project will actually reduce the number of a above-ground utility poles, both in the short-term and ultimate condition. Pacific Bell will need to review the design plans prior to determining the relocation area. Once the road widening is complete, permanent telephone facilities (anticipated to be a fiber optics line) will be placed within the Elizabeth Lake Road telecommunications easement (see Section 3.0, PROJECT DESCRIPTION for additional information).

Although there are not sufficient telephone facilities in the Amargosa Creek project area to supply telephone services to the area, this impact will not be significant as future developers will be responsible for funding phone services to the project area (main lines in project roadways will be funded in part through the Assessment District). Substructures in the road right-of-way will be provided by the developer on a pro-rata basis and on private property at the expense of the developer.

Services to the site will be provided by Pacific Bell in accordance with current rates and tariffs, given adequate lead time of approximately 120-180 days from receipt of a complete set of finalized plans.

MITIGATION MEASURES

None required.

POLICE SERVICE

EXISTING CONDITIONS

Traffic and criminal law enforcement for the City of Palmdale is provided by the Los Angeles County Sheriff's Department. A Los Angeles County Sheriff Station is located at 1020 East Palmdale Boulevard in Palmdale and is approximately three miles east of the project site. The Antelope Valley Sheriff Station currently patrols 1,356 square miles of northern Los Angeles County, including the Cities of Palmdale and Lancaster. The population of this area is approximately 225,000.

Currently, 1 captain, 7 lieutenants, 21 sergeants, 187 deputies, and 9 Community Service Deputies (CSDs) are assigned to the Antelope Valley Station. Also, the Station is assigned 64 vehicles which include patrol cars, unmarked patrol cars, jeeps, rescue vehicles, CSD vehicles, K-9 cars, and a mobile command post.

Out of the currently available resources at the Antelope Valley Station, approximately 75% are committed and contracted to the Cities of Lancaster and Palmdale (approximately 55% to the City of Lancaster and 45% to the City of Palmdale). The remaining 25% of the total Antelope Valley Station resources are committed to the unincorporated County areas (including the project area). Currently, two patrol units cover the project area. Response times to the project site would be approximately 20 minutes for a routine call, and 5-6 minutes for an emergency call. These estimations are based on the location of the nearest available patrol unit.

IMPACTS

Significant Impacts

- 4.11.4 Impacts associated with theft of construction materials and equipment would be reduced to less than significant levels with implementation of mitigation measure 4.11.6.
- 4.11.5 Traffic related impacts associated with project implementation would be reduced to less than significant levels with implementation of proposed mitigation measure 4.11.7.

The main problem the Sheriff's Department anticipates with Project implementation is theft of construction materials and equipment on the site. Also, traffic related impacts are projected when Elizabeth Lake Road will be diverted during construction. Neither of these impacts will be significant after proper implementation of mitigation measures.

Cumulative impacts from project-facilitated development upon existing police services will be significant, although increased revenues from sales tax caused by the increased population may fund a portion of the required additional equipment and manpower. If a new police station is not constructed within the project vicinity, significant cumulative impacts are expected for police response time.

MITIGATION MEASURES

- 4.11.4 Adequate fencing and security lighting will be provided around all construction material and equipment storage areas.
- 4.11.5 Adequate emergency access and circulation throughout and around the Project shall be provided to the satisfaction of the Los Angeles County Sheriff's Department.

FIRE SERVICE

EXISTING CONDITIONS

The Los Angeles County Fire Department currently provides fire services for the project area. In addition, a one-acre fire station site is planned in Ritter Ranch Planning Unit 2B within a community park, and a one-acre fire station is planned within City Ranch Planning Area 34. The exact configuration of the sites shall be determined in the tentative map stage of development.

IMPACTS

Fire emergency incidence can be expected to increase as a consequence of development facilitated by the proposed project (a growth-inducing impact). Additional equipment such as a fire engine and/or rescue vehicle may be required to accommodate this expected increased workload. Personnel required to operate this equipment may also be necessary. These services would be required as part of the development review process for future projects (no project mitigation is necessary).

MITIGATION MEASURES

None required.

SCHOOLS

EXISTING CONDITIONS

The Amargosa Creek project site is located within the Antelope Valley Union High School District, the Westside Union School District and Palmdale School District.

As stated by the Westside Union School District in their January 8, 1991 letter, all schools within the District, with the exception of the Rancho Vista School, are 20-30% over the rated capacity, and have only been able to provide service for the current residents because of temporary facilities (i.e., trailers). The Leona Valley School (grades K-5), located at 9063 West Leona Valley Road, accommodates 170 students, with a planned 1991/1992 expansion providing a total capacity of 320 students. The District is presently negotiating with the Antelope Valley Building Industry Association and local developers to supplement inadequate funding from the State and AB 2926 fees.

As stated by the Antelope Valley Union High School District (AVUHSD), the student generation factor is 0.3 high school students per dwelling unit. It is estimated that the Antelope Valley Union High School District enrollment in 1991 will be 11,624 students, with a District capacity of 10,230. In 1992, a further enrollment increase of to 12,798 is expected. The project area would be serviced by Highland High School located at 39055 25th Street West, Palmdale. Currently, Highland High School has a capacity of 2079 students and a projected 1993/1994 enrollment of 2,408. The Ritter Ranch project includes a High School, middle school and several elementary schools. The City Ranch will also be providing four elementary schools onsite and will be contributing to an offsite high school in the vicinity.

The Palmdale School District has an existing school facility located along Elizabeth Lake Road. The Ocotillo School, 1330 Elizabeth Lake Road, Palmdale, is a year-round school serving grades K-5. A new school is planned for the City Ranch Development, according to the Master City Map. The exact location of this school has not been determined. Finally, a temporary school site, which is currently being developed into a permanent school site is located near 15th Street, adjacent to Amargosa Creek. The Summerwind School, 39360 Summerwind Drive, Palmdale, requires the elevation of the site in order to eliminate flooding potential.

Palmdale School District has a Mello Roos Funding District to assist in providing school facilities. Most property affected by AB 2926 (a developer fee authorization bill approved in September, 1986 which became the first bill allowing school districts to directly levy fees on new residential and commercial development) within their District is proposed for industrial use.

IMPACTS

In 1993, high school students from the project area will be served by Highland High School (in the future, students will also attend schools within larger development areas, such as Ritter Ranch and City Ranch). Short-term impacts during project construction will affect traffic, both vehicular and pedestrian, along Elizabeth Lake Road and 25th Street West (see Section 4.8, TRAFFIC AND CIRCULATION). Westside Union School District schools (K-8) are presently not capable of absorbing students from project-facilitated development. Since existing schools within the school districts are overcrowded, growth-inducing impacts from the proposed Amargosa Creek Improvement Project will have a significant impact. The developer fees under AB 2926 are expected to pay approximately 30% of the cost of school construction. Additional mitigation needs will be evaluated as part of the project review process for future residential projects.

The Ocotillo School, within the Palmdale School District, may be impacted during the widening of Elizabeth Lake Road. Potential impacts can be evaluated upon receipt of construction level drawings for Elizabeth Lake Road.

MITIGATION MEASURES

None required.

SOLID WASTE

EXISTING CONDITIONS

Solid waste service for the project area will be provided by the Palmdale Disposal Company. The Antelope Valley Landfill is located east of City Ranch, and is planned for expansion to accommodate anticipated growth within the Antelope Valley. Palmdale Disposal has recently added a wood grinder onsite which enables the recycling of wood products.

IMPACTS

The project will generate construction debris requiring disposal at the Palmdale Landfill, including vegetation, existing isolated refuse deposits, and asphalt/road bed materials. This is not considered a significant amount of solid waste. ~~Any wood products resulting from project implementation should be recycled by the project proponent. In addition, all other recyclable construction debris should be recycled to the greatest extent possible.~~

Development facilitated by the project will result in a significant cumulative increase in solid waste generation, and may generate hazardous materials that would require disposal in one of the few remaining permitted Class I landfills (no project mitigation is required).

MITIGATION MEASURES

4.11.6a. ~~Any wood products resulting from project implementation shall be recycled by the project proponent. In addition, all other recyclable construction debris should be recycled to the greatest extent possible.~~

PARKS AND RECREATION

EXISTING CONDITIONS

Currently, the City of Palmdale Department of Parks and Recreation does not provide facilities which serve the Leona Valley area, and there are no City Parks/ Recreational facilities in the immediate vicinity to serve the project. Manzanita Park (5 acres in size) and Desert Sands Park (20 acres) are the closest parks to the project, and are 2 to 3 miles away, respectively.

IMPACTS

The City of Palmdale Department of Parks and Recreation anticipates impacts to the park and recreation facilities due to the proposed project's accommodation of residential development in the Leona Valley area (a growth inducing impact). Required fees will be implemented to mitigate impacts created by residential development as a result of the proposed project. It should be noted that the project includes provisions for an off-street equestrian/multi-use trail along Amargosa Creek.

MITIGATION MEASURES

None required.

UNAVOIDABLE SIGNIFICANT IMPACTS

No significant project impacts are anticipated, as the project provides regional circulation and utilities. However, significant cumulative and growth-inducing impacts would affect public services and utilities as discussed in Section 5.3, GROWTH INDUCING IMPACTS and Section 5.4, CUMULATIVE IMPACTS.

5.0 Long Term Implications of the Proposed Project

5.0 LONG-TERM IMPLICATIONS OF THE PROPOSED PROJECT

5.1 THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

If the proposed Amargosa Creek improvements are approved and constructed, a variety of short-term and long-term impacts will occur on both local and regional levels. During construction, existing vegetation onsite would be removed and portions of surrounding lands would be temporarily impacted by dust and noise throughout project construction. Short-term erosion may occur during grading. A minor increase in dust and vehicle emissions, caused by grading and construction activities will also occur. Short-term traffic impacts are anticipated to include increased traffic volumes due to commuting construction workers. Local traffic will be impaired by road closures, detours, and the presence of truck traffic and grading vehicles during construction activities. These disruptions, however, are temporary and can be mitigated to a large degree (refer to Section 4.0, DESCRIPTION OF ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES). It should be noted that project construction is anticipated to occur over a relatively short time frame (approximately nine months to one year of disturbance in a given area).

The long-term effect of the project proposal and subsequent improvements will be to widen Elizabeth Lake Road, improve Amargosa Creek for flood control purposes, and provide utilities within and around Elizabeth Lake Road. As a result of this process, the characteristics of the physical, biological, cultural, aesthetic and human environment will be impacted, as discussed in Section 4.0. Consequences of these improvements include: loss of habitat, significant change in the character of the area, increased local traffic volumes, incremental degradation of local and regional air quality, additional noise created by additional capacities permitted on the roadway, direct and indirect land use impacts, and increased energy and natural resource consumption.

The project may limit the range of beneficial uses of the site, as the project will significantly impact the wildlife and aesthetic value of the Amargosa Creek corridor (as noted below, this is necessary to provide adequate flood protection). The project, although reducing long-term flood risks throughout the area, may pose long-term health and safety risks associated with facility damage during a major earthquake (these risks are unavoidable, and would be

associated with any such project in the area due to the prevalence of active faults throughout Southern California).

Long-term positive effects relate directly to the service proposed by the Amargosa Creek Improvement Project, which is necessary for existing, approved, and proposed developments. Construction of the flood control improvements, provision of the utilities, and widening of Elizabeth Lake Road will enhance programmed progress in the project vicinity and within the Leona Valley and Anaverde Valley. In addition, the proposed Amargosa Creek flood control improvements will protect Elizabeth Lake Road motorists, adjacent land uses and downstream areas from the significant flood hazards which currently exist. These improvements are necessary now rather than deferring to later, due to the present significant public safety hazard associated with a substandard roadway and inadequate flood protection (several downstream areas are pending development until the project is constructed).

5.2 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES THAT WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

Approval of the proposed project would cause irretrievable environmental changes. Implementation of the proposed project would result in the following significant environmental changes.

- ◆ Commitment of land which will be physically altered to create flood control improvements to Amargosa Creek, provide utilities and to widen Elizabeth Lake Road.
- ◆ Removal of existing botanical cover (including loss of wetlands) in order to develop various aspects of the project.
- ◆ Utilization of various raw materials will occur, such as sand and gravel. Some of these resources are already being depleted worldwide. The energy consumed in improving and maintaining the site for public infrastructure use may be considered a permanent investment.
- ◆ Incremental increases in traffic levels in the surrounding circulation system, resulting in associated increases in noise levels and incremental degradation of local air quality.

- ◆ Residents from surrounding communities maintain that the physical change in character from a rural two lane road to a 100-foot right-of-way major arterial, and the future development facilitated by the project, represent a significant irreversible change in the character and lifestyle in the surrounding area.

5.3 GROWTH-INDUCING IMPACTS OF THE PROPOSED ACTION

The proposed Amargosa Creek Improvement Project is intended to accommodate existing, planned and approved development within the area. Based on the year 2010 land use assumptions in the DKS Southwest Planning Area traffic study (July, 1990), and updated in January, 1993 by City Staff, the surrounding area is estimated to result in approximately 22,200 "Equivalent Dwelling Units," including 21,800 dwelling units and 85 acres of retail uses by the year 2010 (see Table 4.9-5, FORECAST BUILDOUT LAND USES, in Section 4.9). The projected development includes parcels along Elizabeth Lake Road from 20th Street West to Bouquet Canyon Road, including Ritter Ranch, City Ranch, City Thrift and Santa Fe Hills Specific Plan projects. These land use projections appear generally consistent with the City's General Plan buildout traffic volume forecasts along Elizabeth Lake Road¹. The project infrastructure has been designed to accommodate this projected development. The proposed road improvements, therefore, appear consistent with the General Plan land use forecasts, and is also consistent with the General Plan Circulation Element (which designates Elizabeth Lake road as a major arterial, roadway providing between 2 and 6 lanes of vehicle travel²). However, as the utilities may accommodate increased development beyond existing General Plan designations, it is considered a significant growth-inducing impact (see discussion below).

Proposed water and sewer facilities will be sized to ultimate conditions, capable of accommodating similar future development (both water/sewer lines and the traffic study were based on similar development projections) as the proposed road improvements³ (due to the difficulty and expense in excavating and replacing undersized water and sewer pipes, it is a common practice to install pipes to handle ultimate populations). Although the

¹ City of Palmdale General Plan Circulation Element, Table C-11.

² Ibid, page C-4.

³ Conversation with engineering staff at Brockmeier Consulting Engineers estimated a maximum capacity of 22,000 Equivalent Dwelling Units, which includes non-residential uses (December 17, 1990).

project's water and sewer lines will accommodate more development than presently approved, future developments will also require appropriate environmental review, provision of adequate onsite infrastructure and contribution to offside improvements. Furthermore, existing City sewer and water lines east of the project are generally undersized for ultimate build-out conditions, and are not expected to be able to accommodate significant upstream additional development in Leona Valley and Anaverde Valley. Although project facilities will be sized for future development, future projects would require further environmental review to address the full range of environmental issues. The project's provision of critical roadway, flood control and utilities are nonetheless considered a significant growth-inducing impact.

The proposed project will facilitate development within the Leona Valley and Anaverde Valley, which may exceed current General Plan land use designations. The project will also facilitate an unknown amount of development downstream in Palmdale and Lancaster by reducing flood hazards as a development constraint. The proposed project, therefore, will create a significant growth-inducing impact by accommodating development of these areas and by extending infrastructure into Leona Valley as far west as Godde Hill Road.

5.4 CUMULATIVE IMPACTS

This section has been included in the EIR to address the cumulative impacts associated with projects currently approved and proposed in the vicinity of Amargosa Creek. In accordance with CEQA Guidelines Section 15130, cumulative impacts shall be discussed when they are significant. This discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great a detail as is provided for the effects attributable to the project alone. The discussions should be guided by the standards of practicality and reasonableness.

The following elements are necessary in an adequate discussion of cumulative impacts:

1. Either:
 - a. A list of relevant past, present and reasonably anticipated future projects, producing related or cumulative impacts, including those projects outside the control of the Agency, or

- b. A summary of the expected environmental effects in an adopted General Plan or related planning document which is designed to evaluate regional or area-wide conditions.
2. A summary of the expected environmental effects to be produced by those projects with specific reference to additional information stating where that information is available, and
3. A reasonable analysis of the cumulative impacts of the relevant projects. An EIR shall examine reasonable options for mitigation or avoiding any significant cumulative effects of the proposed project.
4. With some projects, the only feasible mitigation for cumulative impacts may involve the adoption of ordinance or regulations rather than the imposition of conditions on a project-by-project basis.

Table 4.9-5, FORECAST BUILDOUT LAND USES, located within Section 4.9, TRAFFIC AND CIRCULATION, provides a list of land uses projected to occur in the study area that are expected to contribute to cumulative impacts in the project area (obtained from the City of Palmdale Planning Department files, DKS Associates and County of Los Angeles Regional Planning Department). Also refer to Exhibit 5.9-1, CUMULATIVE PROJECT LOCATIONS. Updated land use forecasts are provided in Table 5.4-1, CUMULATIVE PROJECT LIST. Although there is a slight reduction in total dwelling units from the 1990 DKS study, this EIR will utilize the higher numbers as a more conservative estimate.

The following is a discussion of cumulative impacts. Quantification of cumulative impacts is based on build-out Draft General Plan forecasts as analyzed in the DKS Southwest Planning Area traffic report. In addition, discussions of regional impacts are provided in the County of Los Angeles General Plan and SCAG's Impact Assessment: Draft Baseline Projections (March, 1987). The City of Palmdale General Plan EIR contains substantial cumulative impact data (available at the City Planning Department), particularly regarding the General Plan elements and City-wide traffic model projections.

Table 5.4-1

CUMULATIVE PROJECT LIST

| DEVELOPMENT AREA | EDU |
|---|----------------------------|
| 1. City Ranch North | 394 |
| 2. City Ranch South | 5,407 |
| 3. Santa Fe Hills | 1,000 |
| 4. Messer Ranch | 101 |
| 5. Tabah | 635 |
| 6. Ritter Ranch | 7,450 |
| 7. Hunter Ranch | 391 |
| 8. City Thrift | 447 |
| 9. Kinoshita/Valley Ranch/Walden/Sagebrush | 1,061 |
| 10. Regional Mall | <u>3,222.4</u> 20,108.4 |

Source: KWC Engineers, Inc., December 29, 1992.

Earth Resources

Cumulative effects resulting from the project (and development in the vicinity of the project area as a result of the project) include erosion and loss of open space and the alteration and/or elimination of natural surface water drainages. Short-term increases in erosion will occur due to grading activities occurring in the project area and in surrounding developments. Project implementation, in combination with other development, will also result in a cumulative loss of sand and gravel resources used in project construction, and onsite deposits made inaccessible by infrastructure improvement. These cumulative impacts will be mitigated on future developments on a project-by-project basis through provision of adequate erosion control, and by retaining resource conservation areas designated in the General Plan.

Air Resources

The proposed project will, in combination with other pending or approved projects, have a significant cumulative air quality impact on the already unhealthy regional air quality in the Antelope Valley due to increased vehicle travel and fossil fuel consumption. Table 5.4-2, CUMULATIVE AIR EMISSIONS, indicates air emissions from cumulative development shown in Table 4.9-5, FORECAST BUILDOUT LAND USES. Secondary sources of air emissions which will result from the proposed projects will also have a significant impact on regional air quality as they are generally small on an individual project basis but are cumulatively significant. These sources include temporary emissions during construction and energy consumption associated with development accommodated by the project. Vehicle emission impacts can be mitigated individually through requiring each future project to include trip reduction design features (bus turnouts, pedestrian/bicycle facilities and balance of land uses). South Coast Air Quality Management District Regulation XV requires employers of more than 100 persons to implement trip reduction plans including measures such as carpools, vanpools, bus transportation and contributions to programs such as the "commuter computer". Future stationary sources within the project vicinity (industrial and manufacturing) may result in local cumulative emission impacts, however, cumulative air quality impacts are anticipated to be substantially mitigated by complying with South Coast Air Quality Management District "Rules and Regulations" and by following Draft City General Plan land use designations and adopted policies. As noted in Section 5.3, the growth facilitated by the project would exceed cumulative emission forecasts by SCAQMD, which is considered a significant impact.

| Table 5.4-2 | | | |
|---------------------------------|--------------------------------|------------------------------|----------------------------------|
| CUMULATIVE AIR EMISSIONS | | | |
| (Year 2010) | | | |
| Average Annual Emissions | | | |
| (pounds/day) | | | |
| Pollutant | Cumulative Projects | SEDAB (1,000 lbs) | % SEDAB Emissions |
| Carbon Monoxide | 21,902 | 1,930 | 1.14 |
| Reactive Organic Compounds | 944 | 366 | 0.26 |
| Nitrogen Dioxides | 5,372 | 625 | 0.86 |
| PM10 (Exhaust and Tire Wear) | 1,198 | 1,006 | 0.12 |
| Sulphur Dioxides | 582 | 120 | 0.49 |

Based on Year 2009 vehicle emissions and speeds for Los Angeles County in 2010 (based on Table 9-5-G of the Draft Final SCAQMD Air Quality Handbook, February, 1993) as well as the Palmdale General Plan Circulation Element (1993), Table C-3. Refer to Appendix 12.3, AIR QUALITY DATA, for fuel assumptions.

Water Resources

Future development within the project vicinity and the Leona Valley will increase impervious surfaces, thereby reducing groundwater recharge and increasing the potential for flooding in the area. Cumulative development in the project area will result in alterations to drainage patterns and flow rates in the project vicinity. Impacts are mitigated on a case-by-case basis, including implementation of the City of Palmdale Drainage Management Plan and the City of Palmdale Drainage Master Plan. The Amargosa Creek Improvement Project is proposed to improve the Amargosa Creek which flows easterly along Elizabeth Lake Road, for flood control purposes. The City's Master Drainage Plan includes these improvements to Amargosa Creek. Implementation of these improvements will assist in alleviating cumulative impacts of development in the project area on drainage.

Cumulative development in the project area will also increase the quantities of urban pollutants that enter local drainages. These impacts can be substantially reduced through proper landscaping design and maintenance methods, provision of detention/settling basins and periodic street sweeping.

Biological Resources

Implementation of the proposed project (and the future development facilitated by the project) will result in incremental decreases in the quantity and range of regional biological resources. The most significant habitat losses would occur to wetlands, Joshua/Juniper Woodland and loss of habitat necessary for sensitive species, including annual grassland and sage scrub. These impacts could be mitigated on a project-by-project basis by complying with riparian mitigation requirements of state and federal agencies, complying with City ordinances and land use designations protecting resources, funding habitat conservation programs (if established by the City or County) and the implementation, restoration and enhancement of the existing rare and endangered plant communities. Although this would mitigate the impacts to biological resources, the cumulative loss of natural resources is considered an unavoidable significant effect. This is particularly true for general degradation of the trans-montane desert mountain environment along Amargosa Creek, which is of regional significance.

Noise

The noise impact analysis for the proposed project indicates that a cumulative significant noise impact will affect existing residents along Elizabeth Lake Road. In addition, increased

traffic will alter the rural character of the presently perceived noise environment to a noise environment more typical of an urban area. Additional truck and vehicle traffic may cause noise levels to exceed acceptable standards for residential units near the project site. Table 4.5-1, 65 CNEL PROJECTIONS, indicates that noise levels will substantially increase on Elizabeth Lake Road with the 65 CNEL extending from 50 feet to 150 feet from the edge of right-of-way. Implementation of the mitigation measures listed in Section 4.5, NOISE, will substantially reduce cumulative noise impacts. Cumulative noise impacts are typically mitigated individually by each project providing adequate onsite attenuation measures and noise walls for new residential developments adjacent to arterial roadways. Cumulative noise levels will significantly impact older existing residences that do not have adequate noise attenuation, which could be mitigated by establishing a City-wide noise mitigation program for existing residences.

Aesthetics/Light and Glare

Short-term cumulative aesthetic impacts in the project area include dust generation and the presence of construction vehicles and equipment. These impacts are anticipated to be reduced to less than significant levels as projects reach completion and proper mitigation measures are implemented.

Improvements as a result of the proposed project and development within the surrounding areas will ultimately result in the increased urbanization of the vicinity and loss of open space in the area. As a result, views of the area will be more characteristic of an urban rather than rural area as residential units, streets/roads, and infrastructure lighting will replace present views of open space. These impacts can be substantially mitigated, but not eliminated, individually on a project-by-project basis with implementation of proper mitigation measures such as those identified in Section 4.6, AESTHETICS/LIGHT AND GLARE.

Significant light and glare impacts to the communities of Palmdale and Leona Valley are anticipated to result as a direct consequence of cars, lights, windows and other types of reflective material associated with development which is allowed by the project. These impacts can be somewhat reduced on a project-by-project basis through the implementation of mitigation measures such as revegetation following grading, retaining open space, and utilizing sensitive grading and architectural design techniques. However, urbanization of the southwest Palmdale area (facilitated by the project) is considered an unavoidable significant aesthetic impact.

Land Use

The proposed project combined with other approved or proposed development will serve to encourage development of presently undeveloped rural land, which will result in a cumulative impact to the overall character of the area. The planned infrastructure is a precursor to future development of "urban" projects. Construction of these improvements will facilitate conversion of rural land uses to urban type land uses. This increased urbanized environment will result in unavoidable cumulative impacts such as loss of open space, increased human activity and increased traffic and noise. As cumulative land use impacts are difficult to individually mitigate, mitigation is most effective through regional programs establishing land use and density, open space and park areas (such as the General Plan process).

Risk of Upset

The project is not expected to significantly increase (through growth-inducement) hazardous materials use or generation of hazardous waste, as much of the affected area is residential. However, increased development in southwest Palmdale will result in a cumulative increase in persons and property exposed to seismic and flood hazards. Compliance with engineering design standards (to minimize damage to public facilities), compliance with local, state and federal regulations regarding hazardous materials as well as implementation of the proposed Palmdale Hazardous Waste Management Plan will reduce potential risks to less than significant levels.

Traffic and Circulation

The proposed project, by accommodating cumulative development, will allow for an incremental increase in local traffic volumes (volumes on Elizabeth Lake Road will increase from 3,000 and 7,000 ADT to between 15,000 and 60,000 ADT). The proposed widening of Elizabeth Lake Road will allow for a significant increase in the capacity of the roadway, thus accommodating planned growth within the project area. It should be noted that the project provides for critical road improvements to a regionally significant major arterial.

Cumulative traffic impacts will be mitigated by future individual projects contributing fair shares toward constructing ultimate road configurations adjacent to their properties as provided in the City's Circulation Element. Projects may also be required to provide additional improvements such as the dedication of right-of-way, addition of arterial connections, and the addition of lanes. Improvements for non-adjacent roads and/or traffic

facilities, such as traffic lights, would require contributions through Assessment Districts or traffic impact fee assessments.

Cultural Resources

Cumulative development may result in increased impacts to cultural and scientific resources if not properly mitigated. These potential impacts created by future development can be substantially mitigated on a project-by-project basis through requiring archaeological and paleontological surveys in instances where potential for cultural or scientific resources exists, and by requiring field monitoring during grading activities. However, these may be a significant cumulative loss of cultural resources available for future study "in situ."

Public Services and Utilities

Cumulative impacts resulting from additional planned development in the region (facilitated by the project) may result in increased demands upon existing public services and utilities. However, the proposed utilities within and along Elizabeth Lake Road are being installed to accommodate future development west of 20th Street West. Assessment fees and taxes required of developers of future projects and occupants are expected to ultimately reduce these impacts to less than significant levels by allowing the construction of more service and utility lines, although short-term significant effects may occur during project construction.

Utilities such as electricity, natural gas and communication systems will experience increased demand due to the increase in population of approximately 59,574 people (based on 2.729 people per household and 22,200 EDU); however, the Amargosa Creek Improvement Project is planned to accommodate these additional demands. Potential cumulative impacts to public services such as schools, libraries, police, fire and emergency services as a result of future development within the project area will be reduced through funding mechanisms (state/federal funds, Community Facility Districts, developer fees, homeowner fees, and sales tax revenues) to provide the additional facilities necessary to absorb the increased demand. Short-term impacts such as crowding within schools and increased response time for emergency services may occur until new facilities are available. As shown in Table 5.4-3, **CUMULATIVE PUBLIC SERVICES AND UTILITIES IMPACTS**, an increase of approximately 19,650 students will be seen from future development in the southwest Palmdale area. Although a large portion of these students could be accommodated by schools proposed within the Ritter Ranch and City Ranch developments, the increase represents a significant impact upon the school system. Significant cumulative impacts may result in the areas of water supply and solid waste disposal, due to associated regional issues

and limited resources which are required to serve future development within the area (water and landfills, respectively). Table 5.4-3, indicates the estimated public services and utilities that will be required from the projected land uses as shown on Table 4.9-5, FORECAST BUILDOUT LAND USES.

5.4.1 Regional Flood Control Improvements

In addition to Table 5.4-1, CUMULATIVE PROJECT LIST, future regional drainage improvements within the Antelope Valley to control peak water flooding in developed areas are expected to contribute to cumulative impacts associated with the entire drainage system. The Amargosa Creek Improvement Project is not directly related to any other project in the city. However, this and other projects in the vicinity of the proposed project will have cumulative impacts upon the environment. The City of Palmdale has developed a Drainage Management Plan to coordinate drainage flow in the city and control peak flows. This plan incorporates several improvement projects to existing drainage facilities and water courses. The Amargosa Creek Improvement Project is one element of the overall improvements. Each improvement project is independent, but would collectively result in improved drainage and reduction of flood danger throughout the City of Palmdale and the surrounding region.

Possible future improvements may occur along Amargosa Creek between the Antelope Valley Freeway and Avenue M. Also, the City of Lancaster is planning for improvements along Amargosa Creek. In addition to Amargosa Creek, other drainages within the Antelope Valley will also be improved to control runoff and reduce the flood danger. Such drainages include Little Rock Wash and Anaverde Creek. The net cumulative effects of regional drainage improvements are listed below:

- Loss of desert wash habitat, and associated sensitive species;
- Loss of Joshua Trees and Juniper Woodlands;
- Cumulative improvements may increase the amount of water to reach Rosamond Dry Lake, and the increased velocity may wash soil from Edwards Air Force Base runways. Increased upstream channelization may also reduce sediment transport to the air base;
- Future improvements may require acquisition of Right-of-Way; and
- Projects will contribute to other incremental short-term cumulative impacts to traffic, noise, and air quality resulting from construction activities.

Table 5.4-3

CUMULATIVE PUBLIC SERVICES AND UTILITIES IMPACTS

| Description of Service/Utility | Generation Factor | Estimated Generation, Consumption or Required Service |
|--------------------------------|---|---|
| Natural Gas | Single Family Residence: 6,658 ft ³ (1)/mo ⁽²⁾ /du ⁽³⁾ | 118,692,000 ft ³ /mo |
| | Multi-Family Residence: 4,025 ft ³ /mo/du | 16,112,000 ft ³ /mo |
| | Retail: 2.9 ft ³ /mo/sf ⁽⁴⁾ | 2,675,000 ft ³ /mo |
| Electricity | Residential: 6,081 kWh ⁽⁵⁾ /du/yr | 132,748,000 kWh/yr |
| | Retail: 11.8 kWh/sf/yr | 10,884,000 kWh/yr |
| Police | Residential: 0.89 deputy/1,000 population | 53 deputies |
| | Retail: 1 deputy/1,000 population | 60 deputies |
| Sewage | | 3.5 MGD |
| Water | 0.5 gal/min/person | 30,000 gal/min |
| Solid Waste | 3.25 lbs/day/person | 194,805 lbs./day |
| Library | 0.80 sf/person | 47,660 sf of new facilities |
| | 2.5 volumes/person | 148,935 volumes |
| | 0.5 staff/1,000 population | 30 staff |
| School Children | 0.45 students/du (k-6) | 9,824 elementary |
| | 0.15 students/du (7-8) | 3,275 middle |
| | 0.30 students/du (9-12) | 6,549 high 19,648 |

Source: Phone conversations with applicable public service or utility agency (based on 2.729 persons-/D.U. and forecast buildout land use in "Equivalent Dwelling Units", assumed to be 22,200 EDU).

(1) ft³ = cubic feet

(2) mo = month

(3) du = dwelling unit

(4) sf = square foot

(5) kWh = kilowatt hours

6.0 Alternatives to the Proposed Action

6.0 ALTERNATIVES TO THE PROPOSED ACTION

In accordance with CEQA Guidelines Section 15126 (d), the following section describes a range of reasonable alternatives which could feasibly attain the basic objectives of the project. This section will evaluate the comparative merits of each alternative relative to the proposed project. The following alternatives are analyzed below: The No Project Alternative; "Sterling Basin" Flood Control Alternative; Lazy T Ranch Area Design Alternative; Reduced Design Standards Alternative; Additional Design Alternatives and Realignment Alternative.

6.1 "NO PROJECT" ALTERNATIVE

If the "No Project" alternative was implemented, no physical changes would occur to the site. This alternative would avoid any environmental impacts associated with development of the Amargosa Creek Improvement Project improvements. No direct physical impacts would occur to air quality, geology, water, biology, traffic, cultural resources, noise, land uses, aesthetics, and public services and utilities. All environmentally sensitive areas impacted by the proposed project would be avoided. Substantial growth due to proposed projects dependent on Amargosa Creek improvements would be significantly restricted.

Approval of the "No Project" alternative would not implement the goals of the proposed project and would not be consistent with the City of Palmdale's General Plan Circulation Element. The "No Project" alternative would not solve current flood hazards that occur along Amargosa Creek. Properties within the floodplain of Amargosa Creek would continue to experience flooding during major storms. In addition, the Amargosa Creek channel, which is currently experiencing severe erosion, would not be improved, and the channel would continue to be incised. This alternative would not improve Elizabeth Lake Road as a regionally significant major arterial as stated in the City of Palmdale's General Plan Circulation Element. The "No Project" alternative also fails to alleviate significant local and regional downstream flood hazards; therefore, this alternative was rejected by the City.

6.2 "STERLING BASIN" FLOOD CONTROL ALTERNATIVE

The "Sterling Basin" Flood Control alternative would include the road and utility portion of the current project, but would utilize the "Sterling Basin" (northeast corner of Elizabeth Lake Road and 25th Street West) instead of the proposed upstream channelization and basin. This alternative could avoid proposed grading for upstream creek channelization, and

Basin "B" which in turn would substantially reduce biological and aesthetic impacts. However, Sterling Basin grading would require offsite disposal of over three million cubic yards of material at an unidentified site which could have significant geological and biological impacts. The local geologic profile within the basin would be altered with removal of soils. Due to the depth and unconsolidated nature of the soils, the basin may experience intense groundshaking. In addition, construction of the proposed detention basin would require the removal of approximately 113 acres of desert scrub and the desert wash. These losses would be regionally important though not significant because of the widespread occurrence of these communities. The loss of 31 acres of juniper/Joshua tree woodlands for this alternative would also be a significant impact. Also, conversion of the other plant communities on the site of the basin will result in loss of habitat for wildlife species. In addition, the wildlife value of habitats following construction of the basin adjacent to the site may decline because of increased disturbance, resulting in lower diversity of plant and animal life.

Additionally, the "Sterling Basin" alternative would have no change on growth-inducing impacts and would not solve the potential flood hazard occurring west of the Sterling Basin (west of 25th Street West). Thus, individual upstream projects would be expected to require some type of onsite detention in order to reduce the potential for flooding (between the project site and the Sterling Basin). If only the Sterling Basin was constructed, Basin "B", located on the Ritter Ranch property, would likely require grading with or without the project in order to reduce the potential flood hazard from tributary areas west of Godde Hill Road (including Ritter Ranch).

Therefore, the "Sterling Basin" Flood Control alternative would not completely avoid the need for upstream basins and would therefore not result in significant environmental benefit. Also, the Sterling Basin would require substantial costs for land acquisition and basin excavation (estimated at \$32 million, A.V. Engineering, 1/7/91) and would also result in significant grading and landform modifications; therefore, this alternative is not presently being considered by the City.

6.3 "LAZY T RANCH AREA DESIGN" ALTERNATIVE

The "Lazy T Ranch Area Design" alternative, a previously considered design for the project, involves directing Amargosa Creek to flow to the north side of Elizabeth Lake Road, away from Lazy T Ranch. By directing the flow to the north, Lazy T Ranch would be removed from any potential flood hazard. However, construction of the road and associated fill slopes would result in significant impacts on Lazy-T Ranch and direct impacts to the existing

natural channel (greater impacts than the proposed design). Several structures located on Lazy T Ranch would need to be removed to allow for construction of this design alternative. ~~However,~~ ~~†~~ The proposed project will allow the channel to remain in its natural course and flow on the south side of Elizabeth Lake Road. The proposed project will encroach into less of Lazy T Ranch, but the remaining portion will be subject to flooding (as is presently the case).

Based on a geotechnical investigation by Buena Engineers, significant impacts from scouring and erosion could occur to the natural hillside along the channel's north bank if the "Lazy T Ranch Area Design" alternative is implemented. Therefore, the "Lazy T Ranch Area Design" alternative is not considered the environmentally superior alternative due to significant land use (from flooding and land acquisition) and erosion impacts.

6.4 "REDUCED DESIGN STANDARDS" ALTERNATIVE

The "Reduced Design Standards" alternative entails limiting Elizabeth Lake Road widening to 60 feet. This design alternative would include 4 lanes, which would make up 46 feet of the total width, a 10 foot bike lane with sidewalk (located on one side of Elizabeth Lake Road only), and a four foot wide raised median. In addition, construction of this alternative would use maximum horizontal and vertical curves, thereby minimizing grading requirements, although this would also reduce the design speed (increased road curvature would reduce the maximum speed of safe vehicle travel).

Environmental impacts associated with the "Reduced Design Standards" alternative would result in a reduction in project impacts, including earth resources, water resources, biological resources, aesthetics, land use, and cultural resources. The "Reduced Design Standards" alternative would partially fulfill the objectives of the proposed project, although with reduced vehicle capacity and associated increased congestion (reduced traffic capacity would impact adjacent arterial roads that would "back up", and would impact alternate routes as motorist sought less congested routes, such as Avenue S and City Ranch Road). ~~Therefore,~~ ~~†~~ This alternative is considered to be environmentally superior to the proposed project. The analysis which follows provides a comparison of the impacts of this alternative with those of the proposed use.

Earth Resources

This alternative would have a reduced impact upon earth resources than what has been identified for the project. Grading for the roadway width would be substantially reduced,

by approximately 40 feet. In addition, this alternative would reduce the amount of fill required for construction (due to reduced vertical curves).

Air Resources

The "Reduced Design Standards" alternative is expected to decrease air quality in the surrounding area, compared to the project due to a reduction in the operating capacity of Elizabeth Lake Road. This alternative will increase congestion on Elizabeth Lake Road, thus increasing idling which in turn impacts air quality.

Water Resources

Water resource impacts would be slightly reduced from those associated with development of the proposed project, as the reduced road width design would require less modification to the existing Amargosa Creek channel. Also, the design alternative would result in a reduction in the amount of impervious area constructed as compared to the proposed design. As a result, impacts to the quality of storm runoff due to the introduction of urban pollutants would be slightly reduced under this alternative.

Biological Resources

Under the "Reduced Design Standards" alternative, impacts to biological resources are expected to be reduced due to a decrease in the area requiring grading. (Additional portions of the natural stream channel could be retained).

Noise

The "Reduced Design Standards" alternative would result in reduced noise impacts as compared to the project. This is due to anticipated reduced vehicle capacity, reduced design speed and increased buffer between travel lanes and adjacent uses.

Aesthetics/Light and Glare

The "Reduced Design Standards" alternative would result in reduced aesthetic impacts as compared to those of the project. The reduction in grading would retain larger areas of Amargosa Creek in its natural state. Reduced road width, lanes and use of rolled curbs/sidewalks would have less impact on the rural Leona Valley community.

Land Use

Under this alternative, land use impacts would be reduced from those of the proposed project. Reduced grading would retain larger areas of existing open space, and would require less right-of-way acquisition.

Risk of Upset

The "Reduced Design Standards" alternative would result in similar impacts concerning risk of upset, as facilities would still be subject to damage from natural and human events.

Traffic and Circulation

Traffic and circulation would be significantly impacted by this alternative due to the reduction in the number of lanes and design speed. The Level Of Service (LOS) would be reduced substantially because of the elimination of two lanes, reduced lane widths and minimum horizontal and vertical curves in the design which will reduce speeds and cause increased congestion. This would particularly impact the segment shown in the DKS traffic study to warrant six lanes by year 2010 (20th Street West to Bridge Road).

Cultural Resources

The "Reduced Design Standards" alternative will result in a reduction of impacts to existing cultural resources, due to a reduction in overall grading required.

Public Services and Utilities

The "Reduced Design Standards" alternative will result in similar impacts to public services and utilities, as no change to the project utility infrastructure is included.

This alternative would achieve the basic project objectives, although vehicle capacity and safety would be impaired by the reduced design standards (and therefore fails to meet City General Plan objectives for Elizabeth Lake Road as a major highway). Due to substantial reduction of most environmental impacts this is considered the environmentally superior alternative, and should be considered by the City during the project review process.

6.5 ADDITIONAL DESIGN ALTERNATIVES

Numerous design variations were considered by the applicant throughout the project design and review process. Additional design alternatives are presented in a 404 Permit Application package submitted to the U.S. Army Corps of Engineers (available for review at the City of Palmdale Planning Department). None of these design alternatives are anticipated to avoid or substantially reduce significant impacts identified for the project. These additional alternatives are summarized below:

1. **Reduced Basin B Grading** - This alternative entails a previous Basin B grading concept, which required minimal grading for Basin B. However, as this alternative only provides 1,500 acre-feet of storage volume, additional flood control channel improvements and detention volume would be required downstream. The "Basin F" would require significant grading estimated at 400,000 cubic yards to provide 400 acre-feet of storage volume, also resulting in wetlands loss. Although this basin reduces wetland loss in Basin B (only main channel areas would be lost), the higher quality wetlands (Willow, Cottonwood, Mulefat) in the main channel would still be lost, with most wetland avoidance occurring for the Mountain Meadow areas. This alternative does not provide the opportunity to utilize Basin B as a major wetlands mitigation/enhancement area, as provided by the project due to regrading the majority of Basin B (lowering the basin bottom closer to groundwater levels, and allowing construction of meandering low-flow channels). Basin B wetland loss due to the project's grading is considered substantially offset by the higher quality Basin B mitigation/enhancement benefits, improved hydrologic conditions, as well as reduction in significant downstream grading and wetlands loss that would be associated with the increased channelization and downstream detention associated with this alternative.
2. **Extension to Bouquet Canyon Road** - This alternative represents an earlier project design, involving the extension of proposed improvements westerly to Bouquet Canyon Road, which is, from an engineering design perspective, a more logical western terminus for the project. However, in order to reduce potential growth-inducing impacts and to minimize grading and land use impacts west of Godde Hill Road (in the developed portion of Leona Valley, particularly to Valley High Ranch), the project was redesigned to terminate all utility improvements at Godde Hill Road and to taper road improvements to 1,000 west of Godde Hill Road. This alternative provides adequate traffic circulation, as the project proposes to retain the existing two lanes between Godde Hill Road and Bouquet Canyon Road (Level of Service

F would result if this road segment is not widened to four lanes by year 2010, as recommended in the DKS traffic study, in order to achieve Level of Service C). This segment would require widening as part of future development west of Godde Hill Road. Widening as part of this project was rejected due to land use and growth-inducing impact concerns, although it results in an "unavoidable adverse impact" finding for traffic due to inadequate capacity provided by two lanes.

3. No Upstream Detention (Concrete Channel) - The concept of this alternative is to completely avoid Basin B grading and any detention upstream of 25th Street West. As a variation to the "Sterling Basin" Flood Control Alternative (which would require smaller upstream detention basins for individual developments), this alternative would require channelization, widening and realignment to the majority of Amargosa Creek channel west of 25th Street West (the existing natural channel and unstable hillsides could not withstand the 50-year flood without providing either upstream detention or creek channelization). Although this alternative could avoid Basin B grading impacts (unless a Basin was constructed in the same location as part of proposed Ritter Ranch development, to meet County design requirements of maintaining or reducing flood velocities leaving a property), significant downstream grading impacts would result due to increased channelization. As with the Reduced Basin B Grading Concept, this alternative also precludes use of Basin B as a major wetlands mitigation/enhancement area (which is achieved only by the regrading and improved hydrology proposed by the project).
4. Soft or Semi-soft Bottomed Channel - This alternative involves the use of a soft or semi-soft bottomed channel instead of a concrete channel for the portion of the project between 25th Street West and 10th Street West. The soft bottomed channel would be considerably wider than the proposed concrete channel, requiring approximately 160-feet of right-of-way, representing significant land acquisition. The sides of the channel are anticipated to be earthen embankments. This design would require additional grading due to the greater width of the channel, resulting in greater construction-related impacts on air quality, noise, and cultural resources. The velocity of water flowing in the channel would be much lower, which would allow water to infiltrate (filter) down through the permeable bottom. This beneficial effect would result in groundwater recharge, thereby maintaining the amount of water available to local vegetation and wildlife habitat. The width of the channel would require the removal of additional vegetation, including Joshua tree/Juniper woodland and desert scrub (although vegetation would be replaced onsite or offsite to mitigate this impact). The earthen embankments bordering the soft-bottomed channel would

have slopes less steep than the concrete channel sides, facilitating the movement of wildlife across the channel. This alternative would also have less of an aesthetic impact on the area by maintaining a setting similar to the existing natural desert wash. The net effect of this alternative would be greater land use impacts and grading and an overall reduction in groundwater, biological and aesthetic impacts, and is therefore considered an environmentally-superior alternative.

6.6 "REALIGNMENT" ALTERNATIVE

Implementation of a "Realignment" alternative was suggested by Leona Valley residents at the November 14, 1990 Scoping Meeting to shift road widening and infrastructure to within developments requiring it, in order to avoid widening Elizabeth Lake Road and impacting Amargosa Creek.

However, this alternative would not provide improvements to Elizabeth Lake Road which the City's General Plan Circulation Element describes as a "regionally significant major arterial" and would not provide critically needed flood control for the project area. Also, as development within this area is primarily served by Elizabeth Lake Road, it is a logical choice for installing major infrastructure lines to service it. Therefore, the "Realignment" alternative is not being considered by the City.

7.0 Inventory of Mitigation Measures

7.0 INVENTORY OF MITIGATION MEASURES

4.1 EARTH RESOURCES

Topography

- 4.1.1a In addition to the following mitigation measures, compliance with the recommendations from the following sections of the Buena Engineers, Inc. Geotechnical Report, dated ~~March 29~~ **May 3**, 1991, is required to the satisfaction of the City Engineer (~~this report is contained in Appendix B~~): General Site Preparation; Slope Stability; Remedial Excavations; Excavations; Utility Trenches; and Preliminary Paving Sections.
- 4.1.1b Modifications to the existing surface water flow patterns within the affected portions of Amargosa Creek and its tributaries resulting from construction activities within the project area shall be addressed and evaluated by the project design engineer and reviewed and approved by the City Engineer and other agencies having permit authority prior to issuance of grading permits.

Geology

- 4.1.2a If portions of the various Portal/Pelona schistose rocks are to be used for embankment fill, a City-approved geologist shall be present during rough grading in order to evaluate the expansion potential of "clay-rich" areas or zones within this material. Recommendations from a City-approved geologist shall be incorporated into final grading plans, to the satisfaction of the City Engineer.
- 4.1.2b In order to evaluate the nature and extent of the aerial photolineaments which traverse the central portion of this project area, exploratory trenches shall be excavated across these features prior to final grading. Recommendation from a City-approved geologist shall be incorporated into final grading plans, to the satisfaction of the City Engineer.
- 4.1.2c All grading and landform modification shall be carried out under guidelines set forth in Chapter 70 of the Uniform Building Code (as a minimum), state-

of-the-practice design/construction standards, and or guidelines established by other responsible regulatory agencies as appropriate.

- 4.1.2d Remedial grading shall be conducted along the proposed road alignment and flood control basin embankments to mitigate the effects of collapsible surficial soils. This may include ~~complete~~ soil removal, or other site improvement methods requiring evaluation during comprehensive geotechnical studies.
- 4.1.2e Additional laboratory testing of clayey soils, where encountered during subsequent geotechnical investigations, shall be performed and where appropriate, remediation shall be implemented to the satisfaction of the City Engineer ~~prior to the issuance of grading permits in conjunction with project construction.~~

Faulting and Seismicity

- 4.1.3a To mitigate large settlement or liquefaction potential beneath portions of the embankment underlain by loose soils, densification of soil materials in these areas shall be required during grading, as determined by the project's geologic and geotechnical consultants, to the satisfaction of the City Engineer.
- 4.1.3b The segment of the roadway from 40th Street West to Basin "E" shall include appropriate signage indicating rockfall hazards.

4.2 AIR RESOURCES

Short-term Construction

- 4.2.1 In order to reduce fugitive dust emissions and air pollutant emissions, the following measures shall be implemented during project grading and/or construction to the satisfaction of the City of Palmdale.
- The project shall comply with City, State, County, and UBC dust control regulations, so as to prevent the soil from being eroded by wind, creating dust, or blowing onto a public road or roads or other public or private property.
 - Adequate watering techniques shall be employed to partially mitigate the impact of construction-generated dust particulates (at least twice daily). Portions of the project site that are undergoing earth moving

operations shall be watered such that a crust will be formed on the ground surface and then watered again at the end of the day.

- SCAQMD Rule 403, as amended, shall be adhered to, ensuring the clean up on the construction-related dirt on approach routes to the site, and the application of water and/or chemical dust retardants that solidify loose soils shall be implemented for construction vehicle access, as directed by the City Engineer.
- Any vegetative ground cover to be utilized onsite shall be planted as soon as possible to reduce the amount of open space subject to wind erosion. Irrigation shall be installed as soon as possible to maintain the ground cover and minimize blowsand.
- Construction access roads shall be paved as soon as possible in order to reduce PM10 emissions.
- Speeds on unpaved roads shall be reduced to 15 miles per hour or less.
- Grading activity shall be suspended when **sustained** local winds exceed 25 miles per hour and during first and second stage smog alerts.
- All trucks hauling dirt, soil or other loose dirt material shall be covered and shall maintain a minimum of two feet of freeboard.
- Heavy construction equipment shall use low sulfur fuel (0.05% by weight).
- Construction activities shall be phased and scheduled to avoid high ozone days.
- Construction equipment shall be fitted with the most modern emission control devices and be kept in proper tune. Motors out of proper tune can result in emissions that vastly exceed recommended standards.

Project Operation

4.2.2 To limit emissions from project-related vehicle trips, the following measures shall be implemented to the satisfaction of the City of Palmdale Planning Department:

- The project shall implement applicable Tier I Control Measures contained in the Final 1991 AQMP, ~~as may be subsequently amended that are in effect prior to finalizing project design plans (that affect project design) and are in effect prior to construction (that affect construction-related emissions)~~, in order to reduce project-related motor vehicle emissions. General measures which shall be applied for the project include:
 - a. Encourage the use of alternative transportation modes by promoting public transit usage and providing secure bicycle facilities.
 - b. Provide mass transit accommodations as part of adjacent development, such as bus turnout lanes and bus shelters if determined necessary by the local transit authority. As final plans are developed, these features should be considered.

4.3 WATER RESOURCES

Short-term Construction

Refer to Mitigation Measure #4.3.3

Drainage/Flood Control

4.3.2 None Required. Construction of the proposed project will serve as mitigation for flood hazards related to the Lazy T Ranch and other properties in the watershed.

4.3.3a Natural slope banks and/or natural materials shall be utilized to the extent feasible in order to minimize channel modification. (It should be noted that upstream detention and reduced flood projections have allowed far greater use of natural channel features.)

- 4.3.3b Facilities shall be designed and constructed in accordance with the City of Palmdale Drainage Master Plan and LACFCD Hydrology Manual to the satisfaction of the City Engineer.
- 4.3.3c Flood control basin facilities shall incorporate adequate peak attenuation and storage features and safety provisions (fencing, signage), to the satisfaction of the City Engineer.
- 4.3.3d The City shall install stakes in Basin "B" to annually monitor deposition, and shall periodically inspect streambed areas downstream of flood control basins for excessive erosion. In the event of excessive deposition or erosion, the City Engineer shall implement appropriate available corrective measures in the interest of public safety, and with respect to limited maintenance activity permitted in the wetland mitigation portion of Basin "B", as stipulated in the project's U.S. ACOE 404 Permit.
- 4.3.3e The Water Quality Control Plan shall also include measures to minimize pollutant loads in Amargosa Creek, including:
- a. Periodic cleaning of paved areas (street sweeping) to remove sediments with absorbed pollutants shall be required to be implemented by the City.
 - b. Controlled use of pesticides and fertilizers within common areas shall be enforced through provisions in the Landscape Plan, including frequency and type of fertilizers/pesticides to be used, and application by qualified persons.

Hydraulic

Refer to Mitigation Measure Nos. 4.3.3d and 4.3.5.

Water Quality

- 4.3.5 The City shall prepare a Water Quality Control Plan prior to issuing grading permits. The plan shall indicate specific means of reducing urban pollutants and sedimentation including but not limited to the following:

- a. The project shall provide appropriate sediment traps in open channels and energy dissipators in stormwater conduits and storm drain outlets.
- b. Surplus or waste material from construction shall not be placed in drainage ways or within the 100-year floodplain of surface waters.
- c. All loose piles of soil, silt, clay, sand, debris, or other earthen materials shall be protected in a reasonable manner to eliminate any discharge to waters of the State.
- d. Dewatering shall be done in a manner so as to eliminate the discharge of earthen material from the site.
- e. All disturbed areas shall be stabilized by appropriate soil stabilization measures by October 15th of each year. Avoid grading during the October-March rainy period.
- f. All work performed between October 15th and May 1st of each year shall be conducted in such a manner that the project can be winterized within 48 hours.
- g. All nonconstruction areas shall be restricted by fencing, signage or other means to prevent unnecessary disturbance.
- h. During construction, temporary gravel or sandbag dikes shall be used as necessary to prevent discharge of earthen materials from the site during periods of precipitation or runoff.
- i. Stabilizing agents such as straw, wood chips and/or hydroseeding shall be used during the interim period after grading in order to strengthen slopes while ground cover takes hold.
- j. Impervious areas shall be constructed with infiltration trenches along the downhill edges to dispose of all drainage emanating from them.
- k. Revegetated areas shall be continually maintained in order to assure adequate growth and root development.

- l. Physical erosion control facilities shall be placed on a routine maintenance and inspection program to provide continued erosion control integrity.
- m. Where construction activities involve the crossing and/or alteration of a stream channel, such activities should be timed to occur during the period in which streamflow is expected to be lowest for the year, and only after obtaining a 404 Permit (Army Corps of Engineers) and a 1601/1603 Agreement (California Department of Fish and Game), as necessary.
- n. Routine cleaning of manholes and catch basins shall be performed to remove sediment and debris.

4.4 BIOLOGICAL RESOURCES

Riparian Vegetation

- 4.4.1a Prior to issuance of Grading Permits, the City of Palmdale shall comply with all Federal and State regulations governing the development of wetland habitats including the U.S. Army Corps of Engineers 404 Permit and the California Department of Fish and Game 1601 Agreement processes. Compliance shall include the drafting of an Onsite Wetland Replacement and Enhancement Program to the satisfaction of the U.S. ACOE and California DFG.
- 4.4.1b The Wetland Mitigation and Monitoring Plan shall, at the discretion of the U.S. ACOE and California DFG, include the following mitigation measures:
 - a. The creation of in-kind (or superior) replacement wetland habitat within the Flood Control Basin "B" area (and on other downstream areas if necessary).
 - b. Construction of gabions within portions of the unimproved natural channel to create small wetland areas.
 - c. Salvage and onsite transplantation of plant materials located within the impacted wetland areas. Special attention should be given to large

cottonwood trees throughout the drainage and mountain meadow sod in Flood Control Basin "B" (sod should be salvaged in blocks where possible, as native stock for wetland Mitigation Zone "A").

- d. Removal of tamarisk trees and implementation of at least one follow-up infestation removal for recent growth.
- e. Relocation of specimen trees along the roadway.
- f. The replanting of disturbed portions of the channel with additional native plant species which will benefit wildlife. Species considered should include desert elderberry (*Sambucus mexicana*), desert olive (*Forestiera neomexicana*), false indigo (*Amorpha fruticosa*), California rose (*Rosa californica*) and western blackberry (*Rubus ursinus*).
- g. The dedication of open space conservation easements covering the areas containing natural and replacement wetland habitat to a public agency to ensure the long-term maintenance of the wetland habitat. Although Flood Control Basin "B" has been designed to allow for mature wetland growth, easements granted to flood control districts are not adequate due to conflicting land use mandates (it is common practice to "clear" vegetation in public flood control facilities).

4.4.1c All graded portions of the project site including drainage basins, the Amargosa Creek channel, and grading associated with the Elizabeth Lake Road realignment shall be revegetated with native vegetation representative of the vegetation types disrupted by the grading operations. Cuttings, seeds, or plants grown from these shall be used to revegetate the site, where feasible, in order to preserve the local gene pool. Where terrain or soil may prohibit sufficient coverage of native species, vegetation as approved by the City Engineer may be used.

4.4.1d Revegetation efforts shall include the removal and stockpiling of topsoil from graded areas at the time of grading and later use of said topsoil during revegetation within Basin "B" and along revegetated channel and road slope areas (to avoid loss of valuable surface material).

Non-Riparian Vegetation

- 4.4.2a Mitigation for the cumulative loss of raptor foraging habitat is beyond the scope of this project and EIR.
- 4.4.2b The City shall post appropriate signs on the Equestrian Trail indicating that trail users should remain on the trail, to minimize disruption of adjacent vegetation.
- 4.4.2c The City shall minimize disruption within slope easement and natural channel areas. To the extent possible, slope maintenance roads shall not be provided where access is available from Elizabeth Lake Road or adjacent roadways.
- 4.4.3 A Joshua Tree Preservation and Transportation Plan shall be approved by the City of Palmdale Planning Department prior to grading permit issuance.

Impacts to Channelization

- 4.4.4 Upon implementation of the project, any suitable Joshua trees that are removed shall be transplanted either on- or offsite in accordance with the City's Native Desert Vegetation Ordinance and as determined in the Joshua Tree Preservation and Transplantation Plan.

4.5 NOISE

Short-term Construction

- 4.5.1 All construction and general maintenance activities, except in an emergency, shall be limited by the City of Palmdale Municipal Code Section 828.030 to the hours of 6:30 a.m. to 8 p.m. Monday through Saturday. The operation of any machine mechanism, device or contrivance during construction shall comply with noise limits in said municipal code section.

Noise Environment

- 4.5.2a Future residential areas along Elizabeth Lake Road will require noise attenuation barriers similar to those presently located adjacent to arterials throughout the City of Palmdale (these barriers will be constructed by

developers of future projects as a part of their development). Barriers may consist of berms, walls, increased setbacks, or any combination of techniques which sufficiently reduce noise levels. Any walls should be set back from all primary and secondary roadways and the area between the right-of-way and wall should be landscaped with shrubs and trees. These barriers will serve as buffers between noise sources and residences along these roadways, consequently reducing noise to less than significant levels. Should noise levels exceed interior or exterior standards in the future due to cumulative traffic levels, future developers of these residential areas may be required to provide additional noise reduction measures.

- 4.5.2b Following completion of final design plans, the City shall prepare a noise assessment for any existing residential unit anticipated to be exposed to 65 CNEL or greater exterior noise levels (within the limits of project road improvements), providing noise mitigation to achieve acceptable interior noise levels.

4.6 AESTHETICS/LIGHT AND GLARE

Short-term Construction

- 4.6.1 Following initial grading for the flood control basins and grading of the borrow areas within the project area, areas planned for future development shall receive particular attention for revegetation and/or other and erosion control measures (graded areas should not lie exposed following completion of the improvement project). This will reduce the amount of time that these graded and borrow areas lie exposed.

Project

- 4.6.2a The City shall prepare a detailed Landscape Plan which shall, at minimum, address landscaping of road medians and road slopes; use replacement and retention of native vegetation within existing natural channel areas and flood control basins; and special screening techniques for aesthetically sensitive uses (including the pumping station and non-domestic water storage reservoir). Landscaping shall be compatible with native vegetation and landscape plans for adjacent developments, to the extent practical.

- 4.6.2b Any lights used to illuminate the road or utilities shall be designed and located so that direct lighting is confined to the necessary area. In addition to directional lighting, lighting should not be of greater intensity (wattage) than otherwise necessary for public safety.
- 4.6.2c To the extent feasible, removal of existing native trees and vegetation shall be minimized during project construction and grading, particularly within existing natural channels (this can be accomplished by staking sensitive habitat at the limits of grading to avoid incidental disruption).
- 4.6.2d The project grading plan shall clearly indicate permit limits and areas to remain. Road slope and channel bank protection ("rip rap") shall be composed of natural materials where possible and with interspersed vegetation to maintain the existing aesthetic qualities.

4.7 LAND USE

Short-term Construction

- 4.7.1 Mitigation for short-term construction impacts are provided in Sections 4.2, AIR QUALITY, 4.5, NOISE, and 4.6, AESTHETICS/LIGHT AND GLARE.
- 4.7.2 Grading in Borrow Areas shall be subject to approval of a Grading Plan by the City Planning Department, and shall only occur within areas designated for development within the Ritter Ranch Specific Plan or in areas otherwise determined appropriate for Borrow Area grading by the Planning Department. Any Borrow Area grading in areas designated "Open Space" in the Ritter Ranch Specific Plan shall not be permitted.

Project

- 4.7.3 The City shall provide appropriate compensation to the affected landowners with respect to the following: 1) Right-of-Way Acquisition - City shall compensate property owner for all land on a per unit basis based on fair market value; 2) loss of use or structures shall be compensated for based on a fiscal impact assessment or in lieu compensation subject to agreement by

the City and landowner (such as relocation or replacement of affected structures, onsite improvements or equivalent amenities).

4.7.4 Improved access to all parcels will be provided, to the satisfaction of the City Engineer.

4.7.5 To the extent that public safety and road capacity would not be substantially affected, the City shall consider implementing the following design features for Elizabeth Lake Road, including:

- median landscaping that, when mature, will not exceed three (3) feet in height (to avoid viewshed impacts).
- consideration of native local vegetation for median and slope landscaping.
- minimum lighting while maintaining public safety.
- consideration for undergrounding of all utilities.

4.7.6 Refer to Mitigation Measure No. 4.7.5.

4.8 RISK OF UPSET

4.8.1a Pipelines shall be buried below the scour line within streambed limits.

4.8.1b Pipelines shall be encased in concrete within streambed limits.

4.8.1c Isolation valves for the pipelines shall be installed on each side of stream crossing or top and bottom of steep slopes.

4.8.1d The type of pipe and joint best suited for the construction situation shall be selected during design, to the satisfaction of the City Engineer.

4.8.1e Pipeline plans and specifications shall be inspected by a corrosion engineer.

4.8.1f Back-up (redundant) systems and monitoring devices (telemetry and alarm system) shall be installed for utilities (such as a standby energy source, standby pump(s), provisions for operational flexibility and operational design to minimize duration of system failure(s)).

- 4.8.1g Installation of water lines will adhere to health regulations regarding placement of water pipelines in proximity to wastewater conveyance pipelines.
- 4.8.1h Construction of the flood control basins will adhere to required design standards and monitoring requirements as established by the City Engineer and/or Division of Safety of Dams.
- 4.8.1i Utilities will be regularly inspected to assure that they are functioning properly.
- 4.8.1j An emergency spill response plan will be required prior to completion of final design plans, to include the following: provisions for spilled sewage retention, spill response measures, cleanup and disinfection measures, and training and funding for implementation of the spill plan.

4.9 TRAFFIC AND CIRCULATION

Access and road design standards are addressed in Section 4.7, LAND USE.

Short-term Construction

- 4.9.1 A Traffic Control and Detour Plan, for review and approval by the City Traffic Engineer, shall be prepared prior to issuance of grading permits to minimize construction-related traffic impacts. Access for adjacent residents shall be maintained at all times.

Buildout of Proposed General Plan

- 4.9.2 All project road improvements shall be provided in accordance with City design standards to the satisfaction of the City Engineer, prior to issuing grading permits.

Future Conditions at Area Buildout

- 4.9.3 Where warranted by the City Engineer, appropriate safety warnings shall be placed along Elizabeth Lake road (such as identifying pedestrian and equestrian crossings).

4.10 CULTURAL RESOURCES

Archaeology

4.10.1a Individual known sites that could be subjected to impact from work in the Project area were discussed in some detail in a preceding section. The management recommendations pertinent to the individual sites are summarized in Table 4.10-1, **ARCHAEOLOGICAL SITES**. Other general recommendations related to the project area are:

4.10.1b CA-LAn-767: A monitoring team should monitor all ground disturbing activity in the vicinity of CA-LAn-767. It is recommended that the monitoring team include an archaeologist and a Native American Observer. The archaeologist must be prepared to implement full crew recovery operations if discoveries warrant. The earlier component extends into the impact area. Soil removals shall be made in a manner to allow recovery of the archaeological data. An appropriate method for the removal of the soil in this part of the deposit is contained in Appendix C, and is recommended for the use at CA-LAn-767.

4.10.1c Three areas are more critical than the balance of the study area, given the known distribution of sites and isolates. Archaeological monitoring of ground disturbing activity shall be on a full time basis while work is in progress in these areas. The three critical areas are:

- a. Immediately north of archaeological site CA-LAn-949. An area about one kilometer in length centered on the site shall be carefully monitored.
- b. From a few hundred meters east of site CA-LAn-950 westward to a few hundred meters west of site CA-LAn-955.
- c. From the vicinity of site CA-LAn-1837 eastward to where the power line crosses Elizabeth Lake Road.

4.10.1d The project archaeologist, City representatives and appropriate members of the Native American Community should meet well in advance of the recommended test excavation to insure that all methodologies and strategies related to the site are understood by all parties. Early development of a

strategy for recovery, scientific study and reinterment prior to grading for CALAn-767 will allow the project to proceed without unnecessary delay.

- 4.10.2a The study area is quite sensitive from a cultural resources standpoint. Archaeological deposits may be discovered anywhere within the project area. All ground disturbing activity related to the project shall be periodically inspected by an archaeologist. The inspecting archaeologist must be prepared to document and recover any significant cultural material that may appear as rapidly as is consistent with standard archaeological field methodology. This requirement may cause some delays in grading activity, but close coordination between the archaeologist and the contractor will keep such delays to a minimum.
- 4.10.2b Grading monitoring shall be on a full time basis while work is underway in the Borrow Area or the Potential Borrow Areas. These areas are primarily alluvial and cultural resources may be concealed in these areas.
- 4.10.2c Any ground disturbing activity within the detention basins shall be monitored on a full time basis by an archaeologist. Again, the basins are alluvial areas, and cultural resources may well be concealed.
- 4.10.2d If destruction of any archaeological site becomes necessary due to unavoidable impacts, the site shall be salvaged using controlled methods to allow collection of the maximum amount of data. One method of controlled excavation involves the use of a small scraper to remove the cultural deposit in very thin lifts. Following each scraper pass the surface is inspected, and artifacts pin flagged, surveyed and recovered. Surface scrapes with the material passed through fine mesh are also made after each scraper pass. This provides some control for the smaller items of cultural material. Exposed features or dense artifact concentrations are excavated using standard archaeological methods. This procedure is repeated until the entire cultural deposit is removed. Experience has shown the above method to be most viable in recovering the maximum amount of data from sites that must be destroyed. However, it is proper to implement this option only if all means of preserving the site have been explored and rejected for valid engineering or design reasons.

- 4.10.2e The project archaeologist must coordinate with the project archaeologists of the Ritter Ranch and City Ranch projects and/or City staff to insure that the project causes no undue impact to sites on the Ritter and City Ranches.
- 4.10.2f The City of Palmdale shall consider developing and adopting policies and procedures for the control of illegal collecting activities. At a minimum, police patrols should be increased in areas of active excavations. Sites that are in especially vulnerable areas should be fenced during excavations and also subject to increased police patrols, both during the excavation and for an extended period of time following the excavation. It is also suggested that sensitive sites in the area be visited by City staff on a routine basis.

Paleontology

- 4.10.3a A qualified paleontologist shall be retained to prepare a monitoring plan and perform periodic inspections, as directed by the monitoring plan, of excavations and, if necessary, salvage exposed fossils. The frequency of inspections, as directed by the monitoring plan, will depend on the rate of excavation, the materials being excavated, and the abundance of fossils.
- 4.10.3b The paleontologist shall be allowed to divert or direct grading in the area of an exposed fossil to facilitate evaluation and, if necessary, salvage.
- 4.10.3c Provisions for preparation and curation shall be made before the fossils are donated to their final repository.
- 4.10.3d All fossils collected should be donated to a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County.
- 4.10.3e The material collected during the current project shall be curated at Antelope Valley College. The balance of the collections from the site other than the material in private hands is at Antelope Valley College. Curation of the collection from the current excavation at that facility will keep all site material together.

- 4.10.3f Material collected during the recommended grading observation shall be described in a written report and should be curated at Antelope Valley College.

4.11 PUBLIC SERVICE AND UTILITIES

WATER

None required - the following measures should be implemented by the City as part of future project review processes:

- 4.11.1a As required by state law, the following water conservation measures will be incorporated into future projects within this area (betterment):

- Low-flush toilets and urinals
- Low-flow showers and faucets
- Insulation of hot-water lines in water recirculating systems
- All fixtures must be California Energy Commission certified
- Public lavatory facilities must be equipped with self-closing valves.

- 4.11.1b The following water conservation measures should be implemented and constructed by developments served by the project facilities, where applicable and feasible (betterment):

Interior

- Supply line pressure: Water pressure greater than 50 pounds per square inch (psi) will be reduced to 50 psi or less by means of a pressure reducing valve.
- Drinking fountains: be equipped with self-closing valves.
- Laundry facilities: water-conserving models of washers be used.
- Ultra low-flush toilets: 1-1/2 gallons per flush toilets installed in all new construction.

Exterior

- Landscape with low water-consuming plants wherever feasible.

- Minimize use of lawn by limiting it to lawn-dependent uses, such as playing fields. When lawn is used, require warm season grasses.
- Group plants of similar water use to reduce overirrigation of low-water-using landscaping.
- Provide information to project residents and tenants regarding benefits of low-water using plants and sources of additional assistance.
- Use mulch extensively in all landscape areas. Mulch applied on top of soil will improve the water-holding capacity of the soil by reducing evaporation and soil compaction.
- Preserve and protect existing trees and shrubs. Established plants are often adapted to low-water-using conditions and their use saves water needed to establish replacement vegetation.
- Install efficient irrigation systems which minimize runoff and evaporation and maximize the water which will reach the plant roots. Drip irrigation, soil moisture sensors and automatic irrigation systems are a few methods to consider in increasing irrigation efficiency and may be feasible for the project.
- Use pervious paving material whenever feasible to reduce surface water runoff.

SEWER

- 4.11.2 In order to accommodate new development (facilitated by the project), Sanitation District No. 20 will implement its Connection Fee Program which will take the fees collected from all new users and finance expansions to the existing Sewerage System (including lateral connecting lines and treatment plant expansion).

No additional mitigation measures are necessary for trunk line construction, as this is included as part of the project.

ELECTRICITY

- 4.11.3 Overhead lines shall be placed underground in accordance with the City's undergrounding ordinance (betterment).

GAS

None required.

TELEPHONE

None required.

POLICE SERVICE

4.11.4 Adequate fencing and security lighting will be provided around all construction material and equipment storage areas.

4.11.5 Adequate emergency access and circulation throughout and around the Project shall be provided to the satisfaction of the Los Angeles County Sheriff's Department.

FIRE SERVICE

None required.

SCHOOLS

None required.

SOLID WASTE

4.11.6a. Any wood products resulting from project implementation shall be recycled by the project proponent. In addition, all other recyclable construction debris should be recycled to the greatest extent possible.

PARKS AND RECREATION

None required.

8.0 Inventory of Unavoidable Significant Impacts

8.0 INVENTORY OF UNAVOIDABLE SIGNIFICANT IMPACTS

4.1 EARTH RESOURCES

Natural surface water drainage will be altered and significant grading will be necessary with construction of the proposed roadway and basins. The roadway improvement will require significant fills along the length of the project, particularly in the western portion and through narrow sketches of the canyon. Road embankment construction is an unavoidable significant landform impact.

Due to the proximity of the project to the San Andreas Fault zone, a major earthquake occurring nearby on the fault can be expected to produce extreme ground shaking, fault/ground rupture and lurching within the vicinity of the project area which may result in significant damage to the proposed roadway and drainage improvements. The potential for rock falls and landslides is considered an unavoidable significant impact.

4.2 AIR RESOURCES

Implementation of the proposed project is anticipated to significantly increase regional air quality impacts due to additional vehicle trips accommodated by road widening. Significant local climate impacts may result from substantial additional growth accommodated by the project.

As the SEDAB is designated non-attainment for PM10 and significance thresholds are exceeded, the proposed project, in combination with other projects, would result in a significant unavoidable individual and cumulative air quality impact to PM10 levels in the Basin both during and following construction. Under cumulative conditions, the project and build-out traffic would result in an unavoidable significant impact to regional nitrogen oxide levels.

4.3 WATER RESOURCES

Implementation of the proposed project will significantly alter the existing drainage patterns on the project site. Significant flood hazards will remain for several properties currently subject to flood hazards, including Lazy T Ranch. Significant cumulative water quality

impacts would occur, although project design and mitigation measures will substantially reduce this impact.

4.4 BIOLOGICAL RESOURCES

Implementation of the proposed project will have significant short-term impacts upon the wetland habitat values of the Amargosa Creek drainage. It may be several years before mitigation for the loss of existing wetland can be considered successfully completed. During the interim period, the impact upon resident and migratory wildlife dependent upon these habitats will be significant. Once proposed wetland replacement and enhancement mitigation has been successfully completed, this impact will no longer be significant. The loss of raptor forage habitat is considered a cumulatively significant impact due to the regional nature of the problem. Loss of Joshua tree/Juniper woodland is significant, but can be mitigated to less than significant levels by providing for replacement and/or relocation in accordance with the City's Native Vegetation Ordinance.

4.5 NOISE

Project implementation will accommodate significant cumulative traffic and associated noise increases in the project vicinity. The home adjacent to the knoll, west of Basin "E", will experience exterior noise levels exceeding the 65 CNEL.

4.6 AESTHETICS/LIGHT AND GLARE

Implementation of the proposed Amargosa Creek Improvement Project will result in significant roadway elevation increases and associated viewshed impacts. Grading will result in the permanent loss of natural vegetation, including several riparian/wetland habitats, sage brush, and Joshua and juniper trees. The project will introduce significant new light sources into the rural area. These impacts will significantly alter the natural landscape and affect the aesthetic character of this rural area, even following implementation of available mitigation measures. Also, growth facilitated by the project will result in a significant cumulative impact on the aesthetic character of this area.

4.7 LAND USE

Temporary construction impacts due to the magnitude of grading operations may remain significant with implementation of available mitigation measures. Land use impacts to Lazy-T Ranch and the existing homes north of Elizabeth Lake Road between Planning Area 3

and Planning Area 2 are considered significant after implementation of proposed mitigation measures. The project will result in significant land use impacts to the Amargosa Creek area due to direct physical impacts, as well as significant secondary impacts from growth facilitated by the project.

4.8 RISK OF UPSET

Impacts associated with seismic risks will be reduced to the lowest extent possible through adherence to the most current design requirements and implementation of a monitoring program. However, in the event of a major earthquake in the immediate vicinity, or major flood, potential impacts associated with sewer line or flood control basin failure are considered significant.

4.9 TRAFFIC AND CIRCULATION

Implementation of the proposed project would accommodate a significant increase in daily traffic in the project vicinity; however, the nature of the project is to accommodate growth in the area by providing additional capacity on Elizabeth Lake Road and necessary flood control protection. Elizabeth Lake Road would operate at LOS E between Bridge Road and 25th Street West by the year 2010. Four lanes (an additional two) would be necessary along this roadway segment to achieve LOS C.

4.10 CULTURAL RESOURCES

Although the recommended mitigation measures will substantially reduce impacts to known significant cultural resource sites, significant impacts are considered unavoidable due to the concentration of significant sites in the project area and anticipated unintentional damage during grading and salvage operations.

4.11 PUBLIC SERVICES AND UTILITIES

No significant project impacts are anticipated, as the project provides regional circulation and utilities. However, significant cumulative and growth-inducing impacts would affect public services and utilities as discussed in Section 5.3, GROWTH INDUCING IMPACTS and Section 5.4, CUMULATIVE IMPACTS.

9.0 Effects Found not to be Significant

9.0 EFFECTS FOUND NOT BE TO SIGNIFICANT

This discussion is based on the Initial Study completed by the City of Palmdale on February 1, 1993 (see Appendix 12.1, INITIAL STUDY/NOTICE OF PREPARATION).

A. EARTH

- 1.a) *Are there any areas of potential differential settlement on the project site which could significantly impact development of the proposed project?* **No.**

The Geotechnical Report prepared for the project did not identify any areas of differential settlement or high shrink/swell potential.

- 1.b) *Is the site in an area of high shrink/swell (hydrocompaction) potential which could significantly impact development of the proposed project?* **No.**

The site is in an area of low shrink/swell potential according to Exhibit 14.6 of the Palmdale Community General Plan. Therefore, this does not constitute the potential for a significant impact on the environment (see Section 4.1 of the EIR).

- 1.c) *Is the site in an area of potential subsidence?* **No.**

The site is in an area of low risk of subsidence according to Exhibit 14.9 of the Palmdale Community Plan. Therefore, this does not constitute the potential for a significant impact on the environment (see Section 4.1 of the EIR).

- 2.a.ii) *Does the project include a school, emergency or public facility, day care center, nursing home, or high rise building?* **No.**

The project does not contain critical facilities as defined by the Alquist-Priolo Special Studies Zone Act of 1972.

- 4.a) *Would development of the project impede the extraction of significant mineral resource deposits?* **No.**

Although the stream course of Amargosa Creek contains sand and gravel resources, the extent of these resources for extraction purposes is minimal and they are not designated by the State Department of Mines and Geology as Significant Resource Areas. Therefore, this does not constitute the potential for a significant impact on the environment.

B. AIR

- 1.b) *Could the proposed project produce potentially toxic air emissions?* **No.**

The actual project improvements are not expected to generate significant air pollutants.

- 1.c) *Will the project potentially result in the creation of objectionable odors?* **No.**

The proposed project improvements do not have the capacity to result in the creation of objectionable odors.

- 1.d) *Could the project result in the alteration of air movement, moisture or temperature, or any change in climate either locally or regionally?* **No.**

The proposed project does not have the capacity to allow air movement, moisture or temperature or any change in climate either locally or regionally (this is further addressed in Sections 4.2 and 5.3 of the EIR).

C. WATER

- 2.a) *Could the project result in a significant increase in runoff of storm or nuisance water toward the aqueduct?* **No.**

The project improvements will pass over the California Aqueduct at the Leona Siphon, located west of 25th Street West. The siphon passes under the existing creek and roadway. The intensity of stormwater runoff which traverses the canyon, passing over the aqueduct will be reduced when the

proposed upstream detention basin is constructed. Therefore, the project will reduce the potential for impacts to the siphon from stormwater runoff. There are no aqueduct culverts or pools adjacent to the project alignment. Therefore, this does not represent the potential for a significant impact to the environment.

- 2.b) *Will the project be significantly affected by storm or nuisance water runoff flowing through aqueduct culverts or pools?*

See Response 2.a above.

- 2.c) *Is the project located above Lake Palmdale where urban runoff could significantly impact the lake? No.*

The project alignment is neither upstream from Lake Palmdale nor below Lake Palmdale or Littlerock dams.

- 2.d) *Is the project located in an inundation area below Lake Palmdale dam, or Littlerock Dam? No.*

See Response 2d above.

- 2.f) *Will the project result in a significant increase in peak runoff that could increase flood hazard offsite? No.*

Amargosa Creek flood zone appears on the FIRM maps as Zone AQ. The project involves the channelization and/or modification of approximately nine miles of the Amargosa Creek Channel. This channel will serve to transport storm water through Amargosa Creek and the City of Palmdale, thereby minimizing flood hazards along its length. These improvements have been, or will be, shown on the City's Master Plan of Drainage as regional flood control improvements. Flood hazard issues are addressed in the project EIR (Section 4.3).

- 2.g *Would development of the project impede the implementation of the City's Master Plan of Drainage or Drainage Master Plan?*

See Response 2f above.

- 2.h *Will any aspect of the project result in discharge of materials into surface waters, or in any alteration of surface water quality, including but not limited to, temperature, dissolved oxygen, or turbidity?*

The project proposes extensive modifications to the Amargosa Creek Channel, including filling portions of the streambed to widen Elizabeth Lake Road. Prior to construction, a Streambed Alteration Agreement will have to be obtained from the California Department of Fish and Game, and a 404 Permit will be required from the U.S. Army Corps of Engineers. These issues are addressed in the project EIR.

- 2.i *Will the project result in the significant alteration of the direction or rate of flow of groundwater? No.*

See Response 2h above.

- 2.j *Could the project result in a change in the quantity of groundwater, either through direct additions or withdrawals, or through interception of an aquifer by cuts of excavations? No.*

No aspect of the project has been identified which will significantly affect the quantity of groundwater. The upstream portions of the channel will not be covered with impervious materials, and will therefore, allow for the percolation of stormwater. In addition, detention basins proposed along the length of the project will provide opportunities for runoff to enter the groundwater table. Therefore, this does not represent the potential for a direct significant impact to groundwater quantities. However, indirect impacts, caused by induced growth, on the availability of water supplies are addressed in the project EIR (Sections 4.11 and 5.3).

- 2.k *Could the project result in a substantial reduction in the amount of water otherwise available for public water supplies?*

See Response 2j above.

D. PLANT LIFE

- 2) *Will the project result in the reduction of the numbers of any unique, rare, or endangered species of plants? No.*

Vegetation along Amargosa Creek between 25th Street West and Godde Hill Road can be characterized as riparian in many locations. In other areas, vegetation is typical of desert washes. Cottonwood trees and willows are situated in proximity to open grassy meadows, currently grazed by cattle. However, riparian vegetation along the creek area has been degraded by grazing cattle. Biological surveys have been conducted to determine the significance of the habitat provided by the riparian vegetation, and whether any sensitive, rare or endangered species are present in the proposed right-of-way. In addition, the surveys provide a description of wildlife corridors, habitat types and vegetative communities. The findings and recommendations from these surveys are presented in Section 4.4 of the EIR.

- 3) *Will the project result in the introduction of invasive, non-native species of plants into an area; or will the project create a barrier to the normal replenishment of existing native plant species? No.*

The proposed project does not have the capacity to introduce invasive, non-native species of plants; nor create a barrier to the replenishment of existing native plant species due to the nature of the project (see Section 4.4).

E. ANIMAL LIFE

- 2) *Will the project result in the reduction of the numbers of any unique, rare or endangered species of animals? No.*

The project is located within the Ritter Ranch SEA. Biological surveys have been performed along the project alignment, which specifically address those

species present onsite. The findings and recommendation made by project biologists concerning biological resources are included in Section 4.4.

The Department of Fish and Game will be consulted regarding the impacts to the natural channel of Amargosa Creek. The project is subject to the issuance of a Streambed Alteration Agreement prior to disturbing Amargosa Creek. This agency has been consulted regarding the scope of the EIR and the appropriateness of proposed mitigation to biological resources.

F. NOISE

- 2) *Is the proposed project within the Plant 42 over-flight area, or the 65 CNEL boundary? No.*

Based upon review of the City of Palmdale General Plan Overlay Map, the project is not within the Plant 42 over-flight area, or the 65 CNEL boundary.

H. LAND USE

- 1) *Will the project result in a substantial alteration of the present or planned land use of an area? No.*

The proposed project will serve to encourage development of presently undeveloped areas. This could constitute a significant growth-inducing impact on the environment which is analyzed in an EIR (Section 5.3).

- 2) *Are adjoining or planned uses greatly different from that of the proposed project so that a potentially substantial interface problem would be created? No.*

See Response 1 above.

I. NATURAL RESOURCES

1. *Will the project result in a significant increase in the rate of use of any natural resources? No.*

Construction of the project will require utilization of aggregate for concrete and asphalt. Aggregate resources sufficient for this project are available within the Antelope Valley. The amount of sand and gravel necessary for the project will not result in the substantial depletion of this resource. Therefore, this does not represent a significant impact to natural resources supplies.

2. *Will the project result in the substantial depletion of any non-renewable natural resources? No.*

See Response 1 above.

J. RISK OF UPSET

1. *Will the project result in a risk of an explosion or the release of hazardous substances (including, but not limited to, oil, pesticides, chemicals, or radiation) in the event of an accident or upset condition? No.*

The project alignment is largely within the Alquist-Priolo Zone identified for the San Andreas Rift Zone. The proposed improvements could be subject to failure in the event of a major seismic incident. The failure of utilities could include broken gas, water and sewer lines, and disrupted electrical and telephone service. Also, such an event would likely render Elizabeth Lake Road impassable. These risks are evaluated and mitigated to the degree possible in the EIR (Section 4.11).

2. *Will the project result in possible interference with any emergency response plan or emergency evacuation plan? No.*

Short-term impacts, during the construction phase of the project, may occur. Increased congestion or construction delays may impede emergency vehicles traveling along Elizabeth Lake Road. This temporary impact is addressed, and appropriate mitigation applied, in the EIR (Section 4.8).

3. *Is the site included on any known State Hazardous Waste Site list?*

No known state hazardous waste sites are present along the project's alignment.

L. HOUSING

1. *Will the project create a significant demand for additional housing? No.*

The infrastructure project does not have the potential to create a significant demand of additional housing.

2. *Will the project result in displacement of people from existing housing on the site? No.*

A site inspection found residences along the project site. However, preliminary alignment studies have determined that these residences can be avoided. Therefore, there is no potential for a significant impact on the environment due to displacement of residents.

N. PUBLIC SERVICES

6. **Library Services**

Will the project result in a significant impact to library services due to increased population? No.

A branch library facility is proposed in the vicinity of the project alignment within the Ritter Ranch Specific Plan. Therefore, any increased demand for library services, which may occur as an indirect impact from construction of the proposed infrastructure and utilities, will not represent a significant impact to library services.

7. **Other Governmental Services**

Will the project have a significant impact on a government service or agency not listed above? No.

Based on the scope of the project, development of the infrastructure and utilities is not expected to have a significant impact on other government services or agencies. Therefore, this does not represent a significant impact to the environment.

O. **ENERGY**

1. *Will the project result in the use of substantial amounts of fuel or energy? No.*

Construction of the project will result in a direct demand for energy, specifically fuel for construction equipment. In addition, street lighting located along the roadway will use electrical energy. This use of energy is not, however, substantial in terms of impacts to energy supply.

2. *Will the project result in a substantial increase in demands upon existing sources of energy, or require the development of new sources of energy? No.*

See Response 1 above.

P. **UTILITIES**

Will the proposal result in a need for new systems, or substantial alterations to the following utilities:

5. *Solid waste disposal? No.*

Alterations to the present Solid Waste Disposal Service are not anticipated due to the nature of the proposed project.

Q. HUMAN HEALTH

1. *Will the project create any health hazard or potential health hazard (excluding mental health)?*

There are no aspects of the project which have been identified as potential hazards to human health.

2. *Will the project result in the exposure of people to potential health hazards?* **No.**

See Response 1 above.

10.0 Organizations and Persons Consulted

10.0 ORGANIZATIONS AND PERSONS CONSULTED

APPLICANT/LEAD AGENCY

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Mr. Peter Wenner

The Keith Companies
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Mr. David Currington

Psomas, Inc.
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Sverdrup Corporation
Mr. Craig Rothwell

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Planning Division
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Mr. Nicholas Agbobu

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Deputy Jim Murren

County of Los Angeles
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Mr. Charles Curry

Los Angeles County Fire Department
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Los Angeles, CA 90063
Forestry Division, Room 264
Ms. Lily Cusick

Pacific Bell
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Simi Valley, CA 93065
Mr. Kraig Kelly

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Ms. Betty Smith

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Mr. Harold Fones

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Lancaster, CA 93539
Mr. Rick Wheeler

Southern California Gas Company
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Tujunga, CA 91042
Mr. Santo Plescio

Westside Union School District
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Lancaster, CA 93536
Mr. Allen Sacks

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Mr. Fred Worthley

U.S. Army Corps of Engineers
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Ms. Liz Varnhagen

11.0 Bibliography

11.0 BIBLIOGRAPHY

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Amargosa Area Public Improvement Project Permit Application Package. U.S. Army Corps of Engineers, Los Angeles District, June 17, 1991.

Amargosa Creek Improvements Project Phase I Sanitary Sewer Line Focused EIR. Robert Bein, William Frost and Associates, April 22, 1991 (certified December 9, 1992).

Amargosa Creek - Phase II - EIR Densities. KWC Engineers, Inc., December 29, 1992

Archaeological Assessment Report for a 9.8-Acre Property Located in Palmdale, California. James Brock, April 1990.

Archival Update for Archaeological Resources Along a Segment of Amargosa Creek and Proposed Detention Basin. Leslie Mouriquand Blodgett, Consulting Archaeologist, October 1989.

Assessment District 90-1 Domestic Water Facility. KWC Engineers, Inc., June 26, 1992.

CEQA: The California Environmental Quality Act - Law and Guidelines. OPR, June, 1986 (as amended).

Circulation and Transportation Needs Study for Palmdale Southwest Planning Area, prepared by DKS Associates, July, 1990.

City Ranch North Mitigated Negative Declaration. City of Palmdale, 1989.

Concept Grading Plan. (30th Street West to 20th Street West). Psomas, November 12, 1990 (Preliminary, 1" = 40').

General Plan and EIR. City of Palmdale (adopted/certified January 25, 1993).

Final 1989 Air Quality Management Plan. South Coast Air Quality Management District, March, 1989.

Final CEQA Air Quality Handbook for the SCAQMD. South Coast Air Quality Management District, February, 1993.

Geotechnical Engineering Report City of Palmdale Assessment District 90-1 Elizabeth Lake Road 30th Street West to 90th Street West, Volume I. Buena Engineers, Inc. March 29, 1991.

Impact Assessment: Draft Baseline Projection. (SCAG, updated March, 1987).

Leona Valley, California Community Standards District Proposal. Leona Valley Improvement Association, Summer 1989.

National Oceanic and Atmospheric Administration Climatological Data Annual Summary.

Program Environmental Impact Report for the Amargosa Creek Improvement Project and Assessment District. Michael Brandman Associates, June 27, 1991.

Proposed Leona Valley Trails System. Antelope Valley Trails Council, September 15, 1990.

Redefinition of Assessment District 90-1 as it will affect the EIR and other aspects of the Project. KWC Engineers, Inc., November 6, 1992.

Review on June 2, 1992 of Revised Description of Work - Assessment District 90-1, Amargosa. KWC Engineers, Inc., June 8, 1992.

Ritter Ranch Specific Plan Final EIR. Robert Bein, William Frost and Associates, March 1992.

Ritter Ridge, California Quadrangle. U.S. Department of the Interior Geological Survey, 1958 (Photo Revised 1974).

Sleepy Valley California Quadrangle. U.S. Department of the Interior Geological Survey, 1958 (Photo Revised 1974).

Soils Survey - Antelope Valley Area, California. U.S. Department of Agriculture/Soil Conservation Services, 1970.

Summary of Air Quality in California's South Coast Air Basin. South Coast Air Quality Management District, 1982.

The Preservation of Amargosa Creek Headwaters. Antelope Valley Trails Council, November 15, 1990.

Wetland Habitat Mitigation and Monitoring Plan of the Elizabeth Lake Road Widening and Amargosa Creek Improvement Project (Phase II). Pacific Southwest Biological Services, April 1991.

The Amargosa Creek Improvement Project and Assessment District Draft EIR. Robert Bein, William Frost and Associates, 1991.

12.0 Comments and Responses

LIST OF COMMENTS RECEIVED

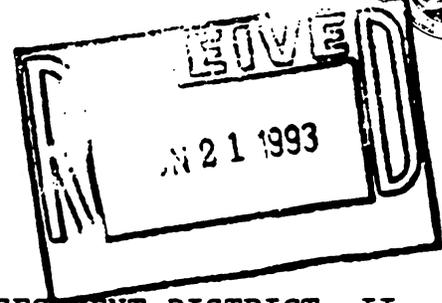
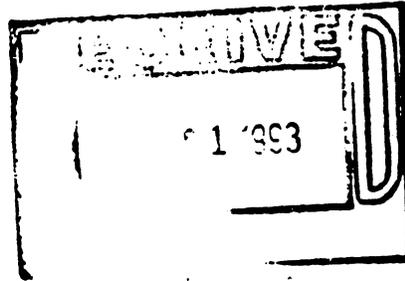
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| 3. Mr. David Currington, The Keith Companies May 21, 1993 | 10 |
| 4. Elizabeth E. Soriano, California Archaeological Inventory - UCLA May 21, 1993 | 16 |
| 5. Ms. Clare Bronowski, Christensen, White, Miller, Fink & Jacobs May 24, 1993 | 18 |
| 6. L. C. Bevington, KWC Engineers, Inc. May 26, 1993 | 23 |
| 7. Mr. Peter Wenner, Ritter Ranch May 26, 1993 | 35 |
| 8. Mr. David Castanon, Army Corp of Engineers June 4, 1993 | 39 |
| 9. Mr. Vernon H. Persson, Department of Water Resources, Division of Safety of Dams June 14, 1993 | 42 |
| 10. Mr. Wilford Melton, Caltrans District 7 June 14, 1993 | 98 |
| 11. Mr. John Ukkestad, A.V. United Water Purveyors June 15, 1993 | 100 |
| 12. Mr. Pete Petersen, Kaufman & Broad June 15, 1993 | 105 |
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| 15. | Mr. Bob Feldmeth, Ecological Research Services June 18, 1993 | 118 |
| 16. | Mr. Bruce Paxton, West Side Park June 19, 1993 | 121 |
| 17. | Mr. Mark Campbell, Antelope Valley Archaeological Society June 21, 1993 | 123 |
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| 19. | Mr. Robert Gillon, LTI Engineering June 21, 1993 | 130 |
| 20. | Mrs. Kris Rodriguez, Canyon Oaks Ranch June 21, 1993 | 139 |
| 21. | Mr. Robert Mallicoat, Leona Valley Town Council June 21, 1993 | 141 |

GOVERNOR'S OFFICE OF PLANNING AND RESEARCH

1400 TENTH STREET
SACRAMENTO, CA 95814

Jun 18, 1993

LAURA LILE
CITY OF PALMDALE
38306 9TH STREET EAST
PALMDALE, CA 93550Subject: AMARGOSA CREEK IMPROVEMENT PROGRAM/ASSESSMENT DISTRICT- II
SCH # 90010820

Dear LAURA LILE:

The State Clearinghouse has submitted the above named draft Environmental Impact Report (EIR) to selected state agencies for review. The review period is now closed and the comments from the responding agency(ies) is(are) enclosed. On the enclosed Notice of Completion form you will note that the Clearinghouse has checked the agencies that have commented. Please review the Notice of Completion to ensure that your comment package is complete. If the comment package is not in order, please notify the State Clearinghouse immediately. Remember to refer to the project's eight-digit State Clearinghouse number so that we may respond promptly.

Please note that Section 21104 of the California Public Resources Code required that:

"a responsible agency or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency."

Commenting agencies are also required by this section to support their comments with specific documentation. These comments are forwarded for your use in preparing your final EIR. Should you need more information or clarification, we recommend that you contact the commenting agency(ies).

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact Tom Loftus at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Christine Kinne
Acting Deputy Director, Permit Assistance

Enclosures

cc: Resources Agency

State of California

The Resources Agency

MEMORANDUM

6/18/93

To : Director
State Clearinghouse
Office of Planning and Research
1400 Tenth Street
Sacramento, CA; 95814

Date : 6/16/93

From : Office of the Secretary

Subject: Agency Comments

Attached are individual comments of departments, boards, or commissions within The Resources Agency requested by your State Clearinghouse Notice of Completion and Environmental Document Form on the subject item(s). Agencies responding to your request are listed below.

Attachment(s)

| <u>Resources Date:</u> | <u>SCH#</u> | <u>Department</u> | <u>Comment</u> |
|------------------------|-------------|---|---|
| 5 08 93 | 90010820 | CONSERVATION DWR/SD FISH&GAME NOP/SD STATE LANDS DWR/O&M | x no comment COMMENT NO RESPONSE NO RESPONSE x no comment |

Notice of Completion Supplementary Document M

Mail to: State Clearinghouse, 1400 Tomahawk Square, Sacramento, CA 95814 916/443-0813

LA NOTE: none
SCH # 90010820

Project Title: ANARCOOSA CREEK IMPROVEMENT PROGRAM

Lead Agency: City of Palmdale Contact Person: Laurie Lile
 Street Address: 38306 9th Street East Phone: (805) 267-5200
 City: Palmdale Zip: 91350 County: Los Angeles

Project Location
 County: Los Angeles City/Nearest Community: Palmdale
 Cross Street: _____ Zip Code: 91350 Total Acres: _____
 Assessor's Parcel No. _____ Section: _____ Twp. _____ Range _____ East _____
 Water 1/4 Mile: San Key # 14, 138 Waterways: California Aqueduct
 Airports: Plant 42 Railways: SPRR Schools: VARIOUS

Document Type
 CEQA: NCP Supplemental/Consistent NEPA: NCE Other: Joint Document
 Early Conc EIR (Prior SCH No.) EA Final Document
 Neg Decl Other _____ Draft EIS Other _____
 Draft EIS FONSI

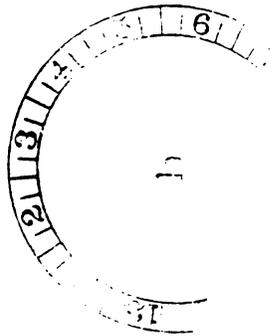
Local Action Type
 General Plan Update Specific Plan Rezone Amendment
 General Plan Amendment Master Plan Process Redevelopment
 General Plan Element Planned Use Development Use Permit Change Permit
 Community Plan Site Plan Land Division (Subdivision, Parcel Map, Tract Map, etc.) Other Capital Improvements

Development Type
 Residential: Units _____ Area _____ Water Pollution Type _____ MGD _____
 Office: Sq. Ft. _____ Area _____ Employees _____ Transportation Type _____
 Commercial: Sq. Ft. _____ Area _____ Employees _____ Mining: Minerals _____
 Industrial: Sq. Ft. _____ Area _____ Employees _____ Power: Type _____ Volts _____
 Educational _____ Waste Treatment Type _____
 Recreational _____ Remedial Waste Type _____
 Other: flood control infrastructure

Project Issues Discussed in Document
 Aesthetics/Visual Flood Plain/Flooding Schools/Universities Water Quality
 Agricultural Land Forest Land/Pres. Habitat Sewer Systems Water Supply/Conservation
 Air Quality Outcrops/Quarries Sewer Capacity Wetlands/Streams
 Archeological/Historical Minerals Soil Erosion/Compaction/Cracking Wildlife
 Coastal Zone Noise Solid Waste Groundwater
 Drainage/Alteration Population/Housing Balance Trench/Horizontal Landfill
 Landmarks/Isles Public Services/Facilities Traffic/Circulation Cumulative Effects
 Flood Recreation/Parks Vegetation Other _____

Present Land Use/Zoning/General Plan Use Present land use include a creek, roadway and flood zones. Zoning and General Plan land use designations vary along the length of the project.

Project Description This project would construct flood control facilities and infrastructure along Anarcoosa Creek/Elizabeth Lake Road between Godde Hill Road and 10th Street West.



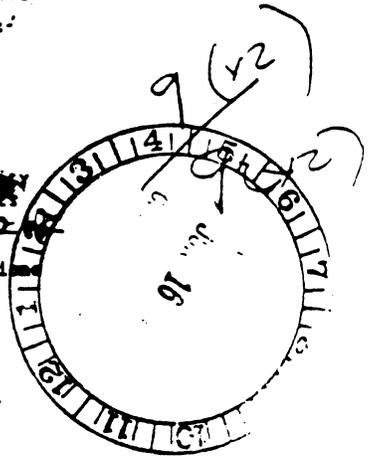
CLEARINGHOUSE CONTACT: TOM LOPTUS (916) 443-0813

STATE REVIEW BEGAN: 5.5.93
 DEPT. REV. BY AGENCY: 6.11
 AGENCY REV. TO SCH: 6.16
 SCH. COMPLIANCE: 6.18

ONT SNT
 Resources
 Conservation
 Fish & Game 5
 DVR
 Caltrans 7
 Trans Planning
 State Lands Comm

ONT SNT
 State/Consumer Svcs
 ARB
 CA Waste Mgmt Bd
 Reg. WQCB / 16
 State Lands Comm

PLEASE NOTE SCH NUMBER ON ALL COMMENTS
 PLEASE FORWARD LATE COMMENTS DIRECTLY TO THE LEAD AGENCY ONLY
 AGENCY AFD: _____ Resources: 5 / 8





COMMENT 1

COUNTY SANITATION DISTRICTS
OF LOS ANGELES

225 Workman Mill Road, Whittier, CA 90601-4998
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (310) 699-7411, FAX: (310) 695-6139

MAY 17 1993 CHARLES W. CARRY
Chief Engineer and District Manager

May 13, 1993

File No: 20-00.04-00

Ms. Laurie Lile
City of Palmdale
Planning Department
38306 Ninth Street East
Palmdale, CA 93550

Dear Ms. Lile:

Amargosa Creek Improvement Project

The County Sanitation Districts received a *Draft Environmental Impact Report* for the subject project on May 10, 1993. We offer the following comment regarding sewerage service:

All information concerning Districts' facilities and sewerage service contained in the document is currently complete and accurate.

If you have any questions, please contact the undersigned at (310) 699-7411, extension 2717.

Very truly yours,

Charles W. Carry

Marie L. Pagenkopp
Engineering Technician
Financial Planning &
Property Management Section

MLP:rc

Response No. 1

County Sanitation Districts of Los Angeles

Ms. Marie L. Pagenkopp

- 1a. No response is necessary.



Earth Systems Consultants
Southern California

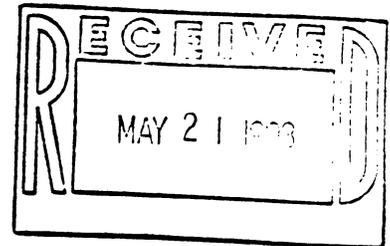
Buena Engineers

1024 West Avenue M-4
Palmdale, CA 93551
(805) 948-7538
FAX (805) 948-7963

May 20, 1993

B-3345-L03

Ms. Laurie Lile
City of Palmdale Planning Department
38306 9th Street East
Palmdale, California 93550



Dear Ms. Lile:

SUBJECT: EIR Review
Amargosa Creek Improvement Project
Palmdale, California

Per the request of Mr. Steven Penn of Ritter Park Associates on May 20, 1993, we are providing this written summary of our review of the draft Environmental Impact Report dated March 8, 1993. Comments are referenced by page number of the EIR as follows:

Exhibit 3.0-4: Typical Section A shows slope protection with rip-rap. A filter fabric should underlie the rip-rap.

a

Exhibits 4.1-1A and 4.1-1B: The geologic mapping is generalized and not necessarily in agreement with current ESC data. Locations of geologic contacts, landslides, and faults differ from those shown on our Planning Area maps, although the differences may not be significant.

b

Page 4.1-5: Under Landslide Deposits section (4th paragraph): Multiple landslides have been encountered, not just three.

c

Page 4.1-6: Under Portal/Pelona Schist discussion: Fourth line in paragraph has "Portal Schist..... south side of Elizabeth Lake Road....." This should read **Pelona Schist**.

d

Page 4.1-10: While much of the groundwater in the Leona Valley area is suitable for domestic and irrigation uses, groundwater in the vicinity of the San Andreas fault can be very "hard" or brackish.

e

Page 4.1-17: Paragraph 4.1.1a: RBF used our draft report dated March 29, 1991. The final report was actually dated May 3, 1991.

f

Page 4.1-17: Paragraph 4.1.2b: Evaluation of the described photolineaments may be necessary, however, trenching may not be warranted. Why trench a photolineament, when trenching of the main San Andreas fault was not required or considered necessary? This project is for a road alignment within a known active fault zone. Future fault rupture is expected. The described photolineaments are south of the road alignment and will probably not significantly affect the proposed road alignment.

g

Page 4.3-1: Under Existing Conditions; Amargosa Creek flows easterly through the project site, not northeasterly.

h

Page 4.3-3: 2nd paragraph; should state "...runoff from the Sierra Pelona into the alluvials soils....."

i

Page 4.3-3: 3rd paragraph; Schist bedrock is also relatively impermeable. The Nadeau Gravel and Older Alluvium can contain considerable clay and may not be as permeable as indicated. Clay deposits have been encountered in the Harold Formation which have low permeabilities.

j

Section VII: Mitigation No. 7. "Complete" soil removal may not be required. Suggest deletion of the word "complete".

k

Appendices Summary: Appendix B mentions Geosoils, Inc. Is this correct?

l

May 20, 1993

3

B-3345-L03

We appreciate this opportunity to be of service. If you require clarification of the information contained in this letter, or if we can be of additional service, please contact me.

Respectfully submitted,

**Earth Systems Consultants
Southern California**

A handwritten signature in black ink, appearing to read "Mark S. Spykerman". The signature is fluid and cursive, written over the printed name.

Mark S. Spykerman
Vice President

cc: 2-City of Palmdale
1-Ritter Park Associates

Response No. 2

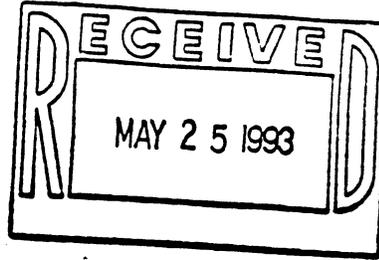
Earth Systems Consultants

Mr. Mark S. Spykerman

- 2a. Details on construction design will be based on final geotechnical reports prepared as part of final engineering design.
- 2b. The Draft EIR was based on available technical studies. As more detailed information becomes available during final design, it will be reflected in the project design plans.
- 2c. The Draft EIR text will be revised accordingly.
- 2d. The Draft EIR text will be revised accordingly.
- 2e. The Draft EIR text will be revised accordingly.
- 2f. The Draft EIR text will be revised accordingly.
- 2g. The commentator notes that the photolineaments will "probably not" significantly affect the road alignment. The subject mitigation measure will be modified to read "~~further evaluation or~~ "as determined appropriate by the City Engineer".
- 2h. The Draft EIR text will be revised accordingly.
- 2i. The Draft EIR text will be revised accordingly.
- 2j. The Draft EIR text will be revised accordingly.
- 2k. The Draft EIR text will be revised accordingly.
- 2l. The reference to Geosoils, Inc. is correct.



May 21, 1993



B595-006

Laurie Lyle
Planning Department
CITY OF PALMDALE
38300 Sierra Highway
Palmdale, CA 93550

RE: DRAFT EIR AD90-1

Dear Laurie,

I have completed a review of the captioned report. The significant concerns are addressed as follows:

1.) Paragraph 2, page 3.0-7 refers to reduced flows. This may be premature, since at this time no reduced flow has been established. If this is in anticipation of reduced flows, the reduction in pipe and culvert sizes mentioned in this same paragraph is not reflected in subsequent paragraphs. (See attached Culvert Table.) This same paragraph states that reduced flows eliminate the need for 2 detention basins. Actually, Basins C & D were eliminated prior to any flow reduction as reflected in the current Drainage Report.

a

2.) Exhibit 3.0-3A shows a significantly larger wetland mitigation area than that which is depicted on AD90-1 Basin B grading plans. Much of the area shown on this exhibit will be in conflict with golf course plans.

b

3.) Exhibit 3.0-3B does not show the 54" storm drain along E.L.R. (See Culvert Table for corrections regarding culvert sizes.)

c

4.) The second sentence of page 3.0-16 states that roads will include full improvements to City and County standards. This may be misleading since the proposed section is non-standard. Regarding lighting in particular, the design may be somewhat below normal county standard for urban development.

d

5.) The final paragraph, page 3.0-18 mentions that for safety reasons the inlet/outlet structures and Basin B spillway will be fenced. This has not been anticipated by The Keith Companies (TKC), and in the instance of the spillway structure, would be unsightly, would impede emergency overflow, and would interfere with the golf course. This element should be re-considered.

e

6.) Paragraph 2, page 3.0-19 mentions possible separation of golf course and wetlands by fencing. Is this desirable? Some areas may be integrated, something which has been accomplished successfully by golf course architects in many parts of the country.

f

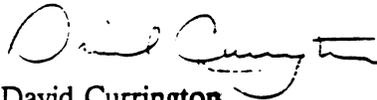
Laurie Lyle
May 21, 1993
Page Two.

- 7.) Further, in paragraph 2, it is stated that the Basin B outlet structure will be 3-54" pipes. As far as I know, this has never been considered by TKC. Current design is 2 - 6' x 6' boxes. The 1100 cfs discharge is also not correct with regard to the current design, and we don't know what the reduced flow will be. **g**
- 8.) The entire chapter titled "Channel Improvements (Basin B to Basin E)" is confusing, and does not in any way describe the current design. (See Culvert Table.) **h**
- 9.) In general, there are numerous minor discrepancies in culvert sizes. This is probably due to the fact that design changes during the ongoing design & review process did not get reflected in the EIR. Minor differences are probably not a concern. **i**
- 10.) Under the heading "Drainage Flow", page 3.0-28, it states that drainage flow easements would be required where the project would expose private property to the 50 year L.A. County Capital flood. This issue needs serious consideration. **j**
- 11.) Paragraph 2, page 4.3-8 again refers to flow reduction, and states that the flow at 25th Street West will be reduced to 3000 cfs. This has not been established. **k**

This represents the items which I feel are significant enough to warrant revision or at least further discussion. The main question is whether the EIR should be consistent with current design, or whether it should reflect reduced flows. As it stands, the document is a sort of "mixed bag" of both scenarios.

Sincerely,

THE KEITH COMPANIES
North Counties, Inc.



David Currington
Senior Project Manager

DC:cf



AD90-1 CULVERT TABLE

Sheet 1 of 2.

| <u>SHT</u> | <u>LOCATION</u> | <u>DESCRIPTION</u> |
|------------|-----------------|--|
| G5 | 423 + 78 | 24", 39", and 42" RCP SD (LINE Y) |
| G6 | 411 + 25 | 2 - 66" RCP SD (LINE X) |
| G7 | 400 + 40 | 2 - 10.5' x 6' RCB SD (BASIN B BOXES) |
| | 393 + 93 | 18" AND 24" RCP SD (LINE W) |
| G8 | 382 + 68 | 48" RCP SD (LINE V) |
| G9 | 381 + 00 | 18" RCP SD (LINE BB) |
| | 374 + 00 | 18", 24" AND 36" RCP SD (LINE U) |
| G10 | 367 + 50 | 18" RCP SD (LINE CC) |
| | 364 + 35 | 54" AND 60" RCP SD (LINE T - PARALLEL TO ELR ENDS AT 347 + 50) |
| | 360 + 80 | 18" RCP SD (LINE T-1 CONNECTS TO LINE T) |
| G11 | 350 + 90 | 18" RCP SD (LINE DD) |
| G12 | 341 + 35 | 11' x 6' RCB AND 18" AND 24" RCP SD (LINE S) |
| G13 | 333 + 20 | 72" RCP SD (LINE R) |
| G14 | 326 + 90 | 18" AND 48" RCP SD (LINE Q) |
| | 335 + 00 | 24" AND 30" RCP SD (LINE Q1) |
| G15 | 306 + 70 | 54" RCP SD (LINE O) |
| | 312 + 03 | 3 - 11.5' x 10' RCB SD (LINE FF PA3 ENTRANCE) |
| G16 | 304 + 17 | 18" RCP (PRIVATE DRIVEWAY CROSSING) |
| | 299 + 28 | 18" AND 48" RCP SD (LINE N) |
| G18 | 279 + 55 | 18" AND 42" RCP SD (LINE M) |
| G19 | 268 + 40 | 3 - 9.75' x 12' RCB SD (LINE L) |
| | | 1 - 6' x 10' RCB SD (LINE L1 CONNECTS TO LINE L) |
| | | 30" RCP SD (LINE EE CONNECTS TO LINE L) |
| G20 | 258 + 83 | 36" RCP SD (LINE K) |
| | 250 + 80 | 30" RCP SD (LINE J) |
| G21 | 246 + 40 | 24" RCP SD (LINE I) |
| G22 | 238 + 75 | 6 - 12' x 8' RCB SD (LINE Z - PA5 ENTRANCE) |
| G23 | 220 + 23 | 18" AND 24" RCP SD (LINE H) |
| | 218 + 75 | 4 - 11.5' x 12' RCB SD (LINE G) |
| G24 | 208 + 55 | 54" RCP SD (LINE F) |

ag.wp.clients.ritzer.ad901.drafts



THE KEITH COMPANIES

AD90-1 CULVERT TABLE

Sheet 2 of 2.

| <u>SHT</u> | <u>LOCATION</u> | <u>DESCRIPTION</u> |
|------------|-----------------|---------------------------------|
| G25 | 202 + 00 | 24" RCP SD (LINE E) |
| | 199 + 40 | 18" AND 24" RCP SD (LINE D) |
| | 195 + 90 | 27" RCP SD (LINE C) |
| G27 | 178 + 85 | 42" AND 2 - 36" RCP SD (LINE A) |

ag.wp.cienta.ritter.ad901.drafter

Response No. 3

The Keith Companies

Mr. David Currington

- 3a. The "reduced" flows is in reference to the previously circulated Draft EIR, and not to current engineering studies in progress that could further reduce design flows and modify project design plans.
- 3b. The cross-hatched area shown in Exhibit 3.0-3A is based on 1"=40' grading plans provided to RBF by The Keith Companies, dated April 24, 1991. The light blue area marked "Golf Course" was the only area shown for that land use type on the subject plans. Mitigation requirements for this project will be finalized as part of the ACOE 404 permit process, following design plan modifications in progress (see Response No. 14).
- 3c. Exhibit 3.0-3B does not show all facilities. The Draft EIR was based on culvert data provided in Appendix I, ASSESSMENT DISTRICT REPORTS (see Response no. 3i).
- 3d. The Draft EIR text will be revised to clarify that some design features are "below standard" in order to mitigate potential impacts and/or due to the site topography.
- 3e. This comment will be considered by decision-makers during project deliberations, relative to weighing design benefits vs. safety benefits of fencing potentially hazardous areas.
- 3f. The wetland mitigation area shown in Exhibit 3.0-3A is intended to be undisturbed, and therefore must have restricted access either through fencing or signage. This does not preclude use of integrated wetlands with the golf course area, which is a separate issue related to planning and mitigation for the Ritter Ranch project.
- 3g. This statement is based on Item I.C.1c) in the "Description of Work and Preliminary Cost Estimate" for the project, provided to RBF by KWC Engineers (Appendix I of the Draft EIR). Design flows were estimates provided to RBF by KWC.
- 3h. This discussion is based on the above-mentioned report from KWC.

- 3i. The discussion in the Draft EIR was based on the most current design plans made available at the time. It is acknowledged that the project is continuing through the design process, and that certain modifications are to be expected. Depending on the magnitude of the project revisions, further environmental analysis may be required (refer to Response No. 14).

- 3j. The comment is noted. The issue of drainage flow easements will be addressed by staff and the City Attorney during acquisition of rights-of-way or easements for the proposed improvements. Where drainage flow easements are required, acquisition of those easements will be negotiated with affected property owners, prior to construction to the proposed facilities.

- 3k. This data was provided to RBF by KWC, and is acknowledged to be an estimate, which is under review for possible further revisions as part of project redesign (see Response No. 14).

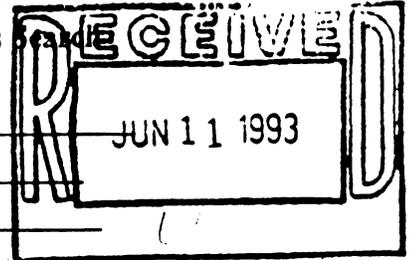
California
Archaeological
Inventory

Regional
Information
Center

UCLA Inst
Powder ML
Los Angeles, CA 90095-1500
(310) 825-1980 FAX: (310) 825-4700

COMMENT 4

Cultural Resources Records
Quick Check



Lead Agency: City of Palmdale
Permit/Project #: SCH #90010820 Date: MAY 21, 1993
Case Planner: LAURIE LILE Attached USGS Quad: _____
Brief Project Description: EIR for Amargosa Creek Improvement Project

*** UCLA ARCHAEOLOGICAL INFORMATION CENTER INITIAL RECORDS SEARCH**

- // The project area has been surveyed by a professional archaeologist and no cultural resources were found.
- The project area has been ^{partially} surveyed by a professional archaeologist and cultural resources were found. | a
- // The project area has not been surveyed by a professional archaeologist but cultural resources are likely to be in the area.
- // The project area has not been surveyed by a professional archaeologist and cultural resources are not likely to be in the area.

RECOMMENDATIONS

- A Phase I ** archaeological survey should be done by a professional archaeologist prior to approval of project plans. | b
- // A Phase II ** testing program for determination of significance.
- // A professional archaeologist should be retained to monitor any earth moving operations.
- // No archaeological work is needed prior to approval of the project plans but a halt-work condition should be in place in the event of cultural resources being discovered during construction.

COMMENTS

The entire project area has not been surveyed. Any AND ALL recorded archaeological sites not addressed by RMW Paleo Associates will require Phase II testing prior to approval of project plans. Any archaeological sites discovered

* This Quick Check does not cover cultural heritage sites, either listed or pending, such as historic buildings or points of interest.
** Phase I survey and Phase II testing includes a complete records search, field evaluation, and a final report with results and recommendations.

Date Completed: June 8, 1993 Signature: Elyabeth E. Soria

Letter attached //

(310) 825-1980

discovered during a survey of the project area will also require Phase II testing if it is to be ~~imp~~ within the project area. A Phase II will be

Response No. 4

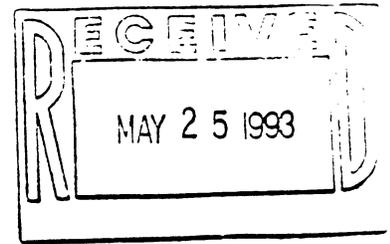
California Archaeological Inventory - UCLA

Elizabeth E. Soriano

- 4a. The entire project area has been surveyed, and is covered in several different environmental impact reports. This EIR has compiled that data, as reflected in Table 4.10-1. Detailed mitigation and monitoring recommendations are provided in the Draft EIR.

- 4b. Mitigation Measure 4.10.2a incorporates this concern.

LAW OFFICES
CHRISTENSEN, WHITE, MILLER, FINK & JACOBS
2121 AVENUE OF THE STARS
EIGHTEENTH FLOOR
LOS ANGELES, CALIFORNIA 90067-5010
(310) 553-3000
FAX (310) 556-2920



DIRECT DIAL NUMBER
(310) 282-6254

May 24, 1993

Laurie Lile
City of Palmdale
Planning Department
38306 9th Street East
Palmdale, California 93550

Re: Amargosa Creek Improvement Project Draft EIR
SCH No. 90010820

Dear Laurie:

The following comments regarding the Amargosa Creek Improvement Project Draft EIR dated May 3, 1993 are submitted on behalf of Ritter Park Associates.

1. Introduction

The statement that the EIR "should be used in conjunction with relevant socioeconomic, fiscal, engineering and community factors" (Page 2.0-3) is inappropriate and should be deleted. The remainder of the section properly describes the use of the EIR by the decisionmaker to evaluate environmental impacts.

a

2. Project Description

The description of background and history beginning on Page 3.0-2 should be clarified. The text at Page 3.0-7 is the clearest description of the previously circulated environmental documents and the project status. There are inconsistencies in this section in the description of the Phase II Draft EIR. It is not clear that this EIR was circulated in draft form only and never finalized or certified.

b

3. Project Characteristics

The Draft EIR states (at Page 3.0-8) that the proposed improvement project "is necessary . . . to provide infrastructure to serve existing, approved and proposed developments west of 20th

c

Street West (including Ritter Ranch)." We believe that this statement is in error and the statement should be clarified to explain that this improvement project is proposed as one method to serve the referenced developments. The improvement project design and financing methods are not the only methods available to make the infrastructure improvements necessary to serve the Ritter Ranch project, which can be designed to provide its own road, drainage, and utility improvements both on-and off-site.

C

4. Permits and Approvals

The SCAQMD Permit to Operate listed under the permit descriptions (Page 3.0-28) is not included in the list on Pages 3.0-26 to 27.

d

5. Earth Resources

At Page 4.1-12, the reference to the "Draft EIR (certified 1991)" is in error. Previously this document was referred to as a "Final Program EIR" on Page 2.0-4.

e

6. Air Resources

Mitigation Measure 4.2.1 (Page 4.2-21) addresses other impacts in addition to fugitive dust emissions. The measure should be reworded to state "In order to reduce fugitive dust and air pollutant emissions during construction . . ."

f

7. Water Resources

There is confusion in the water impacts discussion in this section (Pages 4.3-10 to 4.3-12) between the project impacts and the cumulative impacts. Cumulative impacts are generally discussed in a separate section of the document and should not be confused with the project impact text. (See, for example, Significant Impact 4.3.5 at Page 4.3-10.)

g

Mitigation Measure 4.3.3e (Page 4.3-13) should be deleted. This measure is directed at cumulative impacts from future projects, and is inappropriate for the project EIR. Future project-by-project mitigation should be discussed in the appropriate cumulative impact discussion section. References to the "Water Quality Control Plan" and the "Landscape Plan" are inappropriate and undefined.

8. Biological Resources

There appear to be inconsistencies between the descriptions here and in the Ritter Ranch EIR regarding wetland loss. The Ritter Ranch EIR requires 1-for-1 replacement. The text

h

Laurie Lile
May 24, 1993
Page 3

here states that 37 acres will replace 57 acres lost. Page 4.4-29, however, states that the Army Corps of Engineers typically requires higher than a 1-to-1 wetland replacement ratio. There is also confusion regarding whether 39 acres or 37 acres of wetland habitat will be created. | h

Mitigation Measure 4.4.2a (Page 4.4-33) should be deleted. This is not a mitigation measure. The discussion of cumulative loss should be moved to the text in the cumulative impacts section.

9. Noise

Mitigation Measure 4.5.2a (Page 4.5-7) should be deleted. This measure refers to future development projects and is not appropriate for the project EIR. Future project-by-project mitigation should be discussed in the appropriate cumulative impact section. | i

10. Public Services

In the Solid Waste discussion at Page 4.11-15, language regarding recycling of wood products and construction debris should be included as a mitigation measure rather than in the impact discussion. | j

Thank you for the opportunity to submit these comments and corrections.

Sincerely,



Clare Bronowski
Christensen, White, Miller,
Fink & Jacobs

CBB/rw

Response No. 5

Christensen, White, Miller, Fink & Jacobs

Ms. Clare Bronowski

- 5a. This statement is taken directly out of CEQA (see Guidelines Section 15131 (c)).
- 5b. The project history, particularly relevant to CEQA, is long and complex, and is not repeated in full each time a reference is made, to avoid redundancy.
- 5c. Absent other alternatives (none were presented by the commentor), other than those described in the Draft EIR, no further comment can be made. Finance mechanisms are separate from the EIR. In order to accommodate the planned development in the area and to provide for adequate flood protection, the proposed project is considered the most feasible method (refer to Response No. 14 relative to new design plan modifications to reflect reduced design flows).
- 5d. This will be reflected in the Final EIR.
- 5e. "Draft" will be changed to "Final Program" on page 4.1-12.
- 5f. The Draft EIR text will be revised accordingly.
- 5g. The referenced discussion does reflect cumulative impacts, which is appropriate for analysis given that the project represents provision of virtually all infrastructure necessary to develop the eastern Leona Valley area. The actual direct impacts of the project are significant with mitigation, and secondary impacts of development facilitated by the project will also have significant impacts. Individual projects will be responsible for mitigating their impacts, although Mitigation Measure No. 4.3.3e is considered appropriate, as the project will contain substantial landscape areas and will represent a potential for contributing to significant cumulative impacts from street washoff of vehicle pollutants.
- 5h. The Ritter Ranch EIR (Mitigation Measure No. 40) required a minimum of 1:1 wetland replacement. The mitigation concept includes less than 1:1, even though the ACOE typically does require higher than 1:1. This rationale is explained at length on pp. 4.4-28 to 4.4-29. Reference to 37 acres of wetland creation will be revised to 39 acres, which is the correct figure.

- 5i. This is a mitigation measure for cumulative impacts on future development. As it is standard practice for the City to require such noise mitigation, the measure will be deleted as requested.

- 5j. The Draft EIR text will be revised accordingly.



J. N. 647
 May 26, 1993

TO: Laurie Lile, Planning Department
FROM: L. C. Bevington *LC Bevington*
SUBJECT: Amargosa Creek Improvement Project - Draft Environmental Impact Report.

The following probably should not be considered as "comments" on the Draft E I R requiring an answer, as I found no substantive changes which should be made. There are a few words or typo's which could be changed to clarify the meaning. I have listed them by pages with a copy of the page (word encircled) attached.

| Page | Word to use/change |
|---------|--|
| 1.0-6 | sections |
| 3.0-7 | Amargosa |
| 3.0-21 | (2) height and width are reversed as stated |
| 3.0-25 | insert "maximum" |
| 3.0-26 | insert "first phase" |
| 3.0-28 | The South Coast Air Quality Management District approval process is defined on 3.0-28, however it is not listed on 3.0-26 or 27 as a responsible agency. |
| 3.0-29 | Insert "for access" or another defining wording to clarify the second sentence. |
| 4.6-9 | capitalize "Lake" |
| 4.11-13 | change "of" to "to" |
| 6.0-3 | Delete "however" in first paragraph and "therefore" in fourth paragraph as these two sentences don't track as written. |

a

Thank you for the opportunity to review this very important document.

647\EIRREV

1.2 ENVIRONMENTAL SUMMARY

The following section provides a summary of impacts and mitigation measures and a listing of unavoidable significant impacts. Please refer to the appropriate EIR section for additional detail (some mitigation measures have been summarized).

IMPACTS

4.1 EARTH RESOURCES

Topography

Construction activities will result in significant landform impacts. Roadway embankment construction will result in an unavoidable significant land form impact.

4.1.1a

In addition to the following mitigation measures, compliance with the recommendations from the following sections of the Buena Engineers, Inc. Geotechnical Report, dated March 29, 1991, is required to the satisfaction of the City Engineer (this report is contained in Appendix B): General Site Preparation; Slope Stability; Remedial Excavations; Excavations; Utility Trenches; and Preliminary Paving Sections.

Natural surface water drainage will be altered and significant grading will be necessary with construction of the proposed roadway and basins. The roadway improvement will require significant fills along the length of the project, particularly in the western portion and through narrow sketches of the canyon. Road embankment construction is an unavoidable significant landform impact.

1.0-6

4.1.1b

Modifications to the existing surface water flow patterns within the affected portions of Amargosa Creek and its tributaries resulting from construction activities within the project area shall be addressed and evaluated by the project design engineer and reviewed and approved by the City Engineer and other agencies having permit authority prior to issuance of grading permits.

Geology

Proposed improvements along Elizabeth Lake Road and Amargosa Creek will be impacted by the soils and bedrock along the project due to their highly variable characteristics. However, with implementation of recommended mitigation measures, impacts will be reduced to less than significant levels.

4.1.2a

If portions of the various Portal/Pelona schistose rocks are to be used for embankment fill, a City-approved geologist shall be present during rough grading in order to evaluate the expansion potential of "clay-rich" areas or zones within this

LEVEL OF SIGNIFICANCE AFTER MITIGATION

The Environmental Impact Report for the Amargosa Creek Improvement Project and Assessment District No. 90-1 addressed channelizing Amargosa Creek between Avenue M and the intersection of 25th Street West and Elizabeth Lake Road (the City has received a 404 Permit from the Army Corps of Engineers relative to mitigation for channel construction). The Focused EIR addressed construction of a sewer line between 10th Street West and Bridge Road, along the south bank of the Amargosa Creek channel to the Bridge Road/Elizabeth Lake Road intersection (focusing on growth-inducing impacts). A third EIR (which has not been certified) was circulated for public review for the "Amorgosa Creek Improvement Project (Phase II)", which involved improvements to Amargosa Creek and Elizabeth Lake Road west of 25th Street West to approximately 1,000 feet west of Godde Hill Road. Substantial public and agency comment letters were received on the previously circulated Draft EIR, and are available for review at the City of Palmdale Planning Department.

Current Project Review Process

The City of Palmdale originally prepared the three EIRs separately because they started at different times within the planning process and also to give maximum flexibility to the required work. However, several parties commented that the separate environmental process was confusing. In addition, downstream landowners questioned the use of extremely conservative (high) storm flow projections as a basis for design (higher flow projections dictated more extensive flood control measures). In response to these concerns and other factors, the City of Palmdale is now utilizing lower storm flow projections (based on the County of Los Angeles 50-year flood flows), and has consolidated all three previous projects into one project addressed in this EIR. The reduced storm flow figures have allowed for deletion of two detention basins, reduction in most pipe size diameters, and a reduced concrete channel width north of 25th Street West (in comparison to the previous projects). In addition, due to the lower design flows, the City has determined that construction of most flood control structures located north of the freeway can be deferred until development is proposed in the adjacent area. The net effect of the modified project is an overall reduction in environmental impacts as previously addressed in the three EIRs noted above.

The City of Palmdale recirculated a Notice of Preparation (NOP) for this project on February 19, 1993. The 30-day NOP public review period closed March 19, 1993. All NOP comments received are included in Appendix 12.1, INITIAL STUDY/NOP.

Channel Improvements (Basin "E" to "F" Basin)

From Basin "E", flows will transition from the box culverts into a modified stream channel (necessary due to excessive bends in this creek area), then into an outlet structure and a short segment of natural channel, then into a modified stream channel. In the vicinity of the proposed Santa Fe Hills access road, the Amargosa Creek flows will cross to the south side of Elizabeth Lake Road (through a 9.5' by 12' box culvert). From this point easterly to approximately 1,720 lineal feet east of the eastern Ritter Ranch access road (at the location where Amargosa Creek presently crosses Elizabeth Lake Road), Amargosa Creek will remain in essentially its existing location south of Elizabeth Lake Road, with several stream modifications where road fill encroaches into the channel. Flows will be directed under the proposed Ranch Center Drive via three 8' wide by 12' high box culverts. Creek flows will transition into the natural channel north of the road via two 9' by 12' box culverts and an outlet structure.

8' high by 12' wide

Flood Control Basin "F"

The natural channel will transition into the Basin "F", which begins approximately 1,350 lineal feet west of the realigned 25th Street West and extends easterly to immediately west of 25th Street West. The Basin will be a maximum of 1,500 feet long and 600 feet wide. Basin "F" will cover a total of 8.5 acres, with a maximum flood control capacity of 40 acre-feet and a maximum depth of 15 feet (only grading for the adjacent road banks will be necessary). To cross 25th Street West, two box culverts, each 6 feet wide by 11 feet high will be constructed, with an inlet transition from the detention basin and a rectangular channel outlet transition structure to the downstream trapezoidal channel.

6 feet high by
11 feet wide

City Ranch Temporary Flood Control Basins

Depending on phasing of this project versus the City Ranch project, the following temporary flood control basins may be constructed until the ultimate project improvements are completed.

- *Interim Basin "F"*

This basin would be located within the limits of the ultimate Basin "F". The interim basin would provide approximately 24 acre-feet of storage volume.

- b. **Community Facilities Districts (CFD's)** differ from assessment districts in that they can finance not only basic infrastructure improvements (water, sewer, storm drains, streets, gutters, curbs and sidewalks) but also major regional improvements such as fire stations, police stations, schools, libraries, cultural centers, and parks. In a CFD, a special tax called a Mello-Roos tax (as opposed to a special assessment) is used to pay for the improvements and services. Either an assessment district or a CFD can be used to finance services, but a CFD is able to finance a broader range including police, fire, ambulance, and paramedical services. The costs of maintaining parks, parkways, and open space may also be financed by special Mello-Roos taxes.

The City of Palmdale is currently considering each of the above methods to finance the Amargosa Creek improvements.

3.5 PROJECT OBJECTIVES

The primary objectives of the Amargosa Creek Improvement Project are as follows:

- 1) Provide design consistency with the downstream flood control improvements (specifically achieve a 50-year Los Angeles County Capitol storm flow of 6,200 maximum cfs at 20th Street West).
- 2) Establish an equitable distribution of public improvement costs.
- 3) Provide critical infrastructure improvements for areas west of 20th Street West, including Elizabeth Lake Road improvements and utilities, in accordance with City General Plan policies and applicable design standards.
- 4) Provide flood protection of Elizabeth Lake Road and adjacent land uses, in accordance with City General Plan policies and applicable design standards.

3.6 PROJECT PHASING

Project construction is tentatively planned to commence in early 1994. As downstream creek areas cannot adequately convey the 50-year flood, construction is planned to generally proceed west to east beginning at Godde Hill Road (portions east of 25th Street West may be constructed earlier). Road, drainage and utilities would generally be concurrently

constructed in a given segment. However, Elizabeth Lake Road may be constructed in phases, with initial construction providing for an improved two or four-lane highway (ultimate improvements would be constructed when warranted by traffic demand). Although this could reduce initial grading requirements, and would therefore delay some impacts, the net ultimate impact would be the same. The project is tentatively planned for completion by mid 1995.

first phase

3.7 AGREEMENTS, PERMITS AND APPROVALS

Several agreements, permits and approvals will be required as a part of the proposed project. Following distribution of the draft EIR, a 45-day public review period is provided for public comment, in accordance with CEQA. The Final EIR will include the Draft EIR (with revisions, if necessary) as well as responses to comments formally received during the 45-day review period. Following a determination that the Final EIR is adequate and certification of the Final EIR by the City Council, a Notice of Determination will be issued by the City should the project be approved (City Council actions regarding EIR "certification" and project approval will be held at appropriately noticed public hearing(s)). The following is a list of responsible agencies and the associated approvals and permits anticipated to be required for the proposed project.

| <u>Responsible Agency</u> | <u>Approval/Permit</u> |
|---|--|
| City of Palmdale City Council | * Final EIR Certification |
| | * Project Approval - Design/Grading Plans |
| California Dept. Water Resources -Division of Safety of Dams | * Flood Control Basin "B" Design Approval |
| | * Encroachment Permit (Leona Siphon) |
| | * Design Approval (Leona Siphon) |

NPDES Permit (National Pollutant Discharge Elimination System): This permit may be required for discharging water containing pollutants into national waters of the United States. It may apply to this project for any "de-watering" activity where extracted groundwater is discharged into surface water (as in high groundwater areas in Basin "B" where dewatering may be necessary during Ritter Ranch Road and Elizabeth Lake Road construction).

South Coast Air Quality Management District Permit to Operate: May be required for proposed facilities, such as sewage pump stations, which utilize small subsurface fuel storage tanks for emergency power sources (permit required where diesel fuel may be used as an emergency power source to backup typical electrically-driven water and sewer pumps).

State Department of Health Services Design Approval: May be required for pipelines, pump stations, and storage tanks.

Seismic Facility Relocation: Required for existing seismic monitor located at Station #384+40 (as shown on March 20, 1991 design plans) approximately 40 feet south of existing Elizabeth Lake Road centerline (in the southeast portion of Basin "B").

Stream Gage Relocation: Required for existing U.S.G.S. stream gage in Basin "F" vicinity.

The project also includes the following easements:

- *Drainage*

Required where drainage facilities (including culverts and flood control basins) would cross private property.

- *Drainage Flow*

Required where the project would expose private property to the 50-year Los Angeles County Capital flood.

- *Utility*

Required by various utility companies to permit periodic facility maintenance (as with the existing major power transmission lines and the Leona Siphon portion of the California Aqueduct).

- *Slope*

Required adjacent to road slopes to permit periodic maintenance. The EIR assumes that no grading will occur within this area (vehicle access will be provided by the adjacent roadway). *for access*

for road improvements will also be relatively moderate (total width of grading averages approximately 125 to 150 feet). Although this segment has the least grading, the change from existing conditions is considered a significant impact.

30th Street West (Extension) to 20th Street West

Basin "F" that is proposed for construction, west of 25th Street West (and the three City Ranch interim basins) will require relatively minimal grading (excavation of dirt), and will basically reflect the natural topography of the land. However, significant grading will be required for Amargosa Creek channel improvements immediately east and farther downstream of 25th Street West. The proposed above-ground utilities are not anticipated to result in significant aesthetic impacts due to their relatively small size and required mitigation measures (see Section 4.11, PUBLIC SERVICES AND UTILITIES).

The eastern portion of Elizabeth Lake Road between 30th Street West (extension) and 20th Street West will be widened to approximately 150 to 250 feet including Elizabeth Lake Road and the fill slope on both sides of the road, the sewer line bench, and the Amargosa Creek channel. Elizabeth Lake Road will be raised approximately 15 feet above the surrounding grade and will have a significant aesthetic impact on the views from surrounding areas. Also, views for motorists and from future residential developments may be impacted by the height of the road.

20th Street West to Antelope Valley Country Club

The channelization of Amargosa Creek will significantly alter the view of the creek. Channelization will convert the creekbed from a natural drainage course into a trapezoidal concrete channel approximately 15 feet in width with side slopes of 1.5:1 in most places (including access roads a total right-of-way width of approximately 75 feet in places). This is an unavoidable significant impact.

Noise Barriers

Noise walls if any, would be located adjacent to the few homes within approximately 150 to 235 feet of the future centerline, to achieve 60 dBA CNEL, or closer if 65 dBA CNEL is acceptable. Other noise barriers along Elizabeth lake Road would be constructed in conjunction with new development where needed to provide adequate noise attenuation. These barriers are typically six to eight foot block walls, although other acoustically effective materials may be used. This is acknowledged to represent an aesthetic impact, although it

MITIGATION MEASURES

None required.

SCHOOLS

EXISTING CONDITIONS

The Amargosa Creek project site is located within the Antelope Valley Union High School District, the Westside Union School District and Palmdale School District.

As stated by the Westside Union School District in their January 8, 1991 letter, all schools within the District, with the exception of the Rancho Vista School, are 20-30% over the rated capacity, and have only been able to provide service for the current residents because of temporary facilities (i.e., trailers). The Leona Valley School (grades K-5), located at 9063 West Leona Valley Road, accommodates 170 students, with a planned 1991/1992 expansion providing a total capacity of 320 students. The District is presently negotiating with the Antelope Valley Building Industry Association and local developers to supplement inadequate funding from the State and AB 2926 fees.

As stated by the Antelope Valley Union High School District (AVUHSD), the student generation factor is 0.3 high school students per dwelling unit. It is estimated that the Antelope Valley Union High School District enrollment in 1991 will be 11,624 students, with a District capacity of 10,230. In 1992, a further enrollment increase of 12,798 is expected. The project area would be serviced by Highland High School located at 39055 25th Street West, Palmdale. Currently, Highland High School has a capacity of 2079 students and a projected 1993/1994 enrollment of 2,408. The Ritter Ranch project includes a High School, middle school and several elementary schools. The City Ranch will also be providing four elementary schools onsite and will be contributing to an offsite high school in the vicinity.

The Palmdale School District has an existing school facility located along Elizabeth Lake Road. The Ocotillo School, 1330 Elizabeth Lake Road, Palmdale, is a year-round school serving grades K-5. A new school is planned for the City Ranch Development, according to the Master City Map. The exact location of this school has not been determined. Finally, a temporary school site, which is currently being developed into a permanent school site is located near 15th Street, adjacent to Amargosa Creek. The Summerwind School, 39360 Summerwind Drive, Palmdale, requires the elevation of the site in order to eliminate flooding potential.

natural channel (greater impacts than the proposed design). Several structures located on Lazy T Ranch would need to be removed to allow for construction of this design alternative. ~~However~~, the proposed project will allow the channel to remain in its natural course and flow on the south side of Elizabeth Lake Road. The proposed project will encroach into less of Lazy T Ranch, but the remaining portion will be subject to flooding (as is presently the case).

Based on a geotechnical investigation by Buena Engineers, significant impacts from scouring and erosion could occur to the natural hillside along the channel's north bank if the "Lazy T Ranch Area Design" alternative is implemented. Therefore, the "Lazy T Ranch Area Design" alternative is not considered the environmentally superior alternative due to significant land use (from flooding and land acquisition) and erosion impacts.

6.4 "REDUCED DESIGN STANDARDS" ALTERNATIVE

The "Reduced Design Standards" alternative entails limiting Elizabeth Lake Road widening to 60 feet. This design alternative would include 4 lanes, which would make up 46 feet of the total width, a 10 foot bike lane with sidewalk (located on one side of Elizabeth Lake Road only), and a four foot wide raised median. In addition, construction of this alternative would use maximum horizontal and vertical curves, thereby minimizing grading requirements, although this would also reduce the design speed (increased road curvature would reduce the maximum speed of safe vehicle travel).

Environmental impacts associated with the "Reduced Design Standards" alternative would result in a reduction in project impacts, including earth resources, water resources, biological resources, aesthetics, land use, and cultural resources. The "Reduced Design Standards" alternative would partially fulfill the objectives of the proposed project, although with reduced vehicle capacity and associated increased congestion (reduced traffic capacity would impact adjacent arterial roads that would "back up", and would impact alternate routes as motorists sought less congested routes, such as Avenue S and City Ranch Road). ~~Therefore~~, this alternative is considered to be environmentally superior to the proposed project. The analysis which follows provides a comparison of the impacts of this alternative with those of the proposed use.

Earth Resources

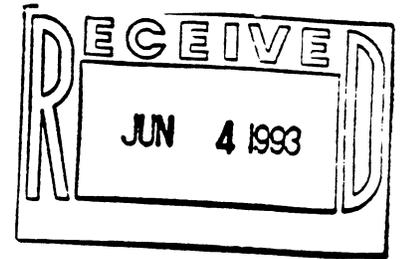
This alternative would have a reduced impact upon earth resources than what has been identified for the project. Grading for the roadway width would be substantially reduced,

Response No. 6

KWC Engineers, Inc.

L.C. Bevington

6a. The suggested changes will be reflected in the Final EIR.



May 26, 1993

Ms. Laurie Lile
Environmental Planner
City Of Palmdale Planning Department
38306 Ninth Street East
Palmdale, CA 93550

Re: Amargosa Creek Improvement Program Draft E.I.R. Comments

Dear Ms. Lile:

Ritter Park Associates has reviewed the Amargosa Creek Improvement Program draft E.I.R. dated May 1993

The following comments address concerns and issues which we believe should be made part of the public record and included in the final E.I.R. document.

Project Location

The improvement area is described in Section 3.1 from 1000 feet west of Godde Hill road to approximately 3950 feet north of the Antelope Valley freeway. This encompasses the Country Club area and is contrary to the proposed scaled back project with an eastern terminus at 25th street west. This section should be modified to describe the multi-phased project. Additionally, it should be noted that only Phase I (25th street west to 1000 feet west of Godde Hill Road) construction is contemplated at this time.

a

Section 2.5 Incorporation by Reference

A number of prior environmental actions have been incorporated by reference in this E.I.R. These include:

- City of Palmdale General Plan and E.I.R. January 25, 1993
- The Amargosa Creek Improvement Project and Assessment District Final Program E.I.R. certified June 27, 1991.
- Amargosa Creek Improvement Project Phase I Sanitary Sewer Line Draft Focused E.I.R. certified December 9, 1992
- City Ranch North mitigated Negative Declaration 1989

b

This incorporation by reference causes problems in that the draft E.I.R. co-mingles, particularly in the cumulative impact section, adjacent development project impacts with Amargosa Creek construction impacts.

Section 5.4 summarizes the following cumulative impacts:

- The Biological Resources Section states that buildout of the area will result in habitat losses. Impacts of the actual Amargosa construction project should be discussed not the individual adjacent project buildout impacts.
- The Cultural Resources section discusses impact mitigation on a project by project basis. Impacts and mitigation should be focused specifically on the Amargosa Creek Improvement Project. Development project impacts should be addressed through individual development project Environmental Impact Reports.

b

Utility Line Relocation

The discussion anticipates a temporary overhead relocation of existing utilities back to a permanent underground installation for all dry utilities. The anticipated phased construction may involve leaving the relocated overhead utilities on poles for a number of years prior to permanent under ground installation. The impacts if any, from extended periods of overhead utilities should be evaluated.

c

Road Improvements

The description of the road improvements addresses ultimate buildout consisting of four lanes of pavement with raised medians. The E.I.R. as currently drafted does not address a phased construction project whatsoever. Phase I as currently proposed consists of an initial two lanes of pavement, overhead utilities, and interim landscaping, traffic signals, etc. A discussion of a two phased project should be included the E.I.R.

d

Flood Control Facilities

Exhibit 3.0-3A depicts the proposed wetland mitigation area. The area is labeled as 124 acres. This exhibit is misleading in that the entire Basin B area is 124 acres. The wetland mitigation area only encompasses 57 acres of lost habitat and 37 acres of recreated wetland mitigation area. Exhibit 3.0 - 3A should be revised to reflect the accurate acreage of mitigation area.

e

Earth Resources

Mitigation measure 4.1 2d requires remedial grading to include complete soil removal or other site improvement methods as indicated through evaluation during comprehensive geotechnical studies.

f

Geotechnical Engineering Report City of Palmdale Assessment District 90-1 Elizabeth Lake Road 30th Street West to 90th street west Volume I. Buena Engineers, Inc. March 29, 1991 outlines in detail existing soil conditions and geotechnical constraints and required construction mitigation. Complete soil removal is not indicated in all cases. This section should be revised to reflect the findings and recommendations outlined in the geotechnical study "Geotechnical Engineering Report City of Palmdale Assessment District 90-1 Elizabeth Lake Road 30th Street west to 90th Street west, Volume I. Buena Engineers, Inc. March 29, 1991".

Air Resources

Mitigation measure 4.2.2 mandates provisions for mass transit as part of adjacent development through utilization of bus turnouts and shelters. This is inappropriate in that it oversteps the focus of the impacts from the Amargosa Creek project and co-mingles mitigation from buildout of adjacent development projects. This mitigation measure should be eliminated.

g

Public Services and Utilities

The entire section of mitigation measures oversteps the required mitigation for Amargosa Creek Project impacts. The suggested mitigation measures should be redrafted to eliminate references to mitigation measures to be applied to buildout of adjacent development projects.

For example, mitigation measures 4.11.1a and 4.11.1.b should be eliminated in that they discuss requirements for plumbing fixture specifications and landscape design guidelines for buildout of adjacent development projects.

h

The redrafted mitigation measures should be focused on specific landscape equipment and landscape material specifications for revegetation within the Amargosa Creek Project Boundaries.

Additionally, mitigation measures for police service, fire service, schools, solid waste, and parks and recreation are inappropriate. The Amargosa Creek Project does not induce impacts to these services and therefore mitigation measures are not required. Mitigation for impacts to these services from adjacent development should be addressed in the E.I.R. review process for each individual development project proposal on a case by case basis.

Thank you for the opportunity to provide comments. If you have any questions regarding these comments please contact us at (805) 947-0138.

Sincerely,



Peter Wenner
General Manager
Ritter Park Associates

PW/SP/de

Response No. 7

Ritter Ranch

Mr. Peter Wenner

- 7a. According to project documents provided by KWC Engineers, the "project" also includes a portion of the original "Phase I" project, as discussed at length in the Draft EIR, in addition to a small segment north of the Antelope Valley Freeway. The stated phasing is noted in Section 3.6 of the Draft EIR.
- 7b. Since the project is a major infrastructure extension into rural (eastern) Leona Valley, it is reasonable to address the secondary effects of project implementation. The impact and mitigation discussions for Biological Resources and Cultural Resources focus on project impacts, although impact discussion is also provided for cumulative impacts due to the growth-inducing nature of the project (all mitigation for these two resources is project-specific).
- 7c. This is acknowledged, although our understanding is that temporary overhead utilities will involve consolidating existing overhead utilities, still resulting in a net reduction in overhead utility lines. Therefore, this is not considered to be a significant impact.
- 7d. At the time of drafting the EIR, the initial two-lane facility was not "proposed", it was only a possibility under consideration. This possibility is noted on page 3.0-26.
- 7e. The legend applies to the entire basin, and is not intended to reflect acreage for the mitigation area.
- 7f. See Response No. 2 (Earth Systems Consultants).
- 7g. Provision of bicycle and bus facilities at appropriate locations along the project route is considered reasonable mitigation for a project facilitating development of over 20,000 dwelling units.
- 7h. The referenced measures are identified as "betterments" to improve future conditions and are acknowledged as not being required for project mitigation. The purpose of including these betterments is to set forth in advance of future development possible assures that could reduce cumulative impacts.

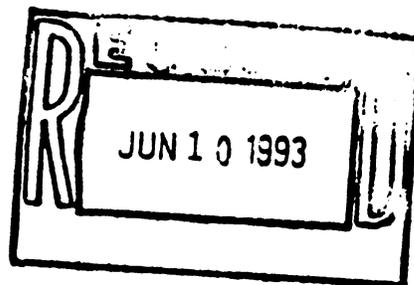
DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
P O BOX 2711
LOS ANGELES, CALIFORNIA 90053-2325



June 4, 1993

REPLY TO
ATTENTION OF

Office of the Chief
Regulatory Branch



City of Palmdale Planning Department
Attn: Ms. Laurie Lile
38306 9th Street East
Palmdale, CA 93550

Dear Ms. Lile:

We have reviewed the Draft Environmental Impact Report for the Amargosa Creek Improvement Project in the City of Palmdale, Los Angeles County, California. The following comments represent our response to the Draft Environmental Impact Report for the proposed project.

The extent of the U.S. Army Corps of Engineers (Corps) jurisdictional wetlands is based on a preliminary delineation using desert saltgrass (Distichlis spp.) and active streambed areas as the areas of Corps jurisdiction. To determine the correct extent of the waters of the U.S., including wetlands we require a technical wetland evaluation based on the 1987 Corps of Engineers Wetland Delineation Manual.

The impact on the corps jurisdictional areas must include all waters of the U.S. and wetlands that will be impacted by construction of the proposed project, including temporary construction zone activities.

Our permit review process will require the applicant to demonstrate that a less environmentally damaging practicable alternative does not exist prior to granting a permit. The applicant must also demonstrate that impacts to aquatic resources cannot be practicably avoided prior to the consideration of compensatory mitigation. Therefore, we strongly recommend that impacts of the proposed project to waters be avoided or minimized prior to consideration of compensatory mitigation.

a

We thank you for the opportunity to comment on the Draft Environmental Impact Report. If you have any questions please contact me at (213)894-5606.

Sincerely,

A handwritten signature in cursive script that reads "David Castanon". The signature is written in black ink and is positioned above the typed name.

David Castanon
Chief, North Coast Section

CF: RBF (Mr. Kevin Thomas)

Response No. 8

Army Corp of Engineers

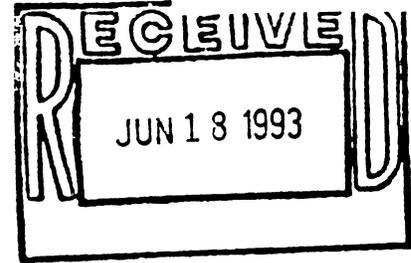
Mr. David Castanon

- 8a. The methodology utilized in the wetland delineation was based on direction received from ACOE (Ms. Liz Varnhagen) and USFWS staff at a field meeting held onsite. A 404 Permit Application is in process which will describe the range of alternatives considered and why the project is the environmentally preferred alternative, and will identify avoidance measures taken to minimize project impacts. We understand that the wetland delineation and mitigation plan described in the Draft EIR are subject to ACOE review and approval as part of the 404 Permit process.

Memorandum

COMMENT 9

Date : JUN 14 1993



To : 1. Charles White, Chief
Southern District

2. Ms. Laurie Lile
City of Palmdale
38306 Ninth Street East
Palmdale, California 93550

From : Department of Water Resources

Subject: SCH No. 90010820
DRAFT EIR, Amargosa Creek Improvement Project

We have reviewed the Draft EIR for the Amargosa Creek Improvement Project dated May 1993.

The attached "Statutes and Regulations Pertaining to Supervision of Dams and Reservoirs 1992" defines dams under State jurisdiction. Some of the embankments impounding Basin "B" depicted in the exhibits of the Draft EIR may be under the jurisdiction of the Division of Safety of Dams.

If the embankments are jurisdictional, a construction application will be required. All dam safety issues related to the proposed work must be resolved prior to approval of the application and any construction activity.

The EIR needs to address the role of the Department of Water Resources, Division of Safety of Dams, in the design and construction of the project.

Thank you for the opportunity to review and comment on the Draft EIR. If you have any questions, please contact Area Engineer Philip Lee at (916) 323-1115 or Regional Engineer Richard Sanchez at (916) 322-6206.

Vernon H. Persson
Vernon H. Persson, Chief
Division of Safety of Dams

Attachment

cc: Nadell A. Gayou, Chief
Review of Reports
1020 Ninth Street, Third Floor
Sacramento, California 95814-3515

STATE OF CALIFORNIA

The Resources Agency

Department of Water Resources

Division of Safety of Dams

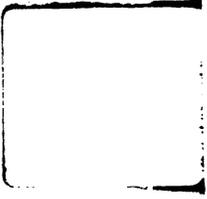
STATUTES AND REGULATIONS
PERTAINING TO
SUPERVISION OF
DAMS AND RESERVOIRS

1992

DOUGLAS P. WHEELER
Secretary for Resources
The Resources Agency

PETE WILSON
Governor
State of California

DAVID N. KENNEDY
Director
Department of Water Resources



FOREWORD

Since August 14, 1929, the State of California has supervised dams for the purpose of safeguarding life and property. In 1965, its supervision was expanded to include reservoirs and certain previously exempted dams. Dams and reservoirs are defined in Water Code Sections 6002 and 6004.5. All dams are subject to State supervision unless they are owned by the United States or are exempted by Water Code Sections 6003 or 6004. Supervision of dams is performed by the Department of Water Resources.

This pamphlet contains Parts 1 and 2 of Division 3. Dams and Reservoirs, of the California Water Code (Statutes), Chapter 1 of Division 2, Title 23 Waters, of the California Code of Regulations (Regulations adopted by the Department of Water Resources), and an outline of current practices of the Department in supervision of dams and reservoirs.

WATER RIGHTS APPROPRIATION

Approval of an application to construct a dam does not grant the right to appropriate water. For information concerning water rights, applicants are referred to Division 1 of the Water Code and to the State Water Resources Control Board.

FISH AND GAME

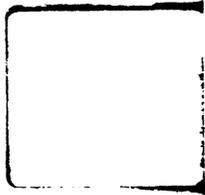
Under the provisions of Section 6500 of the Water Code, whenever an application for approval of plans and specifications for a new dam, or for the enlargement of any dam, on any stream of this State, is filed with the Department of Water Resources, a copy of the application must be filed by the applicant with the Department of Fish and Game as required by the Fish and Game Code.

FEDERAL PERMITS

Obtaining permits from the Federal Energy Regulatory Commission, Corps of Engineers, etc., for dams or reservoirs does not supersede the State's supervision of dams requirements.

NOTICE

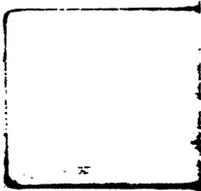
This compendium of laws governing dams and reservoirs has been compiled by the Department of Water Resources, Division of Safety of Dams, for convenient reference only and is not represented to be the official version of the statute or the regulations. The notes, text and history of repealed sections are not included in this reprint. Also, history for active sections is not included. To obtain this information, reference should be made to the most current volumes of Barclay's Official California Code of Regulations and to West's version of the California Water Code.



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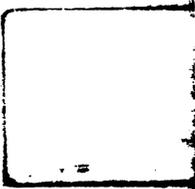
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CALIFORNIA WATER CODE
Division 3. Dams and Reservoirs



DIVISION 3. DAMS AND RESERVOIRS

PART 1. SUPERVISION OF DAMS AND RESERVOIRS

Chapter 1. Definitions

6000. Unless the context otherwise requires, the definitions in this chapter govern the construction of this part.

6002. "Dam" means any artificial barrier, together with appurtenant works, which does or may impound or divert water, and which either (a) is or will be 25 feet or more in height from the natural bed of the stream or watercourse at the downstream toe of the barrier, as determined by the department, or from the lowest elevation of the outside limit of the barrier, as determined by the department, if it is not across a stream channel or watercourse, to the maximum possible water storage elevation or (b) has or will have an impounding capacity of 50 acre-feet or more.

6003. Any such barrier which is or will be not in excess of 6 feet in height, regardless of storage capacity, or which has or will have a storage capacity not in excess of 15 acre-feet, regardless of height, shall not be considered a dam.

6004. No obstruction in a canal used to raise or lower water therein or divert water therefrom, no levee, including but not limited to a levee on the bed of a natural lake the primary purpose of which levee is to control floodwaters, no railroad fill or structure, and no road or highway fill or structure, no circular tank constructed of steel or concrete or of a combination thereof, no tank elevated above the ground, and no barrier which is not across a stream channel, watercourse, or natural drainage area and which has the principal purpose of impounding water for agricultural use or use as a sewage sludge drying facility shall be considered a dam. In addition, no obstruction in the channel of a stream or watercourse which is 15 feet or less in height from the lowest elevation of the obstruction and which has the single purpose of spreading water within the bed of the stream or watercourse upstream from the obstruction for percolation underground shall be considered a dam. In addition, the levee of an island adjacent to tidal waters in the Sacramento-San Joaquin Delta, as defined in Section 12220, even when used to impound water, shall not be considered a dam and the impoundment shall not be considered a reservoir if the maximum

possible water storage elevation of the impounded water does not exceed four feet above mean sea level, as established by U.S.G.S. 1929 datum.

6004.5. "Reservoir" means any reservoir which contains or will contain the water impounded by a dam.

6005. "Owner" includes any of the following who own, control, operate, maintain, manage, or propose to construct a dam or reservoir:

(a) The State and its departments, institutions, agencies, and political subdivisions.

(b) Every municipal or quasi-municipal corporation.

(c) Every public utility.

(d) Every district.

(e) Every person.

(f) The duly authorized agents, lessees, or trustees of any of the foregoing.

(g) Receivers or trustees appointed by any court for any of the foregoing.

"Owner" does not include the United States.

6006. "Alterations", "repairs", or either of them, mean only such alterations or repairs as may affect the safety of the dam or reservoir.

6007. "Enlargement" means any change in or addition to an existing dam or reservoir, which raises or may raise the water storage elevation of the water impounded by the dam or reservoir.

6008. Water storage elevation means that elevation of water surface which could be obtained by the existing dam or reservoir, as previously operated, were there no outflow and were the reservoir full of water.



Chapter 2. General Provisions

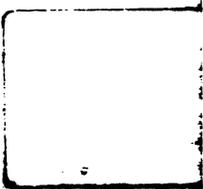
6025. It is the intent of the Legislature by this part to provide for the regulation and supervision of dams and reservoirs exclusively by the State.

6025.5. (a) Notwithstanding any other provision, subject to subdivision (b), the requirements for state regulation and supervision of safety of dams, as contained in this division, shall not be applicable to waste water treatment and storage ponds constructed as a part of a waste water control facility.

(b) This section applies to those ponds specified in subdivision (a) only after the governing body of the city, county, district, or other agency which operates the waste water control facility adopts a resolution which (1) finds that the ponds have been constructed and operated to standards adequate to protect life and property, and (2) provides that the city, county, district, or other agency shall supervise and regulate the design, construction, operation, enlargement, replacement, and removal of the ponds after the effective date of the resolution.

(c) This section applies only to ponds specified in subdivision (a) which (1) have a maximum height of 15 feet or less and a maximum storage capacity of 1,500 acre-feet or less, (2) have been designed by, and constructed under the supervision of, a registered civil engineer, and (3) are not across a stream channel or water course.

6026. No city or county has authority, by ordinance enacted by the legislative body thereof or adopted by the people under the initiative power, or otherwise, to regulate, supervise, or provide for the regulation or supervision of any dams or reservoirs in this state, or the construction, maintenance, or operation thereof, nor to limit the size of any dam or reservoir or the amount of water which may be stored therein. This part shall not prevent a city or county from adopting ordinances regulating, supervising, or providing for the regulation or supervision of dams and reservoirs that (a) are not within the state's jurisdiction, or (b) are not subject to regulation by another public agency or body.





6027. Whenever supervision of safety of design or construction of a proposed or existing dam or reservoir is exercised by the United States or any of its agencies pursuant to a jurisdiction superior to that of the state, and the requirements made under authority of such jurisdiction are so contradictory with requirements made by the department under this part that a compliance cannot be made which will meet both federal and state requirements, then the state requirements shall be modified by the department sufficiently to make possible compliance with both federal and state requirements.

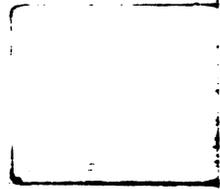
6028. No action shall be brought against the state or the department or its agents or employees for the recovery of damages caused by the partial or total failure of any dam or reservoir or through the operation of any dam or reservoir upon the ground that such defendant is liable by virtue of any of the following:

- (a) The approval of the dam or reservoir.
- (b) The issuance or enforcement of orders relative to maintenance or operation of the dam or reservoir.
- (c) Control and regulation of the dam or reservoir.
- (d) Measures taken to protect against failure during an emergency.

6029. Nothing in this part shall be construed to relieve an owner or operator of a dam or reservoir of the legal duties, obligations, or liabilities incident to the ownership or operation of the dam or reservoir.

6030. The findings and orders of the department and the certificate of approval of any dam or reservoir issued by the department are final and conclusive and binding upon all state agencies, regulatory or otherwise, as to the safety of design, construction, maintenance, and operation of any dam or reservoir.

6031. Nothing in this part shall be construed to deprive any owner of such recourse to the courts as he may be entitled to under the laws of this State.





Chapter 3. Administrative Provisions

6052. The department shall employ such clerical, engineering, and other assistants as are necessary for carrying on the work of dam and reservoir supervision in accordance with this part.

6053. The department may employ consultants.

6054. When the safety and technical considerations pertaining to a certificate of approval, dam, reservoir, or plans and specifications require it, or when requested in writing to do so by the owner, the department shall appoint a consulting board of two or more consultants to report to the department on the safety features involved.

6055. The cost and expense of a consulting board if appointed on the request of an owner shall be paid by the owner.

6056. The department shall retain a board of three consultants who shall make an independent report to the director upon the issuance, modification, or renewal of any certificate of approval for any dam owned by the department.

Chapter 4. Powers of the Department

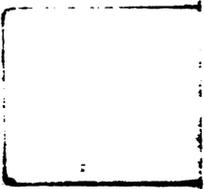
Article 1. Powers in General

6075. The department, under the police power of the state, shall supervise the construction, enlargement, alteration, repair, maintenance, operation, and removal of dams and reservoirs for the protection of life and property as provided in this part.

6076. All dams and reservoirs in the state are under the jurisdiction of the department.

6077. It is unlawful to construct, enlarge, repair, alter, remove, maintain, or operate any dam or reservoir except upon approval of the department as provided in this part.

6078. The department shall adopt and revise from time to time such rules and regulations and issue such general orders as may be necessary for carrying out, but not inconsistent with, the provisions of this part.



6079. In carrying out the provisions of this part the department may cooperate with the United States or any of its agencies.

6080. In making any investigations or inspections required or authorized by this part the department or its representatives may enter upon private property as may be necessary.

6081. In determining whether or not a dam or reservoir or proposed dam or reservoir constitutes or would constitute a danger to life or property, the department shall take into consideration the possibility that the dam or reservoir might be endangered by seepage, earth movement, or other conditions which exist or which might occur in any area in the vicinity of the dam or reservoir. Whenever the department deems that any such condition endangers a dam or reservoir, it shall order the owner to take such action as the department determines to be necessary to remove the resultant danger to life and property.

Article 2. Maintenance and Operation

6100. Supervision over the maintenance and operation of dams and reservoirs insofar as necessary to safeguard life and property from injury by reason of the failure thereof is vested in the department.

6101. The department may require owners to keep records of, and to report on, maintenance, operation, staffing, and engineering and geologic investigations and shall issue such rules and regulations and orders as necessary to secure maintenance and operation and to require staffing and engineering and geologic investigations which will safeguard life and property. In addition, the owner of a dam or reservoir or his agent shall fully and promptly advise the department of any sudden or unprecedented flood or unusual or alarming circumstance or occurrence affecting the dam or reservoir.

6102. The department, from time to time, shall make inspections of dams and reservoirs at state expense for the purpose of determining their safety but shall require owners to perform at their expense such work as necessary to disclose information sufficient to enable the department to determine conditions of dams and reservoirs in regard to their safety and to perform at their expense other work necessary to secure maintenance and operation which will safeguard life and property.



Article 3. Emergency Work

6110. The department shall immediately employ any remedial means necessary to protect life and property if either:

(a) The condition of any dam or reservoir is so dangerous to the safety of life or property as not to permit of time for the issuance and enforcement of an order relative to maintenance or operation.

(b) Passing or imminent floods threaten the safety of any dam or reservoir.

6111. In applying the remedial means provided for in this article, the department may in emergency do any of the following:

(a) Lower the water level by releasing water from the reservoir.

(b) Completely empty the reservoir.

(c) Take such other steps as may be essential to safeguard life and property.

6112. The department shall continue in full charge and control of such dam or reservoir, or both, and its appurtenances until they are rendered safe or the emergency occasioning the action has ceased.

6113. The cost and expenses of the remedial means provided in this article, including cost of any work done to render a dam or reservoir or its appurtenances safe, shall be recoverable by the state from the owner by action brought by the department in the superior court of the county wherein the dam or reservoir or any part thereof is situated.

Article 4. Investigations and Studies

6120. For the purpose of enabling it to make decisions as compatible with economy and public safety as possible the department shall make or cause to be made such investigations and shall gather or cause to be gathered such data as may be needed for a proper review and study of the various features of the design and construction of dams, reservoirs, and appurtenances.



6121. The department shall also make or cause to be made such watershed investigations and studies as may facilitate its decisions.

Article 5. Action and Procedure
To Restrain Violations

6150. The department may commence an action or proceeding under this article, either by mandamus or injunction, for the purpose of stopping or preventing violations or threatened violations.

6151. An action or proceeding under this article may be commenced whenever any owner or any person acting as a director, officer, agent, or employee of any owner, or any contractor or agent or employee of such contractor is:

(a) Failing or omitting or about to fail or omit to do anything required of him by this part or by any approval, order, rule, regulation, or requirement of the department under the authority of this part; or

(b) Doing or permitting anything or about to do or permit anything to be done in violation of or contrary to this part or any approval, order, rule, regulation, or requirement of the department under this part.

6152. Any action or proceeding under this article shall be commenced in the superior court in and for the county in which (a) the cause or some part thereof arose, (b) the owner or person complained of has its principal place of business, or (c) the person complained of resides.

6153. Any action or proceeding under this article shall be brought by petition in the superior court, alleging the violation or threatened violation complained of, and praying for appropriate relief by way of mandamus or injunction.

6154. The court shall specify a time, not exceeding 20 days after the service of the copy of the petition, within which the owner or person complained of shall answer the petition, and in the meantime the owner or person may be restrained.

6155. In case of default in answer or after answer the court shall immediately inquire into the facts and circumstances of the case.

6156. The court may join such parties as it deems necessary or proper in order to make its judgment, order, or writ effective.

6157. The final judgment in such action or proceeding shall either dismiss the action or proceeding or direct that the writ of mandamus or injunction issue or be made permanent as prayed for in the petition, or in such modified or other form as will afford appropriate relief.

Chapter 5. Applications

Article 1. New Dams and Reservoirs or Enlargements of Dams and Reservoirs

6200. Construction of any new dam or reservoir or the enlargement of any dam or reservoir shall not be commenced until the owner has applied for and obtained from the department written approval of plans and specifications.

6201. A separate application for each dam or reservoir shall be filed with the department upon forms to be provided by it, except that only one application need be filed for a dam and the reservoir which will contain the water impounded by the dam.

6202. The application shall give the following information:

- (a) The name and address of the owner.
- (b) The location, type, size, and height of the proposed dam or reservoir and appurtenant works.
- (c) The storage capacity of the reservoir.
- (d) Such other pertinent information as the department requires.
- (e) As accurately as may be readily obtained, the area of the drainage basin, rainfall and streamflow records and floodflow records and estimates.

6203. The department may also require the following:



(a) Data concerning subsoil and foundation conditions and the materials entering into construction of the dam or reservoir.

(b) Investigations of, and reports on, subsurface conditions, involving such matters as exploratory pits, trenches and adits, drilling, coring, geophysical surveys, tests to determine leakage rates, and physical tests to measure in place the properties and behavior of foundation materials at the dam or reservoir site.

(c) Investigations of, and reports on, the geology of the dam or reservoir site and its vicinity, possible geologic hazards, availability and quality of construction materials, and other pertinent features.

(d) Such other appropriate information as may be necessary in a given instance.

6204. In instances wherein the physical conditions involved and the size of the dam or reservoir are such as to render the above requirements as to drainage areas, rainfall, streamflow, floodflow, and drilling or prospecting of site unnecessary, the department may waive the requirements.

6205. The application shall set forth the purpose for which the impounded or diverted water is to be used.

6206. The application shall be accompanied by maps and plans and specifications of such character and size and setting forth such pertinent details and dimensions as the department requires.

The maps and plans and specifications shall be a part of the application.

Article 2. Repairs, Alterations or Removals

6225. Before commencing the repair, alteration, or removal of a dam or reservoir, including the alteration or removal of a dam or reservoir so that it no longer constitutes a dam or reservoir as defined in this part, the owner shall secure the written approval of the department, except as provided in this article.





6226. The application shall give such pertinent information or data concerning the dam or reservoir, or both, as may be required by the department and such information as to other matters appropriate to a thorough consideration of the safety of such a change as may be required by the department.

6227. The application shall state the proposed time of commencement and of completion of construction.

6228. The application shall give the name and address of applicant, shall adequately detail, with appropriate references to the existing dam or reservoir, the changes which it is proposed to effect, and shall be accompanied by maps and plans and specifications which shall be a part of the application and which shall be of such character and size and set forth such pertinent details and dimensions as the department may require. The department may waive any of the requirements of this section if found by it unnecessary.

6229. In case of an emergency where repairs are necessary to safeguard life and property, repairs may be started immediately, but the department shall be notified at once of proposed repairs and of work under way.

6230. The proposed repairs and work shall be made to conform to such orders as the department issues.

Article 3. Dams Constructed Prior to August 14, 1929

6250. Unless application for approval of the dam has heretofore been made, every owner of a dam completed prior to August 14, 1929 shall, immediately after the effective date of this part, file an application for the approval of such dam.

6251. A separate application shall be made for each dam and shall be filed with the department upon forms to be supplied by it and shall supply such appropriate information concerning the dam as the department requires.

6252. The department shall give notice to file to owners who have failed to do so as required by this article, and a failure to file within 30 days after such notice shall be punishable as provided in this part.





6253. The notice provided for in this article may be given by registered mail and a return receipt signed by the owner shall constitute prima facie evidence of service.

Article 4. Approval of Applications

6260. Upon receipt of any application other than an application provided for in Article 3 of this chapter the department shall give its consideration thereto and shall approve or disapprove the same within the time provided in this article.

6261. A defective application made in a bona fide attempt to conform to the law and rules and regulations of the department shall not be rejected but notice of defect shall be sent to the applicant by ordinary and registered mail.

6262. If within 30 days of the date of mailing the notice the applicant does not file an amended and perfected application, the application shall be rejected and canceled unless for good cause shown the department allows the applicant further time.

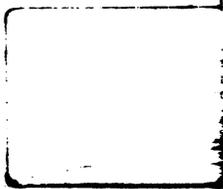
6263. No application shall be approved in less than 10 days from its receipt but all applications shall be approved or disapproved as soon as practicable after the receipt of all data and information found necessary by the department.

6264. Approvals may be granted under terms, conditions, and limitations necessary to safeguard life and property.

6265. Actual construction shall be commenced within one year after date of approval, otherwise the approval becomes void.

6266. The department may, upon written application and for good cause shown, extend the time for commencing construction.

6267. Notice shall be given to the department at least 10 days before construction is to be commenced and such other notices shall be given to the department as it may require.



Chapter 6. Fees

6300. (a) The application for a new dam or reservoir or enlargement shall set forth the estimated cost, as defined in this article, of the dam or reservoir or enlargement and shall be accompanied by a filing fee based upon the estimated cost and according to the following schedule:

(1) For the first three hundred thousand dollars (\$300,000) a fee of 3 percent of the estimated cost.

(2) For the next seven hundred thousand dollars (\$700,000) a fee of 2 percent.

(3) For the next one million dollars (\$1,000,000) a fee of 1 1/2 percent.

(4) For the next one million (\$1,000,000), a fee of 1 1/4 percent.

(5) For the next two million dollars (\$2,000,000), a fee of 1 percent.

(6) For the next two million dollars (\$2,000,000), a fee of three-fourths of 1 percent.

(7) For all costs in excess of seven million dollars (\$7,000,000), a fee of one-half of 1 percent.

(b) In no case, however, shall the minimum fee be less than three hundred dollars (\$300).

6301. One filing fee only shall be collected for an enlargement to be effected by flashboards, sand-bags, earthen levees, gates, or other works, devices, or obstructions which are, from time to time, to be removed and replaced or opened and shut and thereby operated so as to vary the surface elevation of the impounded water.

6302. For the purposes of this part, the estimated cost of the dam or reservoir or enlargement involved shall include the following:

(a) The cost of all labor and materials entering into the construction of the dam and appurtenant works or reservoir.

(b) The cost of preliminary investigations and surveys.



(c) The cost of the construction plant properly chargeable to the cost of the dam or reservoir.

(d) Any and all other items entering directly into the cost of the dam or reservoir.

6303. The costs of right-of-way, detached powerhouses, electrical generating machinery, and roads and railroads affording access to the dam or reservoir shall not be included among the items used in the determination of cost.

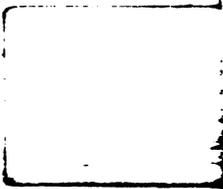
6304. An application shall not be considered by the department until the filing fee is received.

6305. In the event the actual cost exceeds the estimated cost by more than 15 percent, a further fee shall be required by the department before final approval and shall be 115 percent of the amount by which the original fee is less than it would have been had the cost it was based upon been the same as the actual cost. No further fee shall be required, however, if such fee is to be computed at less than twenty dollars (\$20).

6306. Applications for dams found by the department to have been less than 90 percent constructed on August 14, 1929, shall be accompanied by fees as much less than provided for dams commenced after that date as the percentage of construction found by the department to have been completed on that date.

6307. (a) An annual fee shall be paid on or before December 31, 1970, and on or before December 31 of each succeeding year, based upon the height of the dam, including all enlargements, thereto, substantially completed by or in operation on June 30, 1970, and on June 30 each succeeding year. The annual fee shall be one hundred twenty-five dollars (\$125) plus twelve dollars (\$12) per foot of height of the dam, and shall be increased pursuant to the following schedule:

| Calendar Year | Fee Per Dam | Fee Per Foot of Height |
|---------------|-------------|------------------------|
| 1993 | \$150 | \$16 |
| 1995 | \$175 | \$20 |
| 1997 | \$200 | \$24 |





(b) For purposes of this section, height of the dam means the vertical distance, to the nearest foot, from the natural bed of the stream or watercourse at the downstream toe of the barrier, as determined by the department, or from the lowest elevation of the outside limit of the barrier, as determined by the department, if it is not across a stream channel or watercourse, to the maximum possible water storage elevation.

6308.5 Notwithstanding Section 6308, the first

6308. All fees and other charges collected under the provisions of this part shall be paid into the State Treasury immediately after the department has certified as to the correctness of the amounts received and made any adjustments necessary.

6309. The fees provided for in this article shall be required of all enumerated in the definition of owner in Chapter 1 of this part.

Chapter 7. Inspection and Approval

Article 1. New or Enlarged Dams and Reservoirs

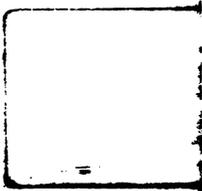
6350. Immediately upon completion of a new dam or reservoir or enlargement of a dam or reservoir, the owner shall give a notice of completion to the department and as soon thereafter as possible shall file with the department supplementary drawings or descriptive matter showing or describing the dam or reservoir as actually constructed, including the following:

(a) A record of all grout holes and grouting.

(b) A record of permanent location points and bench marks.

(c) A record of tests of concrete or other material used in the construction of the dam or reservoir.

(d) Any other items which may be of permanent value and have a bearing on the safety and permanency of the dam or reservoir.





6351. In connection with the enlargement of a dam or reservoir, the supplementary drawings and descriptive matter need apply only to the new work.

6352. As soon as possible after giving notice of completion, the owner shall file an affidavit with the department stating the actual cost of the dam or reservoir in such detail as the department requires to determine whether a further fee is due. In the event the owner of a new or enlarged dam or reservoir, because of loss of records, recent change of ownership, or other causes beyond his control, is unable to report the actual cost of construction or enlargement, he shall file an affidavit to this effect, stating the reasons therefor, within 30 days after receiving a written request therefor from the department. The department shall then make its own appraisal of the cost of construction or enlargement and determine what further fee, if any, is required. Upon making a determination that a further fee is required, the department shall notify the owner by certified mail of the amount of such fee within 15 days and shall notify the owner that he may appear within 60 days thereafter before an authorized representative of the department to protest the amount of the fee, in whole or in part, determined by the department to be required, and the sufficiency of the appraisal upon which such determination was based.

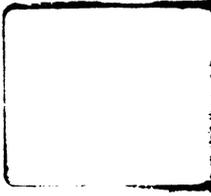
6354. As soon as practicable the completed dam or reservoir shall be inspected by the department.

6355. A certificate of approval shall be issued upon a finding that the dam or reservoir is safe to impound water within the limitations prescribed in the certificate. Upon written request by an owner for a certificate of approval, the department shall issue the certificate if it finds that the dam or reservoir is safe to impound water within the limitations prescribed in the certificate. Pending issuance of a certificate of approval by the department, the owner of the dam or reservoir shall not, through action or inaction, cause the dam or reservoir to impound water.

Article 1.5. Certificates of Approval

6357. Each certificate of approval issued by the department under this part may contain such terms and conditions as the department may prescribe.





6357.1. The department may revoke any certificate of approval whenever it determines that the dam or reservoir constitutes a danger to life and property. Whenever it deems such action necessary to safeguard life and property, the department may also amend the terms and conditions of any such certificate by issuing a new certificate containing the revised terms and conditions.

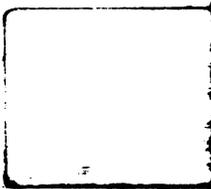
6357.2. The owner of a dam or reservoir for which a certificate of approval has been issued shall not, through action or inaction, cause the dam or reservoir to impound water after the certificate terminates unless a new certificate is issued for the dam or reservoir. A new certificate shall be issued upon a finding by the department that the dam or reservoir is safe to impound water within the limits prescribed in the certificate.

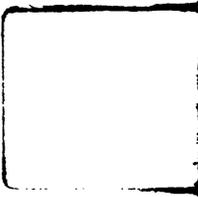
6357.3. With respect to each certificate of approval or written consent for use of a dam which has been issued by the department or a predecessor of the department and which is in effect prior to the effective date of this article, the department shall, within one year from such effective date, issue a new certificate of approval, which shall supersede the previous certificate or written consent for use, or shall revoke the existing certificate or written consent for use if it finds that the dam or reservoir is not safe to impound water.

6357.4. Before any certificate of approval is revoked by the department, the department shall hold a hearing. Written notice of the time and place of the hearing shall be mailed, at least 20 days prior to the date set for the hearing, to the holder of the certificate. Any interested persons may appear at the hearing and present their views and objections to the proposed action. Any petition for a writ of mandate to inquire into the validity of action of the department revoking a certificate of approval shall be commenced within 30 days after service of notice of the revocation on the holder of the certificate.

Article 2. Repaired or Altered Dams and Reservoirs

6360. Immediately upon completion of the repair or alteration of any dam or reservoir, the owner shall give notice of completion to the department and as soon thereafter as possible shall file with it supplementary drawings or descriptive matter showing or describing the dam or reservoir as actually repaired or





altered together with such maps, data, records, and information pertaining to the dam or reservoir as repaired or altered as the department requires.

6362. As soon as practicable the dam or reservoir as repaired or altered shall be inspected by the department.

6363. A certificate of approval shall be issued upon a finding that the dam or reservoir is safe to impound water within the limitations prescribed in the certificate. Pending issuance of a new certificate of approval, the owner of the dam or reservoir shall not, through action or inaction, cause the dam or reservoir to impound water beyond the limitations prescribed in the existing certificate.

6364. The certificate of approval shall supersede any previous certificate of approval issued for the dam or reservoir so repaired or altered.

Article 3. Removal of Dams and Reservoirs

6370. Upon completion of the removal of a dam or reservoir such evidence as to the manner in which the work was performed and as to the conditions obtaining after the removal as the department requires shall be filed with the department.

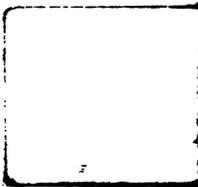
6371. This evidence shall show that a sufficient portion of the dam has been removed to permit the safe passage of floods down the watercourse across which the dam was located.

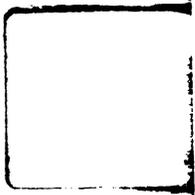
6372. Before final approval of the removal of a dam or reservoir is issued, the department shall inspect the work and determine that all danger to life and property has been eliminated.

Article 4. Dams Completed Prior to August 14, 1929

6380. The department shall make inspections at State expense of all dams in the State completed prior to August 14, 1929.

6381. The department shall require owners to perform at their expense such work or tests as necessary to disclose information sufficient to enable the depart-





ment to determine whether to issue certificates of approval or to issue orders directing further work at the owners' expense necessary to safeguard life and property.

6382. If, upon inspection or upon completion to the satisfaction of the department of all work that may be ordered, the department finds that the dam is safe to the full extent for which use is or will be made, a certificate of approval shall be issued.

Article 5. Complaints as to
Unsafe Conditions

6390. Upon receipt of a written complaint alleging that the person or property of the complainant is endangered by the construction, maintenance, or operation of any dam or reservoir the department shall cause an inspection to be made unless the data, records, and inspection reports on file with it are found adequate to enable a determination whether or not the complaint is meritorious.

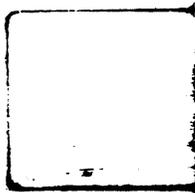
6391. If the complainant insists upon an inspection and deposits with the department a sum estimated by it to be sufficient to cover costs of an inspection, the department shall cause an inspection to be made despite its finding as to the sufficiency of its records to determine the alleged danger.

6392. If it is found that an unsafe condition exists, the department shall take such action as is necessary to render or cause the condition to be rendered safe and any money deposited to secure an inspection shall be returned.

6393. If, after an inspection is made on account of a complaint, the complaint is found by the department to have been without merit, any money deposited therefor shall be payable into the State Treasury.

Article 6. Inspection During
Progress of Work

6400. During the construction, enlargement, repair, alteration, or removal of any dam or reservoir the department shall make continuous or periodical inspections at state expense for the purpose of securing conformity with the approved plans and specifications but shall require the owner to perform at his expense such





work or tests as necessary to disclose information sufficient to enable the department to determine that conformity with the approved plans and specifications is being secured.

6401. If, after any inspections, investigations, or examinations, or at any time as the work progresses, or at any time prior to issuance of a certificate of approval it is found by the department that amendments, modifications, or changes are necessary to insure safety, the department may order the owner to revise the plans and specifications.

6402. If conditions are revealed which will not permit the construction of a safe dam or reservoir the approval may be revoked.

6403. In the event that conditions imposed may be waived or made less burdensome without sacrificing a proper margin of safety, the department may authorize an owner to revise the plans and specifications accordingly.

6404. If at any time during construction, enlargement, repair, or alterations of any dam or reservoir the department finds that the work is not being done in accordance with the provisions of the approval and the approved plans and specifications or in accordance with the approval and revised plans and specifications, it shall give a written notice and order by registered mail or by personal service to the owner.

6405. The notice and order shall state the particulars in which the approval and approved plans and specifications or the approval and approved plans and specifications as revised are not being or have not been complied with and shall order the immediate compliance with the approval and approved plans and specifications or with the approval and approved revised plans and specifications as the case may be.

6406. The department may order that no further work be done until such compliance has been effected and approved by the department.

6407. A failure to comply with the approval and approved plans and specifications as originally approved or as revised shall render the approval subject to revocation by the department, if compliance is not made in accordance therewith after notice and order from the department as provided in this article.

Chapter 8. Offenses and Punishment



6425. Every person who violates any of the provisions of this part or of any approval, order, rule, regulation, or requirement of the department is guilty of a misdemeanor and punishable by a fine of not more than two thousand dollars (\$2,000) or by imprisonment in the county jail not exceeding six months, or both. In the event of a continuing violation each day that the violation continues constitutes a separate and distinct offense.

6426. Any person who willfully obstructs, hinders, or prevents the department or its agents or employees from performing the duties imposed by this part or who willfully resists the exercise of the control and supervision conferred by this part upon the department or its agents or employees is guilty of a misdemeanor and punishable as provided in this article.

6427. Any owner or any person acting as a director, officer, agent, or employee of an owner, or any contractor or agent or employee of a contractor who engages in the construction, enlargement, repair, alteration, maintenance, or removal of any dam or reservoir, who knowingly does work or permits work to be executed on the dam or reservoir without an approval or in violation of or contrary to any approval as provided for in this part, or any inspector, agent, or employee of the department who has knowledge of such work being done and who fails to immediately notify the department thereof is guilty of a misdemeanor and punishable as provided in this article.

6428. Any owner who fails to pay any annual fee or any part of any annual fee required to be paid pursuant to Section 6307 within the time required shall pay a penalty of 10 percent of the annual fee or part of the annual fee, in addition to the annual fee or part of the annual fee, plus interest at the rate of one-half of 1 percent per month, or fraction thereof, from the date on which the annual fee or the part of the annual fee became due and payable to the state until the date of payment.

Chapter 9. Dams Under Construction
Prior to August 14, 1929

6450. Any dam which the department finds was not 90 percent constructed on August 14, 1929 shall be subject to the same provisions as a dam commenced after that date.

6451. Construction work on such a dam may proceed, if an application for approval thereof is filed, until an order from the department is received approving the dam or specifying how its construction must be made or altered to render it safe. After receipt of an order directing the construction of such a dam, work thereafter must be in accordance with the order.

6452. Dams found to be 90 percent or more constructed on August 14, 1929, shall be subject to the same supervision as dams which were completed prior to that date.

Chapter 10. Dams and Reservoirs Under
State Supervision Through
1965 Revisions of Part 1

Article 1. Dams and Reservoirs
Completed Before 1965
Revisions

6455. Every owner of a dam or reservoir that falls within the definition of a dam or reservoir in this part by virtue of the amendment of Section 6002 or the addition of Section 6004.5 at the 1965 Regular Session of the Legislature and that was completed prior to September 17, 1965, shall immediately file an application with the department for the approval of such dam or reservoir, provided that this Chapter 10 shall not apply to any reservoir which contains the water impounded by a dam for which a certificate of approval is in effect on September 17, 1965.

6456. A separate application shall be made for each dam or reservoir and shall be filed with the department upon forms to be supplied by it and shall include or be accompanied by such appropriate information concerning the dam or reservoir as the department requires.



6457. The department shall give notice to file an application to owners of such dams or reservoirs who have failed to do so as required by this article, and a failure to file within 30 days after such notice shall be punishable as provided in this part.

6458. The notice provided for in this article may be given by registered or certified mail and a return receipt signed by the owner shall constitute prima facie evidence of service.

6459. The department shall make inspections of such dams or reservoirs at state expense.

6460. The department shall require owners of such dams or reservoirs to perform at their expense such work or tests as necessary to disclose information sufficient to enable the department to determine whether to issue certificates of approval or to issue orders directing further work at the owners' expense necessary to safeguard life and property. For this purpose, the department may require an owner to lower the water level of, or to empty, the reservoir.

6461. If, upon inspection or upon completion to the satisfaction of the department of all work that may be ordered, the department finds that the dam or reservoir is safe to impound water, a certificate of approval shall be issued. The owner of the dam or reservoir shall not, through action or inaction, cause the dam or reservoir to impound water following receipt by the owner of a written notice from the department that a certificate will not be issued because the dam or reservoir will not safely impound water. Before such notice is given by the department, the department shall hold a hearing. Written notice of the time and place of the hearing shall be mailed, at least 20 days prior to the date set for the hearing, to the owner of the dam or reservoir. Any interested persons may appear at the hearing and present their views and objections to the proposed action. Any petition for a writ of mandate to inquire into the validity of the action of the department shall be commenced within 30 days after receipt by the owner of a written notice from the department that a certificate of approval will not be issued.



Article 2. Dams and Reservoirs
Under Construction
Before 1965 Revisions

6465. Any dam or reservoir that falls within the definition of a dam or reservoir in this part by virtue of the amendment of Section 6002 or the addition of Section 6004.5 at the 1965 Regular Session of the Legislature and which the department finds was under construction and not 90 percent constructed on September 17, 1965, shall, except as provided in Section 6466, be subject to the same provisions in this part as a dam or reservoir commenced after that date. Every owner of such a dam or reservoir shall file an application with the department for the department's written approval of the plans and specifications of the dam or reservoir. Where an application for approval of the plans and specifications for a dam is pending before the department on September 17, 1965, such application shall be deemed to also constitute an application for approval of the plans and specifications of the reservoir which will contain the water impounded by the dam.

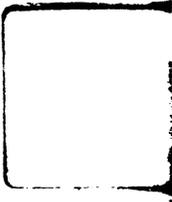
6466. Construction work on such a dam or reservoir may proceed, provided an application for approval of the plans and specifications therefor is filed, until a certificate of approval is received by the owner from the department approving the dam or reservoir or an order is received by the owner from the department specifying how the construction must be performed to render the dam or reservoir safe. After receipt of an order specifying how construction of the dam or reservoir must be performed, work thereafter must be in accordance with the order.

6467. Such dams or reservoirs as are 90 percent or more constructed on September 17, 1965, shall be subject to the same supervision as dams or reservoirs which were completed prior thereto.

Article 3. Fees for Dams or Reservoirs
Under Construction Before
1965 Revisions

6470. The owners of completed dams or reservoirs and dams or reservoirs that are 90 percent or more constructed that are made subject to the provisions of this part by the amendment of Section 6002 or the addition of Section 6004.5 at the 1965 Regular Session of the Legislature shall not be required to pay a fee in relation to applications filed with the department for





approval of their dams or reservoirs. Applications for the approval of dams or reservoirs that are made subject to this part by said amendment or addition that are found by the department to have been less than 90 percent constructed on September 17, 1965, shall be accompanied by fees as much less than provided for dams or reservoirs commenced after that date as the percentage of construction found by the department to have been completed on that date.

PART 2. FISHWAYS OVER DAMS

6500. Whenever an application for approval of plans and specifications for a new dam, or for the enlargement of any dam, in any stream in this State, is filed pursuant to Part 1 of this division, a copy of the application shall be filed with the Fish and Game Commission as required by the Fish and Game Code.

6501. The provisions for the installation of fishways over or around dams and for the protection and preservation of fish in streams obstructed by dams are contained in Chapter 3 (commencing with Section 5900), Part 1, Division 6 of the Fish and Game Code.

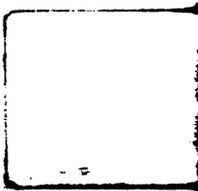




CALIFORNIA CODE OF REGULATIONS

Title 23. Waters

Division 2. Department of Water Resources





Chapter 1. Dams and Reservoirs

Article 1. General Provisions

301. Definitions. As used in this subchapter, the terms "dam", "reservoir", "owner", "alteration", "enlargement", and "water storage elevation" shall have the meanings given in Sections 6002 and 6004.5 through 6008 of the Water Code.

NOTE: Authority cited: Section 6078, Water Code; Reference cited: Sections 6002-6008, Water Code.

302. Purpose and Effect of Regulations. The regulations in this subchapter are not intended to limit the authority of the department to act under the police power of the State to the extent authorized by law, when necessary to protect life and property from a dam or reservoir which constitutes, or which may constitute a danger to life and property, and they shall not be interpreted as depriving the department of such authority to protect life and property from a dam or reservoir.

NOTE: Authority cited: Section 6078, Water Code. Reference: Sections 6075, 6081, and 6110, Water Code.

303. Evidence of Water Rights.

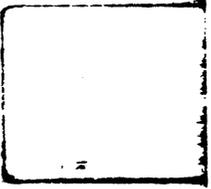
(a) The department will not issue a written approval to commence construction or enlargement of a dam or reservoir until the applicant or owner demonstrates evidence of adequate water rights in accordance with the requirements of this section.

(b) The applicant or owner shall provide the department with either:

(1) A copy of an entitlement to the use of water issued by the State Water Resources Control Board pursuant to Division 2, Part 2 (commencing with Section 1200) of the Water Code; or

(2) If the right to divert or use water does not depend on an entitlement identified in subsection (1) above, a statement of the legal basis of the right.

(c) The applicant or owner shall also provide the department with either:





(1) Evidence that a statement of water diversion and use has been filed with the State Water Resources Control Board pursuant to Division 3, Part 1, Chapter 5 (commencing with Section 5100) of the Water Code, or

(2) A statement either establishing that a statement of water diversion and use is not legally required, or showing good cause for not filing one.

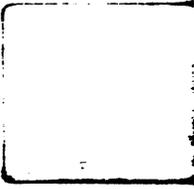
(d) The department shall obtain a written statement from the staff of the State Water Resources Control Board stating whether the water right is adequate for the proposed dam and reservoir.

(e) If a right to divert or use water is based upon a claim of riparian rights, or rights to appropriate water established prior to 1914, and such claim is disputed by the State Water Resources Control Board, the department shall not withhold approval to commence construction solely upon the basis of such a dispute, provided that it is satisfied with the evidence of a water right provided pursuant to subsection (b) above.

(f) In the event that the State Water Resources Control Board has initiated proceedings to determine whether to authorize use of water, and no decision has been issued, written approval to commence construction or enlargement shall not be withheld pursuant to this section after the 120th day following either the date that the matter is submitted to the Board for decision after hearing or, if no hearing is held, the date on which the protest period closes.

NOTE: Authority cited: Section 6078, Water Code. Reference: Sections 1052, 6075, 6202(d), 6205, 6264, Water Code.

304. Civil Engineering Plans and Specifications. Plans and specifications which are submitted to the department shall be prepared by, or under the direction of, a civil engineer who is registered pursuant to California law and authenticated by him as provided in the Business and Professions Code, or be prepared by such other person as may be permitted under the provisions of said code to prepare such plans and specifications, in which case satisfactory evidence of such other person's right to so act shall be submitted to the department when the plans and specifications are submitted.



NOTE: Authority cited: Section 6078, Water Code. Reference: Section 6371, 6374-6375, Business and Professions Code.

305. Civil Engineering Supervision of Construction. The work of construction, enlargement, repair, alteration or removal of a dam or reservoir shall be under the responsible charge of a civil engineer who is registered pursuant to California law or of such other person as may be permitted under the provisions of the Business and Professions Code to assume responsible charge of such work.

NOTE: Authority cited: Section 6078, Water Code. Reference: Section 6206, Water Code; Section 6731, 6374-6375, Business and Professions Code.

Article 2. Applications for Construction, Enlargement, Repair, Alteration, or Removal of Dams or Reservoirs

310. Applications for Construction or Enlargement.

(a) This section shall apply to applications for the department's approval of plans and specifications for the construction or enlargement of dams and reservoirs.

(b) Applications for construction or enlargement of a dam and reservoir shall be made on printed forms provided by the department. The department shall also provide written instructions for completing the application.

(c) The amount of information required will depend on factors such as the size of the proposed dam and reservoir, potential hazards, hydrology of the watershed, complexity of the site and proximity to active faults.

(d) Plans, maps, specifications and other information required for an application shall be provided in sufficient clarity and detail to be readily interpreted and studied, and to permit an adequate evaluation of the safety of the proposed work.

(e) The department may require the filing of any information, in addition to that specified in this section which, in its opinion, it considers necessary to determine the safety of the dam and reservoir.

(f) In addition to the information required by Water Code Section 6201-6206, and subsections (b)-(e), an application shall also include the following:

(1) Evidence of water rights, as required by Section 303.

(2) Information necessary to enable the department to comply with the requirements of the California Environmental Quality Act (Public Resources Code Sections 21000-21174). This information shall be either:

(A) A copy of the environmental impact report (EIR) or negative declaration prepared by a lead agency, or evidence that a lead agency is preparing or will prepare environmental documentation, or

(B) Data and information necessary for the department to act as a lead agency to prepare environmental documentation, where it is required by law to do so.

(3) Where the department acts as a responsible agency, the lead agency's EIR or negative declaration must be submitted to the State Clearinghouse.

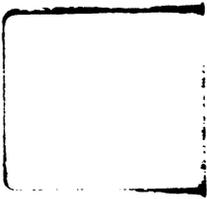
(4) The fee required by Water Code Section 6300 as made specific by Section 314 of this subchapter.

NOTE: Authority cited: Section 6078, Water Code; Reference cited: Sections 6200-6206, Water Code; and Sections 21002.1(d), 21083, Public Resources Code.

311. Criteria for Determining Completeness.

(a) Applications will be considered complete when the department has received the completed, signed application form, the information and fee required in Water Code Sections 6201 and 6206 and Section 310(d)-(f), and the fee required by Sections 6300-6302 of the Water Code.

(b) The department on its own motion may waive any information required for a complete application, including but not limited to the requirements of Section 303 where it determines that it has sufficient information to commence and complete a review within



applicable time limits, and that all requirements for issuance of an approval will be met within such time limits.

(c) The requirements published by the department pursuant to Section 310 shall set forth the procedures that the department will follow to review an application.

(d) Failure to comply with a request for information pursuant to such procedures within a reasonable time and in a reasonably responsive manner shall be cause for the department to disapprove the application.

NOTE: Authority cited: Section 6078, Water Code. Reference: Section 65941, Government Code.

312. Standard Terms.

(a) The following are standard terms and conditions included in any approval of a dam safety application:

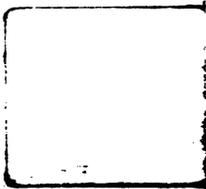
(1) Construction work shall be started within one year from date of approval.

(2) No foundations or abutments shall be covered by the material of the dam until the Department has been given an opportunity to inspect and approve the same.

(b) General Safety Requirement. In addition to the above terms and conditions, the law requires that a dam shall at all times be designed, constructed, operated and maintained so that it shall not or would not constitute a danger to life or property, and the Department may, at any time, exercise any discretion with which it is vested, or take any action necessary to prevent such danger.

NOTE: Authority cited: Section 6078, Water Code. Reference: Sections 6075, 6260-6267, Water Code.

313. Automatic Approval of Applications. Applications approved in accordance with Government Code Section 65956 shall contain the terms and conditions set forth in Section 311. Such approvals may be revoked or modified at any time and under any conditions which would apply to any other approval granted under Division 3, Part 1 of the Water Code.



NOTE: Authority cited: Section 21082, Public Water Code. Reference: Section 21089, Public Resources Code; Sections 6301-6305, Water Code.

314. Filing Fee.

(a) Amount of Fee. The estimated cost of the dam and reservoir or enlargement as specified in Section 6302 of the Water Code shall include engineering, geologic, surveying, construction supervision, and administrative costs.

NOTE: Authority cited: Section 6078, Water Code; Reference cited: Section 6302(d), Water Code.

Article 3. Annual Fee.

315. Annual Fee.

(a) Determination of Amount. The department shall determine the amount of the annual fee as of June 30 each year and shall inform each owner of that amount on or before October 31 of each year.

(b) Penalty for Delinquent Payment of Annual Fee. An owner who fails to pay any part of any annual fee on or before December 31, as required by Section 6307 of the Water Code, shall be penalized in accordance with Section 6428 of the Water Code.

NOTE: Authority cited: Section 6078, Water Code. Reference: Section 161, Water Code; and Sections 6307, 6428, Water Code.

316. Inoperative Dams.

A dam will not be considered to be substantially completed or in operation for annual fee purposes, where the department determines that it has been rendered inoperative on other than a temporary basis. In making its determination the department will consider the following circumstances, among others, with respect to the dam:

(a) Alteration of the outlet facilities to assure maximum possible uncontrolled water release through the outlet works.

(b) Absence of water impounding capability under reasonably foreseeable conditions, taking into account the size of the drainage area.

(c) Absence of benefit from the dam and reservoir to the owner or others.

The Department may determine that a dam is no longer inoperative when investigation reveals that conditions which rendered the dam inoperative on other than a temporary basis have changed. In this event the dam will be considered substantially completed or in operation on the date such determination is made, and the annual fee shall be charged on a pro rata basis.

NOTE: Authority cited: Section 6078, Water Code. Reference: Section 6307, Water Code.

Article 4. Small Dams Review Board

320. Small Dams Review Board.

In the Department there shall be a Small Dams Review Board consisting of a chairperson who shall be the Division Chief, Division of Design and Construction; a qualified engineer or geologist appointed by the Division Chief, Division of Safety of Dams; and, for each review, a consulting engineer who would be agreed upon by the department and the dam owner.

NOTE: Authority cited: Section 6078, Water Code. Reference: Sections 6054, Water Code.

321. Scope of Review.

(a) The Board shall be convened upon the request of any owner of a small dam or proposed small dam to review any decision or order of the department respecting any technical standard, study requested, engineering requirement or other technical matter required by the department where the owner disputes the basis for such requirement, the need for such requirement, or the facts found by the department.

(b) No review shall be undertaken if, in the opinion of the department, there exists an immediate hazard to life or property. This subsection shall not be construed to bar a Small Dams Review Board proceeding after, in the judgment of the department, an immediate hazard to life and property no longer exists.

NOTE: Authority cited: Section 6078, Water Code. Reference: Sections 6054, Water Code.

322. Small Dam Defined.

"Small Dam" means any dam less than 25 feet in height with a reservoir storage less than 2,000 acre-feet.

NOTE: Authority cited: Section 6078, Water Code. Reference: Sections 6054 and 6055, Water Code.

323. Time to Request Board Review; Filing Fee.

(a) The owner must request board review within 60 days of the disputed departmental action. The request must be made to the Division Chief, Division of Safety of Dams and must state the facts and circumstances on which such owner bases his grievance.

(b) The owner shall remit, at the time the grievance is filed, the amount of \$250 to partially defray the cost and expense of the Board.

(c) If the Board meets for more than one day, the department shall bill the owner for its additional costs incurred for subsequent days.

NOTE: Authority cited: Section 6078, Water Code. Reference: Sections 6054 and 6055, Water code.

324. Time and Conduct of Review.

The Board shall review the owner's grievance promptly after such grievance is filed. The review shall be conducted in an informal manner. The Board shall consider all relevant information and data presented by the owner, his engineer, or any other person.

NOTE: Authority cited: Section 6078, Water Code. Reference: Sections 6054, Water Code.

325. Findings of the Board.

Based upon information and data secured during the review, the Board shall refer its findings to the Division Chief, Division of Safety of Dams, regarding the matter which led to the grievance. Decisions made by the Division Chief shall be final.

NOTE: Authority cited: Section 6078, Water Code. Reference: Sections 6054, Water Code.

Article 5. Dams Owned by the Department
of Water Resources.

330. Consulting Board.

Pursuant to Section 6056 of the Water Code, the department shall retain a board of three consultants to report to the Director on the safety of dams owned by the department.

NOTE: Authority cited: Section 6078, Water Code. Reference: Section 6056, Water Code.

331. Scope of Review.

The consulting board shall make independent findings with regard to conditions which may affect the safety of the dam and reservoir as specified in Section 6081 of the Water Code, and the board shall also make independent findings that the dam is safe to impound water, as specified in Section 6355 of the Water Code.

NOTE: Authority cited: Section 6078, Water Code. Reference: Sections 6056, 6081, 6355, Water Code.

332. Actions for Which Board Is Retained.

(a) The department shall retain a consulting board:

(1) To review the adequacy of the design of a dam and reservoir the department proposes to construct, or

(2) To review the safety of the completed construction and the terms and conditions to be included in a certificate of approval for any dam owned by the department as issued, renewed or modified, no later than six months following any such action.

(b) Where a board is retained to review the adequacy of the design of a dam and reservoir, it shall report its findings to the Director prior to the approval of an application to construct or enlarge the dam.

NOTE: Authority cited: Section 6078, Water Code. Reference: Section 6056, Water Code.



333. Periodic Review.

In addition to the times specified in Section 332, the department shall retain a review board at least once every five years to review the operational performance of department owned dams. The Federal Power Commission's five year independent review may be substituted if it is comparable to the review required by this article.

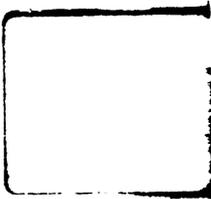
NOTE: Authority cited: Section 6078, Water Code. Reference: Section 6056, Water Code.



40



CURRENT PRACTICES
OF THE
DEPARTMENT OF WATER RESOURCES
IN
SUPERVISION OF DAMS AND RESERVOIRS



Introduction

The following is provided to help the reader comply with the requirements of the foregoing sections of the Water Code (WC) and the California Code of Regulations (CCR). Current practices of the Department of Water Resources in supervision of dams and reservoirs in State jurisdiction are given. Information required for applications is outlined. (CCR 310)

Division of Safety of Dams

Responsibility for supervision of dams and reservoirs is assigned to the Division of Safety of Dams.

Dams and Reservoirs in State Jurisdiction

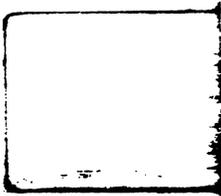
Water Code Sections 6000 to 6004.5 and 6025.5 identify dams and reservoirs that are in State jurisdiction. Note that dams and reservoirs owned by the United States are not subject to State jurisdiction.

The Division will review, on request, existing or proposed impoundments and determine if they are or will be in State jurisdiction. Plans for proposed impoundments are usually required before determinations can be made.

Proposed Dams and Reservoirs

The Division of Safety of Dams inspects sites, reviews preliminary plans, and comments on firm proposals for proposed dams and reservoirs. It attempts to inspect representative field exploration, unique laboratory testing, etc., for proposed facilities. However, any comments based on preliminary plans and data are not binding on the Division's later consideration of applications.

In matters relating to the California Environmental Quality Act, the Department of Water Resources is the lead or responsible agency for dams and reservoirs. Environmental consideration for dams and reservoirs not directly related to safety is assigned to the Department's four districts. Usually, the Division of Safety of Dams makes preliminary reviews of dam and reservoir proposals, as discussed above, before environmental documentation is prepared. Other water related concerns are handled by the appropriate district.





Procedure for Construction or Enlargement of Dams and Reservoirs

1. If adequate water rights are not already held, file an application for water rights with the State Water Resources Control Board, Division of Water Rights, 901 P Street, Sacramento, CA 95814. Evidence of water rights is required before a construction or enlargement application can be approved. (CCR 303)
2. Pre-application meetings are not required by the statutes or regulations. Practice, however, has shown that early involvement of DSOD in projects is most beneficial for aggressive project schedules. CEQA scoping meetings, early site visits to view exploration, preliminary design discussions, project schedule reviews, and submittal of preliminary 60 percent plans, specifications, and geologic data are recommended to expedite review leading to final approval.
3. File application for construction or enlargement of dam. (CCR 310) Include:
 - (a) Application forms (DWR 3) in duplicate to Department of Water Resources, Division of Safety of Dams, P. O. Box 942836, Sacramento, CA 94236-0001, (2200 X Street, Suite 200), plus one copy to the Fish and Game Commission in care of the State Department of Fish and Game, 12th Floor, Resources Building, 1416 Ninth Street, Sacramento, CA 95814, if the dam is in a stream. (WC 6500) Sign all copies.
 - (b) Plans prepared by registered civil engineer (or Soil Conservation Service engineer). (CCR 304) Such plans shall be filed in duplicate in the form of paper prints. Unsigned, nearly complete, prints should be submitted.
 - (c) Specifications in duplicate. Nearly complete specifications should be submitted.
 - (d) Filing Fee. (WC 6300-6306, 6309, and CCR 314)
 - (e) Certain additional information may be desirable, or may be required, depending upon the magnitude of the project. Such added information may include soils data, logs of borings or other exploratory data, geologic reports, hydrologic data, structural and hydraulic design notes, etc.

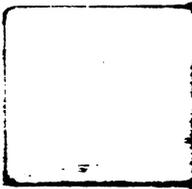


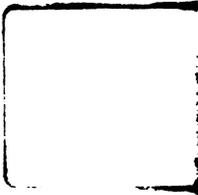
(f) Information to enable the department to comply with the California Environmental Quality Act and regulations. This information is as appropriate:

- (1) A copy of the environmental impact report or initial study--negative declaration prepared by a lead agency or evidence that a lead agency is preparing or will prepare environmental documentation, or (2) Data and information necessary for the department to act as lead agency to prepare the environmental documentation.

The environmental documentation in either case must be submitted to the State Clearinghouse for processing and review.

4. Within 30 days after receipt of an application, the Division informs the applicant that application is complete or of the information necessary to make it complete.
5. After review of plans, specifications, etc., and inspection of the site, changes in the plans and specifications, and any supplemental data necessary for approval, will be identified.
6. Submit signed drawings in triplicate and final specifications in duplicate for application approval when review comments are resolved.
7. All civil engineering work is to bear the seal or stamp of the responsible engineer and shall be signed across the face with the expiration of the certificate shown on or adjacent to the seal. Civil engineering work includes plans, specifications, reports, and documents which are prepared under the Civil Engineering Practice Act.
8. Notify the division when construction is to begin and keep it informed through its field engineers of the status of construction work at all times. Inspections are made during construction as deemed necessary. No foundations or abutments shall be covered until the DSOD field engineer has inspected and approved them.
9. Upon completion of construction, notify the division by letter, and final inspections are made as soon as practicable after notice is received.



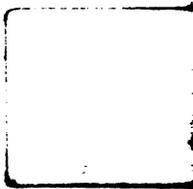


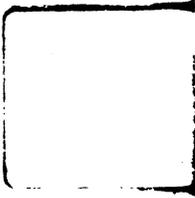
10. As soon as possible after completion of the dam and final inspection by the division's field engineer, file the following:
 - (a) Affidavit of cost of construction. Attach breakdown of costs, including engineering.
 - (b) Additional filing fee if final cost exceeds estimated cost by more than 15 percent.
 - (c) As-constructed plans, if required, in the form of paper prints.
11. A Certificate of Approval will be issued upon a finding that the dam and reservoir are safe to impound water within the limitations prescribed in the Certificate. Impoundment of water must not commence until this Certificate is issued.

Procedure for Repair or Alteration of Dams or Reservoirs

The procedure is the same as for construction or enlargement except for the following:

1. Evidence of water rights is not required.
2. Use application form DWR 4.
3. Plans and specifications may not be required for minor work.
4. There is no filing fee.
5. Minor work may be exempt from the environmental documentation process.
6. Only two sets of signed plans are required for application approval.
7. The certificate of approval is only modified when the alteration or repair changes the approved water surface elevation.





Procedure for Removal of Dams and Reservoirs

The procedure is the same as for construction or enlargement except for the following:

1. Evidence of water rights is not required.
2. Use application form DWR 5.
3. There is no filing fee.
4. Only two sets of signed plans are required for application approval.
5. The certificate of approval, if any, is returned to the division.

For further information on the department's procedures, please contact the Division of Safety of Dams, P. O. Box 942836, Sacramento, CA 94236-0001, (2200 X Street, Suite 200), or Telephone (916) 445-1816.



Response No. 9

Department of Water Resources, Division of Safety of Dams

Mr. Vernon H. Persson

- 9a. Section 3.7 of the Draft EIR addresses the role of DSD in the project approval process. This section will be modified to indicate that a "construction application" is required, rather than "design approval". The attached materials detailing DSD requirements are hereby incorporated by reference into the Final EIR record.

Memorandum

COMMENT 10

To : Mr. Tom Loftus
 State Clearinghouse
 1400 Tenth Street, Room 121
 Sacramento, CA 95814

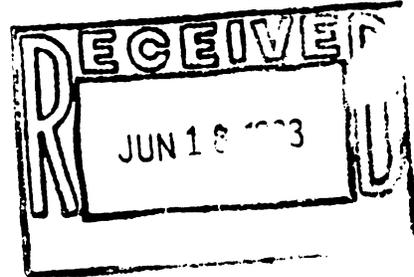
Date : June 14, 1993
 IGR/CEQA
 File No.: DEIR; Amargosa Creek
 Improvement Project
 City of Palmdale
 Vic. LA-14-R59.80

Wilford Melton - District 7

From : DEPARTMENT OF TRANSPORTATION

Subject : Project Review Comments

SCH No.90010820



Caltrans has reviewed the above-referenced document. Based on the information received, we find no apparent impact on the State Transportation System and have no objections to construct flood control facilities and infrastructure along Amargosa Creek/Elizabeth Lake Road between Godde Hill Road and 10th Street West. **a**

If you have any questions regarding this response, please call me at (213) 897-1338.

Original Signed By.

WILFORD MELTON
 IGR/CEQA Coordinator
 Advance Planning Branch

cc: Laurie Lile ✓
 City of Palmdale
 38306 9th Street East

Response No. 10

Mr. Wilford Melton

Caltrans District 7

10a. No response is required.



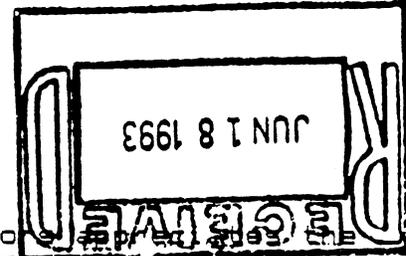
A.V. United Water Purveyors

3507 East Avenue H-4 Lancaster, California 93535 (805) 946-2256

June 15, 93

To: Palmdale Planning Department
Attn: Laurie Lyle

Subject: DEIR 90-1 Response



The Antelope Valley United Water Purveyors provides the following opportunity to comment on the Amargosa Creek Assessment Project, and offers the following;

1) DEIR fails to identify water quality impacts to the Lancaster Subunit and adjacent Mutual Water Companies, to which the Amargosa Creek is the primary water recharge. DEIR identifies various pollutant materials which will be removed through upstream basins, but fails to identify those pollutant materials and quantities which remain and will enter the Lancaster Subunit. An assessment of these impacts and mitigation is warranted.

a

2) DEIR fails to address the Lancaster Subunit groundwater recharge loss as a result of proposed channelization of the Amargosa Creek between 25th street west and Ave N. Since this area is the main recharge for several of our member Mutual Water Companies, impacts to our groundwater supplies are expected. Further analysis, impact identification, and mitigation is warranted.

b

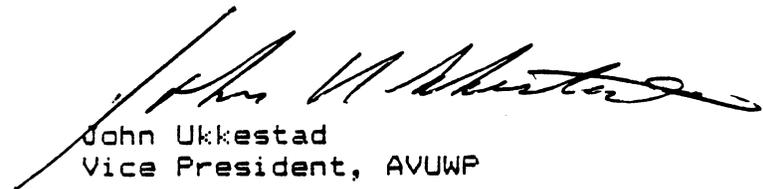
3) DEIR fails to address the impacts to Mutual Water Company Wells as a result of the excavations of Basin F and the temporary Basins MM and OO in the vicinity of 25th street west and Elizabeth Lake Road. Will these excavations in the recharge zone draw water and create a ground water demand imbalance, ie; reduce water supplies at existing historical well sites?

c

4) It is requested responses be provided to comments submitted Oct 2, 91, attachment is enclosed.

d

The AVUWP looks forward to your response, questions may be addressed to the undersigned.


John Ukkestad
Vice President, AVUWP

2008 W. ave M-12
WEST PALMDALE, CA.
93551

Antelope Valley United Water Purveyors

Palmdale Water District
West Valley Water District
Rosamond Community Services District
A.V. Water
White Fence Farms
Land Projects
Eldorado
Averdale
Landale
Sunnyside Farms
Westside Park
Antelope Park
Shadow acres
Evergreen
Aqua J
Terra Bonita
Baxter
Blythe

October 2, 1991

To: Palmdale Planning Department

SUBJECT: EIR 90-1 Response

After careful review of the environmental impact report recently released for the Amargosa Assessment District, the Antelope Valley United Water Purveyors offers the following comments and recommends a serious re-evaluation of the approach proposed for extended water use and the potential for groundwater contamination.

1. The proposed WADP-1 indicates a raw sewage pipeline with an average daily rate of 5.5 million gallons will run 2.9 miles under Amargosa Creek and travel to the east Palmdale sewage treatment facility. In addition, this sewer line is located for the same 2.9 miles over the San Andreas Fault which according to the EIR is projected to shear 15 feet within the next 30 years plus. The probability is high according to the EIR that raw sewage will be released into the environment, with 2.9 miles of exposure this is most likely assured.

When this earthquake occurs it is likely the aqueduct which crosses the fault 3 times will fail in several places and it could be assumed import water will be unavailable for an extended period of time, perhaps years. This event will then make the Antelope Valley groundwater supplies the sole source for residential water supply.

Since the Amargosa Creek at the west end of the project is a wetland, direct introduction of this raw sewage to the water table is expected in Leona Valley, and rapid local well contamination would follow. Further east the Amargosa runs thru west Palmdale, Lancaster and eventually to Rosamond Dry Lake. Besides the ecological/environmental consequences, the Antelope Valley main aquifer would be contaminated since the Amargosa Creek is a main recharge zone for the Lancaster sub-unit.

It is our opinion this sewage line should not be located over an active fault and within a recharge stream. We would suggest on-site sewage treatment and/or alternative sewer line placement.

2) The proposed AAD70-1 indicates 4300 lbs of road pollutants will wash into the Amargosa Creek annually from the Elizabeth Lake Road Improvement. Additionally, this project is stated to support 22,000 dwelling units of which it is estimated two thirds will be in the Amargosa Creek watershed. What are the total projected pollutance loads will end up in the Amargosa Creek per Elizabeth Lake Road, plus watershed area development and proposed golf course?

These pollutants would be expected to contaminate the local Antelope Valley water table plus the Lancaster subunit. What mitigation measures are planned?

3) As stated in the AAD70-1 this project will promote development which will require 40,000 acre ft. of water annually.

Our study "Water Resources of the Antelope Valley" released April 1991, indicated conservatively in 1990, 101,219 acre ft of water was withdrawn from the aquifer and in 1991 with the Aqueduct deliveries cut 20%, 148,570 acre ft of water would be withdrawn resulting in a continuation of the overdraft, 40,519 acre ft in 1990 and over 104,890 acre ft in 1991.

According to the USGS 10,720 acre ft is the safe yield from the aquifer. This existing withdrawal of water exceeding the recharge is causing Antelope Valley well levels to drop, well contamination, ground subsidence, fissuring and sinkholes throughout the Valley.

This project is proposed to use import water primarily which we endorse, but since the GWP is an interruptable water source, sufficient groundwater supplies must be the basis for project approval.

The question where is the water coming from? Until sufficient groundwater supplies are available to meet existing demand, it would not seem prudent to add another user to deplete further our overdrawn groundwater supply.

The Antelope Valley United Water Surveyors Association is the second largest water surveyor in the Antelope Valley representing 18 water companies both mutuals and districts. Protecting the quality and limited supply of our groundwater resource is of utmost importance, this project as proposed, places our future water quality and availability in serious jeopardy.

Tom Husted
Vice President
AVUWA

Response No. 11

Mr. John Ukkestad

A.V. United Water Purveyors

- 11a. The Draft EIR identifies water quality impacts as significant. However, with implementation of project design features (such as detention basins and the wetland features, which serve to trap or filter out pollutants) and mitigation measures, downstream pollutant levels are not expected to significantly increase. It should also be noted that significant cumulative water quality impacts may occur, although NPDES requirements for residential areas are expected to substantially reduce this impact. Sediment control will be incorporated into the project design. Quantities of pollutants which are not mitigated through project design or mitigation measures have not been determined as such quantification would be speculative due to the variables involved.
- 11b. The project is only proposing channelization of Amargosa Creek from 25th Street West to 10th Street West. The pipe north of SR-14 is for nuisance flows only. Earlier plans to channelize Amargosa Creek north to Avenue M are not being pursued at present due to lower design flows. Section 6.5, Item 4, addresses a soft-bottomed channel alternative, which may require additional land acquisition in order to accommodate the projected stormflows. This alternative is considered environmentally superior to the proposed project. The City Council will consider this design alternative along with all other options presented.
- 11c. According to information obtained by the U.S. Geological Survey, groundwater depths at the location of the proposed detention basins exceed the proposed excavation depths. Therefore, excavation of the proposed detention basins will have no effect on the local groundwater aquifer and nearby wells which draw water from this aquifer.
- 11d. Comments raised in the referenced letter were for a previous project. The issues raised are either addressed in the Draft EIR or in the above responses to comments, as follows:

Seismic damage: Section 4.8, RISK OF UPSET

Water quality: Section 4.3, WATER RESOURCES, and Response No. 21f

Water Supply: Section 4.11, PUBLIC SERVICES AND UTILITIES, and Response No. 21f

Kaufman and Broad of Southern California, Inc.
Antelope Valley Division
38345-A 30th Street East
Palmdale, California 93550
Tel: (805) 265-7676 Fax: (805) 266-0013

Kaufman Δ Broad

COMMENT 12

June 15, 1993

Ms. Laurie Lile
Planning Department
City of Palmdale
38306 9th Street East
Palmdale, Ca. 93550

Re: Comments on Draft Environmental Impact Report
for the Amargosa Creek Improvement Project;
SCH #90010820.

Dear Laurie:

Following are Kaufman and Broad's comments on the Draft EIR for the Amargosa Creek Improvement Project:

1. Executive Summary; Construction Related Elements; Page 1.0-2: In the discussion of the undergrounding of "dry" utilities, for clarity, we suggest that it be noted that Southern California Edison's major transmission lines which cross the present and future alignments of Elizabeth Lake Road will remain above ground. This is also true of the 66kv transmission line Edison is in the process of completing adjacent to its existing facilities. a

2. Environmental Summary; Geology Mitigation Measures; Pages 1.0-7: 4.1.2d...In the second sentence of the mitigation measure, we would suggest that it be restated; "This may include soils removal...," as this will be determined by the project's geotechnical consultant observing the work based on conditions encountered in the course of construction. b
4.1.2e...This mitigation measure should read, "...investigations shall be performed and where appropriate, remediation shall be implemented to the satisfaction of the City Engineer in conjunction with the construction of the project." This reflects what will actually occur during construction as one cannot mitigate for clay soils except during construction.

3. 4.1.3a To reflect actual construction practices we suggest adding, "...as determined by the project's geologic and geotechnical consultants to the satisfaction of the City Engineer." to the conclusion of this mitigation measure. c

4. Environmental Summary; Air Resources Mitigation Measures; page 1.0-9, Bullet 7...The word "sustained" should be inserted before local winds to differentiate from occasional gusts. d

5. Air Resources Mitigation Measure; 4.2.2; Bullet 1; Page 1.0-10. Delete the phrase, "as may be subsequently amended." As drafted, this could require mitigation that would be impossible to comply with and is beyond what can be required. As drafted, this mitigation measure may be in conflict with previous project approvals. | e
6. Environmental Summary; Risk of Upset; Page 1.0-23: We believe the Final Environmental Impact Report for Sanitary Sewer Line Portion of Amargosa Creek Improvement Project Phase 1 certified by the City on December 9, 1992 provides a more appropriate mitigation measure for this issue in its Mitigation Measure #3 which states: "In the detail design stage of the project and in conjunction with the required geotechnical investigation, the City Geologist shall implement proper design techniques to minimize potential for seismic damage." Following this statement one could suggest that the mitigation measures may include 4.8.1a through 4.8.1h as drafted. This will allow for the maximum flexibility in the design stage of the project while ensuring that the risk of upset is addressed. | f
7. Exhibit 3.0-2: It would be helpful to number the project segments shown on this exhibit and to refer to the segments as both Project Area Segments and Planning Areas, as the text of the Draft EIR uses both terms and refers to Planning Area numbers without definition or reference to an exhibit leaving the reader confused. | g
8. Exhibits 3.03 A through E: Number the exhibits to correspond with the change suggested in Item 7 above. | h
9. Elizabeth Lake Road Detours; Page 3.0-15: Depending on the timing of the subject project and Kaufman and Broad's development of Area 6 of the City Ranch Specific Plan, the construction of "a new temporary road...south of Elizabeth Lake Road, between 20th Street West and 30th Street West", may not be necessary. We would suggest the word "may" replace "will", in this sentence. This comment applies to similar statements in Construction Related Elements on page 1.0-2 and Elizabeth Lake Road 20th Street West to 30th Street West on Page 3.0-17. Additionally, any detour or phased construction plan would be subject to the approval of the City Engineer. | i
10. Utility Line Relocation; Page 3.0-16: Comment No. 1 above is applicable to this section. | j
11. NPDES; Page 3.0-28: This permit requires measures to eliminate the discharge of pollutants downstream rather than permitting discharge of pollutants, and the subject project shall require such a permit. | k
12. South Coast Air Quality Management District Permit to Operate; Page 3.0-28: We are not aware of a proposed sewer lift station in the subject project, and hence, question why it is mentioned. | l
13. Topography; 2nd Paragraph; Page 4.1-1 is an illustration of the confusion described in Comment 7 above, in that Planning Area 3 is undefined. | m

- 14. Mitigation Measures; Geology 4.1-2d & e; Page 4.1-18; Comment 2 above is applicable to these mitigation measures. | n
- 15. Mitigation Measures; Faulting and Seismicity 4.1.3a: Page 4.1-18. Comment 3 above is applicable this mitigation measure. | o
- 16. Air Resources; Regional Impacts; page 4.2-18: Lacking in the discussion of Regional Impacts is acknowledgement that the issues presented in this section we discussed in both the EIR's for City Ranch and Ritter Ranch and both projects contain mitigation measures for the regional impacts. Additionally, we have concerns that the mitigation measures for the subject project and those for City Ranch and Ritter Ranch be consistent in their treatment of impacts. | p
- 17. Mitigation measures; Air Resources 4.2.1; Bullet 7, Page 4.2-22: Comment 4 above is applicable to this mitigation measure. | q
- 18. Mitigation Measures; Project Operation 4.2.2; Bullet 1, page 4.2-23: Comment 5 above is applicable to this mitigation measure. | r
- 19. Biological Resources; Mojave Ground Squirrel; Page 4.4-24: The discussion of the Mojave ground squirrel should reflect its recent delisting by CDFG. | s
- 20. Noise Standards; Page 4.5-2; The second sentence in this section states, "The residential outdoor noise standard is 50-60 CNEL ("Normally Acceptable")...This statement appears to be derived from Table 4.5-1 which was taken from Table N-1 of the City of Palmdale's General Plan. When one reviews the General Plan Policy N1.1.4, Page N-3 of the General Plan, one find's that, "The State Recommended Acceptable Noise Guidelines, listed in Table N-1, are provided as guidelines only, and are not represented as standards." The standard is 65 CNEL as set forth in Policy N1.1.2 of the General Plan and Table N-3 thereof. Accordingly, this section should be revised. | t

We appreciate the opportunity to comment on the Amargosa Creek Improvement Project EIR, and should you have any questions concerning our comment, please do not hesitate to contract us.

Very truly yours,



Pete Petersen, Vice President
Planning & Development

PP:ts

cc: File

Response No. 12

Mr. Pete Peterson
Kaufman & Broad

- 12a. The requested clarification will be made in the Final EIR.
- 12b. The requested clarification will be made in the Final EIR.
- 12c. The requested clarification will be made in the Final EIR.
- 12d. The requested clarification will be made in the Final EIR.
- 12e. The mitigation measure will be revised to reflect that the project shall be responsible for implementing applicable Tier I control measures that are in effect prior to finalizing project design plans (that affect project design) and are in effect prior to construction (that affect construction-related emissions).
- 12f. The requested introductory paragraph will be added to Mitigation Measure No. 4.8, although measures 4.8.1i and 4.8.1j are considered appropriate and will not be deleted as suggested.
- 12g. A footnote will be provided on Exhibit 3.0-2, referring the reader to Exhibits 3.0-3A - 3.0-3E, which delineate the segment boundaries. The footnote will also clarify that the "Planning Area" referenced is in regards to Ritter Ranch access roads.
- 12h. As discussed above, the "Planning Areas" noted in the text is not in reference to the project, but to Ritter Ranch Planning Area access roads; therefore, the suggested exhibit changes are not considered necessary.
- 12i. The requested clarification will be made in the Final EIR.
- 12j. The requested clarification will be made in the Final EIR.
- 12k. The requested clarification will be made in the Final EIR.
- 12l. "Sewage lift" will be changed to "water pump" station in the Final EIR.
- 12m. Planning Area 3 is shown on Exhibit 3.0-3C.

- 12n. The requested clarification will be made in the Final EIR.
- 12o. The requested clarification will be made in the Final EIR.
- 12p. Relevant portions of the referenced documents were utilized in preparation of the Draft EIR, as noted in Section 2.5, INCORPORATION BY REFERENCE. Although Ritter Ranch and City Ranch EIRs contain mitigation for regional air quality impacts due to vehicle emissions, it is appropriate to provide this mitigation in the project Draft EIR since the project serves more than just Ritter Ranch and City Ranch.
- 12q. The requested clarification will be made in the Final EIR.
- 12r. Refer to Response No. 12e.
- 12s. This information is hereby incorporated into the Final EIR. However, as the Mojave Ground Squirrel was not found onsite, its delisting does not affect the conclusions or mitigation contained in the Draft EIR.
- 12t. The requested clarification will be made in the Final EIR.

Memorandum

COMMENT 13

Date : JUN 15 1993

To : 1. Projects Coordinator
Resources Agency
2. Ms. Laurie Lile
City of Palmdale
38306 Ninth Street East
Palmdale, California 93550

From : Department of Water Resources

Subject: SCH No. 90010820, DRAFT EIR, Amargosa Creek Improvement Project

We have reviewed your Draft Environmental Impact Report for the Amargosa Creek Improvement Project (SCH 90010820) and offer the following comments.

As we understand it, the three main components of the Amargosa Creek Improvement Project are as follows:

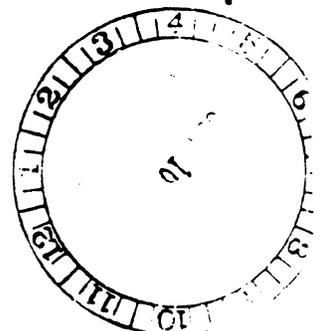
- Widening of Elizabeth Lake Road and realignment of the 25th Street West/Elizabeth Lake Road intersection and Godde Hill Road/Elizabeth Lake Road intersection;
- Flood control improvements and impoundments along Amargosa Creek; and
- Placing of utilities adjacent to channel improvements, primarily within Elizabeth Lake Road, except between 25th Street West and the Antelope Valley Freeway.

Your project concerns us in three major areas, which are the crossing of the California Aqueduct, dam safety, and floodplain management.

1. We believe, as stated in the report, the drainage improvements would aid in the control of storm waters, especially where the drainage improvements cross DWR's Leona Siphon.

Our only comment regards Item 3.7 (AGREEMENTS, PERMITS AND APPROVALS) on page 3.0-26. The DEIR accurately indicates a need for an encroachment permit from DWR, but the permit would not come from the Department's Division of Safety of Dams. All encroachment permit applicants should contact the Division of Land and Right of Way at:

Department of Water Resources
Division of Land and Right of Way
1416 Ninth Street
Post Office Box 942836
Sacramento, California 94236-0001
(916) 653-5361



1. Projects Coordinator, et al

JUN 13 1999

Page Two

2. The "Statutes and Regulations Pertaining to Supervision of Dams and Reservoirs 1992" defines dams under State jurisdiction. It will be sent to you under separate cover. Some of the embankments impounding Basin "B" depicted in the exhibits of the Draft EIR may be under the jurisdiction of the Division of Safety of Dams.

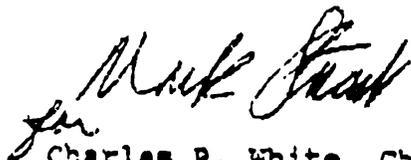
If the embankments are jurisdictional, a construction application will be required. All dam safety issues related to the proposed work must be resolved prior to approval of the application and any construction activity.

The EIR needs to address the role of the Department of Water Resources, Division of Safety of Dams, in the design and construction of the project.

If you have questions about dam safety requirements, please contact Area Engineer Philip Lee at (916) 323-1115 or Regional Engineer Richard Sanchez at (916) 322-6206.

3. You correctly address our floodplain concerns. Questions regarding floodplain management, should be directed to William Hom at (818) 543-4636.

Thank you for the opportunity to review and comment on the DEIR. If you have any questions, you may reach me at (818) 543-4610 or call Mark Stuart at (818) 543-4620.



for
Charles R. White, Chief
Southern District

b

Response No. 13

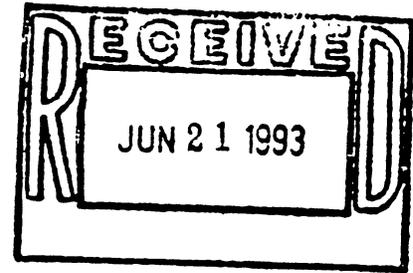
Mr. Charles R. White
Department of Water Resources

- 13a. The requested revision will be reflected in the Final EIR.
- 13b. These comments will be considered during project deliberations. The Final EIR will indicate "construction application" instead of design plan review for the State DSD. The role of the Department of Water Resources is reflected in Section 3.7 of the Draft EIR, as amended. Additional detail provided in the comment letter is hereby incorporated by reference.



June 17, 1993

Laurie Lyle
Planning Department
CITY OF PALMDALE
38300 Sierra Highway
Palmdale, CA 93550



RE: Draft EIR AD90-1

Dear Laurie,

Please accept this letter as an addendum to my Draft EIR comments dated May 21, 1993. This addendum is prompted by recent consideration given to a proposed re-alignment of the westernmost portion of Elizabeth Lake Road to move the road northward onto City Thrift property.

The impetus for realignment originated with Mark Spykerman of Earth Systems, because the substructure of the proposed realignment would be essentially bedrock, whereas the current alignment would require up to 30' of overexcavation and re-compaction due to deep, poorly consolidated soils with liquefaction potential.

Further study of the proposed realignment revealed several other significant benefits. Those are:

1. Significantly less roadway embankment.
2. The length of embankment under DSOD jurisdiction reduces from approximately 5000' to less than 1000'.
3. The portion of roadway acting as a dam would be keyed into bedrock, as opposed to sitting on top of alluvium in the current alignment.
4. Significantly less earthwork required in Basin B.
5. The current alignment would require serious disruption of traffic during construction - the proposed alignment would allow unimpeded traffic flow except for a brief period of disruption while diverting traffic to the new road.
6. The current alignment requires temporary and ultimate relocation of existing utilities. The proposed alignment would eliminate at least the temporary relocation, and possibly relocation altogether.
7. The entire dam structure will be located outside the fault zone.

▼

- Planning
- Engineering
- Environmental Services
- Landscape Architecture
- Land Surveying
- Public Works

Laurie Lyle
June 17, 1993
page Two

Approximately 3,000 lf of new streambed would be included in the area subject to inundation by Basin B.

If I remember correctly, the riparian habitat immediately north of the current alignment is considered quality habitat, whereas the stream south of the current alignment is considered too incised to be of much benefit to the mountain meadow habitat adjacent to it, and the mountain meadow is devalued because of years of tamping and overgrazing by cattle. With this in mind, we could design our grading plan so that the creek bed north of the current alignment be left in its natural state, except that portion under dam embankment, and the area south and westerly of the current creek crossing could be re-graded and vegetated to create a true wetlands habitat.

Additionally, we are also considering minor changes in alignment and grade along the remainder of Elizabeth Lake Road to 30th Street West. The primary objectives are:

1. To significantly reduce earthwork.
2. To reduce area of impacted riparian habitat.
3. To move the proposed road further from slide areas out of concern for safety and maintenance.
4. To reduce the amount of slopes.

Thank you for your consideration of this addendum. If you have any questions, please give me a call.

Very truly yours,

THE KEITH COMPANIES
North Counties, Inc.



David Currington
Senior Project Manager

DC:cf

cc: Peter Wenner, Ritter Park Associates
Steve Penn, Ritter Park Associates
Ken Linhardt, Sverdrup
Larry Bevington, KWC Engineers



Response No. 14

Mr. David Currington

The Keith Companies

14a. **Additional Alternative: Elizabeth Lake Road Realignment**

In their Draft EIR comment letter (No. 14) the Keith Companies identified areas where design refinements could result in reduced environmental impacts. Preliminary design plans at 1"=40' for these refinements are available for review at the City of Palmdale. The modified plans have three major components:

Northern Realignment in Basin "B" Area

The modified plans propose realignment of the westernmost portion of Elizabeth Lake northward onto City Thrift property. The primary advantages of this realignment are: 1) reduced risk of upset; and 2) reduced Basin "B" grading. This realignment would locate the road over substructure which would be essentially bedrock. The current alignment places the road over deep, poorly consolidated soils with liquefaction potential. This alternative would have reduced geologic impacts because it would require less road embankment and significantly less earthwork in Basin B. The portion of the roadway acting as a dam would be connected to bedrock (instead of sitting on top of alluvium), and the dam structure would be located outside of the fault zone. This would decrease the risk of upset once the road is completed. The realignment would also decrease biological impacts, since the road would be located north of the riparian habitat which is immediately adjacent to the current alignment. The creek bed could be left in its natural state (except for the portion under the dam embankment), if the new grading plans were designed appropriately. Traffic impacts would also be reduced since the alternative alignment would allow use of existing Elizabeth Lake Road in this area, and would therefore not impede traffic flow during construction, except for a brief period while diverting traffic to the new road.

Reduced Roadway Elevations

Due to reduced stormflow projections and associated reduction in flood hazards, the roadway embankment can be lowered in some areas and still be adequately flood protected. This will result in reduced grading and associated impacts.

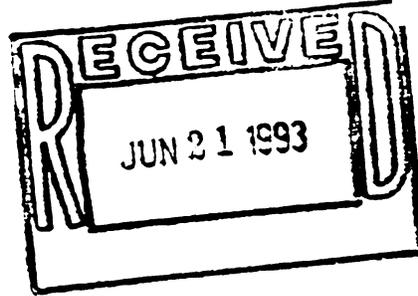
Eastern Portion Shifted South

In order to avoid the steep slopes along portions of the eastern project limits (approximately between Santa Fe Hills Drive and 40th Street West extension, the alignment is proposed to shift south in some areas. This avoids unstable slopes and associated geologic hazards, although additional Cottonwood and mulefat wetland vegetation would be impacted. This increased wetland impact would be offset by mitigation required by the City, Army Corps of Engineers and State Department of Fish and Game.

This alternative is considered environmentally superior to the proposed project, and will be considered by the decision-makers during project deliberations.

Ecological
Research
Services

COMMENT 15



Ms. Laurie Lyle
Environmental Planner
City of Palmdale
38306 9th Street East
Palmdale, CA 93550

June 18, 1993

Dear Laurie:

I have read the Draft Environmental Impact Report for the Amargosa Creek Improvement Project. As you know I have worked on both the City Ranch and Ritter Ranch properties as well as other studies in the Palmdale area. I have the following comments:

1. The biological resources section is very thorough. I had one question on the community designation "mountain meadow." Several species listed are wetland indicators. Holland (1986) lists two types of montaine meadow: wet and dry. If the area designated as mountain meadow on Exhibit 4.4-1A is not jurisdictional wetlands, should it be listed as a dry type? a
2. Several genera are not capitalized, eg., Heliotropium (pg. 4.4-7), Phrynosoma (pg. 4.4-14).
3. The subject of a golden eagle site on the Sierra Pelona (pp. 4.4-25, 4.4-26) is handled well. The next site "to the west" is undoubtedly in the San Gabriels and not on the Sierra Pelona. These large raptors forage long distances from nest and roost sites.
4. The loss of 57 acres of wetlands will be significant. The quality of the replacement (recreated) wetlands will be much better in that soils will be wet longer during the year so that a much higher quality habitat will be created. b
5. The culverts placed for "wildlife corridors" may not be used by deer. It is unlikely that a deer would go through a 4 foot diameter dark tunnel (pipe). Deer have not had a problem finding water under present conditions. They still will be able to cross the road and find available water.
6. Mitigation measures all seem feasible and adequate.

7. I agree that the "Reduced Design Standards" alternative mentioned in pg. 6.0-3 (widening Elizabeth Lake Road to only 60 feet) is environmentally superior to the proposed project. The impacts to biological resources would be smaller. The question that must be decided involves a trade off between traffic congestion and biological resources.

b

If you have any questions regarding these comments, please give me a call.

Sincerely,



Bob Feldmeth
Professor of Biology

Response No. 15

Mr. Bob Feldmeth

Ecological Research Services

- 15a. The mountain meadow discussed in the Draft EIR is considered jurisdictional, as discussed in the text, as agreed upon during a field reconnaissance with ACOE and USFWS personnel (see Response No. 8).

- 15b. The comments suggesting Draft EIR clarifications will be reflected in the Final EIR. Informational items will be considered by the decision-makers during project deliberations. See Response No. 14 for a discussion of an additional "Reduced Design Standard" Alternative.

West Side Park MUTUAL WATER COMPANY

PHONE 947-6644 • 40115 N. 15th St. WEST. PALMDALE, CALIFORNIA 93551

June 19, 1993

TO: Palmdale Planning Department

ATTN: Laurie Lyle

RE: DEIR 90-1 Response

Westside Park Mutual Water Company wishes to go on record as questioning the purposed document for reasons stated in the AVUWP response delivered to your office June 15, 1993. The three failures of DEIR 90-1 are clearly defined in John Ukkestads' letter.

Flood control and good water management is in everyones best interest. Since your DEIR does not answer the questions which will impact us as the closest well and water company to the project, we request you delay acceptance of this document and address our concerns.

With this public protest, we reserve the right to litigate, if necessary, for damages should you proceed and our water supply is adversely affected. The lessons of down hill flooding from short sighted acceptance of negative declarations has been demonstrated. It has been for those of us impacted. Please don't be short sighted with this EIR.

Yours truly,



Bruce Paxton
President

cc: City Council
Shareholders
Michael Antonovitch
AVUWP

Response No. 16

Mr. Bruce Paxton

West Side Park

16a. Please refer to Response No. 11.

Antelope Valley
Archaeological
Society (AVAS)
P.O. Box 901431
Palmdale, CA 93590
June 19, 1993

Ms. Laurie Lile
City of Palmdale
Planning Department
38306 9th St East
Palmdale, CA 93550

Re: Amargosa Creek Improvement Program Draft EIR

Dear Laurie:

Thank you for the opportunity to review the Draft EIR for the Amargosa Creek Improvement Program. As always AVAS is glad to review environmental documents for the City of Palmdale.

The members of the AVAS do have some concerns about this project:

1. The record search/ quick check completed 3-5-93 by the Archaeological Information Center at UCLA (Appendix A-32) states that portions of the project area have not been surveyed for cultural resources. We were under the impression that the various studies referenced in the Draft EIR covered the entire project area. After rereading the Draft EIR and Bissell's report we are aware that it was never stated that the entire project area was surveyed. If the entire project area has not been surveyed it should be prior to the implementation of the proposed project. The archaeologist retained to complete this inspection should be given the time necessary to formulate appropriate recommendations for any sites discovered during this inspection. Identified sites should be evaluated to determine their significance. a
2. Any archaeological sites of unknown significance which will be impacted or which have the potential to be be impacted should be tested in order to determine their significance. If determined to be significance then appropriate mitigation measures should be developed. b
3. Since the proposed project will result in the destruction of several significant archaeological c

resources, we would like to see the City establish some means of determining the adequacy of the research design and testing of the remaining sites. We would also like to see a means of assuring the adequacy of the data recovery from these sites and resulting reports. There have been previous projects within Palmdale's planning area which required additional work when the reports were subjected to peer review.

As an organization we neither support or oppose the proposed project. Our only concern is that the sufficient data be recovered from any archaeological site to be destroyed or otherwise impacted by the project.

Thank you again for the opportunity to review these documents.

Sincerely,

A handwritten signature in cursive script that reads "Mark Campbell".

Mark Campbell,
AVAS President

C

Response No. 17

Mr. Mark Campbell

Antelope Valley Archaeological Society

- 17a. The entire project area was surveyed (primarily by MBA for the area north of 25th Street West and by RMW Paleo for the area west of 25th Street West).
- 17b. A complete mitigation program is provided in the Draft EIR, as described in Table 4.10-1 and Mitigation Measure Nos. 4.10.1a - 4.10-1d.
- 17c. This comment will be forwarded to the decision-makers during project deliberations for their review. The proponents of both City Ranch and Ritter Ranch Specific Plans were required by mitigation measures to prepare a subregional archaeological assessment, which should include research design parameters.



A PUBLIC AGENCY

June 21, 1993

BOB LEE
BROOKS CONSULTANTS
Amargosa
MAXINE M. DAVIS
Secretary/Treasurer
BOYLE AND KEEPPING
Consulting Engineers

- FRANK J. DONATO
Division 3
President
- ANDY D. PUTEDGE
Division 3
Vice President
- CARL B. HUNTER, JR.
Division 3
- R. KETH CHAS
Division 2
- GEORGE M. KANE
Division 4
- NORMAN J. WANDER HYDE
Division 5
- DURWARD P. JACKSON
Division 7

City of Palmdale Planning Department
38306 9th Street East
Palmdale, CA 93550

Attention: Laurie Lile

re: Amargosa Creek Improvement Project
Environmental Impact Report

The Agency has reviewed the environmental impact report for the subject project and has the following concerns and comments.

- The current recharge area for the Amargosa Creek should not be reduced. This appears to be the condition with the elimination of the Creek bed and installation of reinforced concrete pipe through the Antelope Valley Country Club. a
- The project facilities should be operated to maximize the recharge so detention basins do not act as evaporation ponds. There should be no net loss of recharge to the Leona Valley area. Provisions will need to be made to minimize the amount of silt that will accumulate in the basin. b
- Aqueduct capacity for raw water service as described in the report may not be available from the Agency. A formal request for service will have to be presented to the Agency for their review and approval. The Agency's water supply is interruptible and this should be a consideration in your project planning. Raw water system improvements are described in the report but no information is given as to the operation of the system. c
- Possible movement of groundwater towards the depressions created by the detention basins may affect the ability of wells near the detention basins to operate at their current potential. d

City of Palmdale
June 21, 1993
Page 2

- The proposed improvements at the intersection of Elizabeth Lake Road and Godde Hill Road may have an impact on the Agency's Leona Valley Feeder pipeline which is located near the intersection. | e
- The proposed reinforced concrete pipeline through the Antelope Valley Country Club will cross the Agency's PWD Interconnection Feeder pipeline just north of the Club. | f
- A domestic water turnout from the Agency's facilities at the intersection of 30th Street West and Elizabeth Lake Road is proposed. Currently the Agency has no facilities at that location to provide service. | g
- It appears there are various impacts to the Agency in regards to modifications to existing facilities and the need for new facilities in the Agency's system. Based on the EIR it appears that the Agency would have no financial impact from these modifications and improvements since the project participants would be responsible for the related costs. | h
- The indicated start date for project construction is early 1994 with the completion date planned for mid-1995. This appears to give the Agency a very short period of time to provide review of the proposed improvements and any modifications to the system that are required because of the proposed project. | i
- The EIR section on Agreements, Permits and Approvals does not list the Agency as a participant requiring approval for the various project improvements. The Agency needs to be added to that list. | j

We thank you for the opportunity to review this document and provide comments on your proposed project.

Very truly yours,



Wallace G. Spinarski
General Manager

Response No. 18

Mr. Wallace G. Spinarski

AVEK

- 18a. The reduction in groundwater recharge is not considered significant due to the relatively short segment of creek affected (the majority of the creek will remain in a natural of soft-bottomed condition, and proposed detention basins will further enhance groundwater recharge). The proposed pipeline beneath the Country Club is designed to carry low-flow stormwater runoff and nuisance water through the Country Club area; stormwater flows which exceed the capacity of the low-flow pipe will continue to flow in the soft-bottomed channel through the Country Club.
- 18b. According to project engineers, the proposed flood control improvements should enhance the recharge abilities of the watershed upstream of 25th Street West since the stormwater will be slowed down and will have more opportunity to percolate. Since all basins have been designed as detention basins, evaporative losses will be minimal. The largest basin, as currently designed, will drain completely in less than four days after the end of a 50-year capital storm.
- 18c. Comment has been noted. A formal service request will be made by the City (or the Public Financing District) to AVEK for use of raw water from the Aqueduct, prior to commencement of construction on the proposed project. Although the aqueduct's water supply can be interrupted from time to time, utilization of raw water (during times when this water supply is available) for construction water and landscape irrigation will ensure that impacts to the treated water supply are minimized.
- 18d. According to the current design scheme, only Basin B will be excavated. All other basins have been designed as above-ground reservoirs created by elevation of Elizabeth Lake Road. Culverts will be sized to meter the outflow from these basins. The modifications suggested by Keith Engineering in their comment letter (See comment Letter #14), if constructed, would significantly reduce the need for excavation in Basin B, whereby minimizing the potential for possible depletion of groundwater in the basin's vicinity.
- 18e. Project construction will be coordinated with all affected utility agencies. Construction plans which affect AVEK facilities will be routed to AVEK for review. The Leona Valley Feeder pipeline will be protected in place or relocated by the appropriate party.

- 18f. Refer to response to Comment 18e. The construction plans for the low-flow pipe through the Country Club will be forwarded to AVEK for review.
- 18g. The City (or Public Financing District) will be responsible for the cost of constructing necessary Agency facilities relative to the proposed domestic water turnout. Refer to the response to Comment 18c.
- 18h. The comment has been acknowledged. At the present time, City staff foresees no direct fiscal impact to AVEK from the proposed project. The preliminary cost estimates as prepared for the Amargosa Creek Improvement Project includes all costs for any modifications or improvements to the AVEK system. All costs will be paid for by the project participants.
- 18i. As stated in responses to Comments 18e and 18f, the City will coordinate with AVEK with regard to those facilities controlled by AVEK which may be affected by the proposed project. City staff will coordinate with AVEK staff with regard to the timeframe for AVEK's review of proposed facilities.
- 18j. The requested revision will be reflected in the Final EIR.



LTI Engineering

805-947-7000 • 805-947-3730 • POST OFFICE BOX 600 • PALMDALE CALIFORNIA 93550

June 21, 1993

RECEIVED
JUN 21 9 39 93
CITY OF PALMDALE
Smel
1:5 PM

Mayor Jim Ledford
City of Palmdale
708 E. Palmdale Blvd.
Palmdale, Ca. 93550

Re: Amargosa Creek

Dear Mayor Ledford,

Attached are our comments on the draft of the Environmental Impact Report for the Amargosa Creek Improvement Project (SCH no. 90010820) dated May 1993.

Sincerely,

A.C. Warnack

cc: Robert Gillon
KRM

ACW/ks

Draft Environmental Impact Report
Amargosa Creek Improvement Project

1.0 Executive Summary

1.1 Project Summary

1. Paragraph 1:

- A. Seems to have an overlap between 20th St. West and 25th St. West.
- B. Extends 3,950 feet north of the freeway, which is not what the City last told us.

a

2. Paragraph 2:

- A. Is there any documentation to demonstrate that this "Project is necessary to reduce the frequency and severity of flooding" and if so is it available for review and does it include a cost-benefit analysis?

b

3. Paragraph 3:

- A. Why widen Elizabeth Lake Road?
 - 1. If they do widen it who pays for it and how can that be documented?
- B. What utilities and for who's use and who pays for them?

c

Road Improvements

Why widening, traffic signals, raised median, landscaping, sidewalks and street lights?
Who pays for this?

d

Flood Control Facilities

- A. We still question weather this is really required.
- B. Not clear what affect City Ranch has on this project.

e

Utilities

Why all these utilities and who pays for them?

f

1.3 Summary of Alternatives

"No Project" Alternative

This may be the best alternative. Let the developments that make all the additional utilities and street widening necessary pay for all this, EIR, plans, permits from all the Agencies and improvement cost like any other developer(s) would have to do.

g

"Reduced Design Standards" Alternative

This may be the 2nd best alternative if it only includes relocation of existing utilities where it may be necessary to realign Elizabeth Lake Road. I don't see how there would be increased air impacts IF any future large scale developments in the area were required to widen Elizabeth Lake Road and install all the other amenities like any other developer(s) would be required to do.

h

it's interesting to note that in the following "Additional Design Alternatives" that one of the reasons that the "Extension to Bouquet Canyon Road" alternative was not pursued was because it would have "growth-inducing impact concerns."

1.4 Areas of Controversy and Issues to be Resolved

I agree that "it would result in significant additional cost to increase the capacity of infrastructure sized for current density limits to accommodate the additional density anticipated in the eastern Leona Valley area", but I disagree that "public agencies typically install oversized infrastructure". Typically the developer(s) install oversized infrastructure and in some cases may get reimbursed for the oversizing.

i

3.0 Project Description

3.3 Background and History

Previous Projects

1. Paragraph 1:

What documentation is available to support the statement that "The Amargosa Creek area,...has a history of significant flooding."

Lancaster has channel improvements designed for 8,000cfs at Ave. M, however I don't understand what bearing the "50-year Los Angeles County Capital Flood" has on anything.

j

2. Paragraph 2:

Why provide additional "road improvements and utilities for upstream existing and **future** development." Why not let future development pay for these additional improvements like any other developers would?

k

Current Project Review Process

By "utilizing lower storm flow projections" (12,800cfs) how has the City "determined that construction of most flood control structures located north of the freeway can be deferred until development is proposed in the adjacent area."?

i

3.4 Project Characteristics

1. Paragraph 1:

Why provide infrastructure to serve "approved and proposed developments west of 20th Street West"?

Where is the "Anaverde Country Club".

m

2. Paragraph 2:

A. Why widen Elizabeth Lake Road?

1. If they do widen it who pays for it and how can that be documented?

B. What utilities and for who's use and who pays for then?

n

Construction Related Elements

Borrow Areas

Sounds like Ritter Ranch gets some free grading, do they also get paid for the dirt?

o

Road Improvements

Why widening, traffic signals, raised median, landscaping, sidewalks and street lights? Who pays for this?

p

Flood Control Facilities

Will the EIR need to be revised when a lower flow is established?

"Flood control Basins will be constructed, owner and **maintained** by the City of Palmdale." If the City is maintaining or contracting with the County for maintenance what difference does it make what method is used to determine the design flow?

q

Amargosa Creek

Anaverde Golf Course is mentioned again, is this the Antelope Valley Country Club?

r

Utilities

Sewer, Water, Non-Domestic Water, Dry Utilities and Equestrian Trail:

s

Why is all this being included in the Amargosa Creek Improvement Project?

Funding

Who determines who pays for what, ie. flood control, street widening, landscaping, sewer, water, equestrian trail, dry utilities and maintenance, for all of this? Are there going to be any provisions for the people/developers paying for all this to see how their costs were determined? Is there going to be a strict accounting of how much each item actually costs? For the people east of (25th St. west?, 20th St. West?), are they paying for only flood control, or are they paying for that and realignment of Elizabeth Lake Road?, widening?, equestrian trail?, etc. etc.? How can it be determined what is necessary just for the flood control portion?

t

3.5 Project Objectives

1) Does the "50-year Los Angeles County Capitol storm flow of 6,200cfs at 20th Street West" mean that the entire Amargosa Creek watershed upstream of this point only generates 6,200cfs? If not then how does this 6,200cfs differ from any other 6,200cfs?

u

2) What does this mean? See Funding above.

v

3) What "critical infrastructure improvements" and who are they critical for?

w

6.0 Alternatives To The Proposed Action

Has ant consideration been given to cost-benefits for any of the alternatives? If so was anything written up and can we see a copy of it?

x

6.1 "No Project" Alternative

This would be the simplest way. Wait until a large development, such as Ritter Ranch, wants to develop in the area and let them make the necessary flood control improvements and bring in the necessary infrastructure just like any other developer would have to do.

y

6.4 "Reduced Design Standards" Alternative

This would seem to be the best compromise alternative, assuming a cost-benefit study could support it. As I understand this alternative it would provide the flood control facilities and minimum improvements to Elizabeth Lake Road , but no widening, sewer, water, equestrian trail or dry utilities. Then when any large development took place they would have to provide all the necessary improvements to support their development.

Z

Response No. 19

Mr. Robert Gillon

LTI Engineering

- 19a. Roadway improvements are proposed to extend to 20th Street West. Drainage facilities and utilities will extend to 25th Street West. This distinction will be clarified in the Final EIR.
- 19b. There have been several regional and local hydrology studies based on stream gauge and other data that support the need for the project, including the City's Drainage Master Plan, as discussed in Section 4.3 of the Draft EIR. These studies are available for review at the City's Engineering Department. AN analysis to determine the benefits to various properties and assign appropriate fees will be completed prior to construction of the proposed facilities. However, the analysis of fiscal impacts of the proposed project is not required by CEQA and is therefore, separate from the CEQA environmental review process.
- 19c. The widening is necessary to accommodate projected future traffic, in accordance with the General Plan Circulation Element. A funding program for the project will be submitted to the City Council, and is separate from the CEQA environmental review process (this issue is discussed on pp. 3.0-24 to 3.0-25 of the Draft EIR). The project features, including the utilities, are discussed at length in Section 3 of the Draft EIR, as well as Section 4.11, PUBLIC SERVICES AND UTILITIES. Funding for the utilities will be addressed at the City Council as noted above (a Community Facilities District or Assessment District are presently being considered).
- 19d. See Response No. 19c.
- 19e. See Response No. 19b. A portion of the City Ranch Specific Plan falls within the Amargosa watershed. Therefore, the City Ranch project contributes stormwater flows to the proposed flood control facilities.
- 19f. See Response No. 19c.
- 19g. This will be considered by decision-makers during project deliberations. It should be noted that whether a CFD or Assessment District is utilized, funding will come from developers in the project area.

- 19h. This comment will be considered by decision-makers during project deliberations. Also see Response No. 19g.
- 19i. This language will be clarified in the Final EIR. Although "developers" usually install the infrastructure, it is the local jurisdictions that, as a condition of a construction permit, require that oversized facilities be installed for future development.
- 19j. See Response No. 19b. The 50-year Capital Flood is a commonly used benchmark for establishing flood control facility design. The City's Master Plan of Drainage is based on this level of protection.
- 19k. See Response Nos. 19c and 19g.
- 19l. The reduced flows mean that the existing channel north of SR-14 can accommodate projected stormflows adequately.
- 19m. This is in accordance with policies contained in the City General Plan, to allow orderly development with adequate infrastructure. "Anaverde" will be changed to "Antelope Valley" Country Club in the Final EIR.
- 19n. See Response No. 19c.
- 19o. Current cost estimates do not include compensation for imported fill material. To the extent feasible, the project is being designed to balance cut and fill mass within the extent of the proposed right-of-way.
- 19p. See Response No. 19d.
- 19q. The Final EIR addresses the implications of a reduced design flow (see Response No. 14). The design flow is important as it is the basis for establishing the configuration and cost of the proposed facilities, which has both physical environmental implications and financial implications for those funding the improvements.
- 19r. See Response No. 19m.
- 19s. See Response No. 19f.

- 19t. See Response No. 19c.
- 19u. Yes. The flows, in physical terms as they affect the environment, are not "different" if the numbers are the same. However, the same location may have different flow projections based on different design years or design conditions (i.e., existing v. future flows, and 2-year v. 50-year floods).
- 19v. This simply means that the project is intended to provide for the facilities in a manner that those individuals benefitting most will pay the most and vice versa.
- 19w. The critical improvements are described in Section 3 of the Draft EIR. They are "critical" for both existing and future development (for existing development, because the road and drainage improvements are necessary for public safety, and for future development because that development cannot occur without the necessary infrastructure).
- 19x. Some cost information is provided in Section 6 of the Draft EIR, although this is separate from the CEQA environmental review process. City staff has considered cost in designing the project, although no formal report has been prepared on this subject. Throughout the design phase of the project, value engineering has been, and continues to be, an integral component of project design.
- 19y. See Response Nos. 19c and 19g.
- 19z. This comment will be considered by decision-makers during project deliberations. It should be noted that this alternative would also include the utilities. Also refer to Response No. 14 for an additional reduced design alternative.



Canyon Oaks Ranch

COMMENT 20

21 June, 1993

City of Palmdale
Planning Department
38306 9th St. East
Palmdale, California 93550

Attn: Ms. Laurie Lile

Dear Ladies and Gentlemen,

We are getting our property and existing buildings ready to move our school to, at 36491 Bouquet Canyon Road, Saugus, 91354. We will occupy this year.

I have reviewed the Amargosa Creek, 90-1 Environmental Impact Report, in relation to effects it poses to our property and school, at the above address.

I have found that the property will be heavily impacted by the increase of traffic on Bouquet Canyon Road, the ramifications of which are not addressed in the above referenced EIR.

This is true as well, of other roads surrounding the proposed assessment district site, such as the remainder of Elizabeth Lake Road, Godde Hill Road and San Francisquito, the other nearby east-west access road which lies at the Northwest end of Leona Valley.

The EIR on 90-1 needs to cover the ramifications of the Ritter Ranch and other developments on the above roads. They may not be as overloaded as the 14 Freeway is during rush hours, but many accidents and some deaths do occur on them each year. These are from excess speeds, even in the presence of climate hazards, such as black ice and flooding.

Bouquet Canyon Road was closed three months this year, from flood damage. Residents were allowed on it, and it was mostly accessible only driving on the center line. The Highway Patrol had to be brought in to reroute through traffic while it was closed. I was told by one of them that the main people they had to turn back or reroute were commuters, going to and from work, living in Palmdale.

Let me urge you to do a more appropriate traffic study, which includes the above named roads, as they will be heavily impacted by the amount of development currently planned.

Thank you for your attention to this matter.

Yours Sincerely,

Mrs. Kris Rodriguez

Mrs. Kris Rodriguez

Response No. 20

Mrs. Kris Rodriguez

Canyon Oaks Ranch

- 20a. This comment will be considered by decision-makers during project deliberations. The issues addressed in the comment letter are discussed in Section 4.9 of the Draft EIR, which is based in part on the Southwest Planning Area Traffic Study (this study addressed Bouquet Canyon Road improvements).

June 21, 1993

City of Palmdale
Planning Department
38306 9th Street East
Palmdale, CA 93550

Attn: Laurie Lile

Subject: Amargosa Creek Improvement Project, Comments to Draft Environmental Impact Report - SCH No. 90010820

Attachment A is a brief, but not limited, summary of the deficiencies prevalent in the subject DEIR. Listed items are missing or incomplete or do not provide credible or accurate documentation or discussion. In some items, no nexus has been provided between the project's negative impacts and the recommended mitigation.

a

Attachment B is a comprehensive discussion of these items and a direct or implied request for response.

Attachment C references documents submitted to the City of Palmdale in response to their request for comments. The City has not responded to these documents and therefore, are re-submitted for response. Comments which refer to items no longer a part of this current DEIR, may be ignored.

b

Attachment D are various published articles which provide supporting documentation to the comments raised herein.

c

Attachment E provides specific documentation relating to comments concerning water and are included by reference.

Attachment F submits a letter from the Leona Valley Cherry Growers Association

d

The Leona Valley Town Council offers the following analysis of the subject DEIR which discloses no less than 100 deficiencies; the majority of which are significant. We believe the magnitude of these deficiencies once answered will significantly reshape the scope and design of this project and warrants public notice and review.

e

In the spirit of the California Environmental Quality Act, Section 15148 and 15150, the pertinent documentation cited and related to in our comments are incorporated by reference and may be made available upon request.

Thank you for this opportunity to comment on the subject DEIR.

Very truly yours,



Robert Mallicoat, President
Leona Valley Town Council

RRM:MJ:maf

WP/90-1.doc

cc: Supervisor Michael D. Antonovich
Los Angeles County Regional Planning
Los Angeles County Public Works
The Lakes Town Council
The Green Valley Town Council
Antelope Valley East Kern Water Agency
Chase Mellen, III

*AMARGOSA CREEK IMPROVEMENT PROJECT
DRAFT ENVIRONMENTAL IMPACT REPORT*

Summary of the 100± deficiencies prevalent in the DEIR

**AMARGOSA CREEK IMPROVEMENT PROJECT
DRAFT ENVIRONMENTAL IMPACT REPORT
100 DEFICIENCIES SUMMARY**

THE DEIR IS INADEQUATE AND FAILS TO PROVIDE:

- | | |
|---|-------------------|
| <p>1. WATER STUDIES AND ANALYSIS</p> <ul style="list-style-type: none">• Availability• Quality• Recharge• Water Table• Flood Control• Wetland/Riparian• Basins | <p>21f</p> |
| <p>2. TRAFFIC STUDIES</p> <ul style="list-style-type: none">• Comprehensive and accurate study and projections for regional circulation• Accurate and definitive study for Bouquet Canyon Road, San Francisquito Road, Elizabeth Lake Road west of end of project, Godde Hill Road north of end of project• Construction/traffic analysis/impacts | <p>21g</p> |
| <p>3. CONSTRUCTION IMPACTS AND MITIGATION</p> <ul style="list-style-type: none">• Temporary grading sites• Negative impact to borrow areas• Identification of site and impact of detour conditions for Elizabeth Lake Rd. traffic• Health and safety factor during construction to current residents and motorists | <p>21h</p> |
| <p>4. NOISE ANALYSIS SPECIFIC TO THE LEONA VALLEY</p> <ul style="list-style-type: none">• Rate and distance of noise projection and amplification• On-site studies to determine effectivity of proposed mitigations• Construction/traffic noise analysis• Acoustical analysis and community noise study | <p>21i</p> |
| <p>5. COMPREHENSIVE AIR RESOURCES IMPACT ANALYSIS AND MITIGATION</p> <ul style="list-style-type: none">• Impact of increased air pollution and rise in temperature on agricultural industry in Leona Valley• Construction traffic air quality analysis• Compensatory mitigation program for resultant economic losses• Failure to address erosion/flood control during construction | <p>21j</p> |
| <p>6. NON-COMPLIANCE AND VIOLATION OF CITY STANDARDS AND POLICIES</p> <ul style="list-style-type: none">• Annexation policy• Community Standards District policy• Noise standards• Non-compliance/violation of 19 General Plan Policies | <p>21s</p> |

- | | |
|--|-------------|
| <p>7. REGIONAL COMPATIBILITY STUDIES TO ESTABLISH CRITERIA TO MEASURE AND DETERMINE NEGATIVE IMPACTS AND APPROPRIATE MITIGATIONS</p> <ul style="list-style-type: none">• Leona Valley, Lake Elizabeth, Lake Hughes, Three Points, and Santa Clarita compatibility study• Demographic, topographical, natural resources, economic, climate, and current land use inventory | <p>21L</p> |
| <p>8. CONSISTENT AND EQUITABLE POLICY FOR IMPLEMENTATION OF COMPENSATORY MITIGATION PROGRAMS</p> <ul style="list-style-type: none">• Lazy T Ranch is offered compensatory remuneration for negative impacts of projects, yet other property owners suffering negative impacts are not offered the same compensatory mitigation | <p>21m</p> |
| <p>9. URBAN FLOOD CONTROL</p> <ul style="list-style-type: none">• Substantive documentation support the need for oversized urban flood control measures | <p>21n</p> |
| <p>10. COMPLETE BIOLOGICAL INVENTORY OF FLORAL & FAUNA AND IDENTIFICATION OF MIGRATORY PATTERNS AND HABITAT AREAS OF NATIVE SPECIES</p> <ul style="list-style-type: none">• Mitigations for these negative impacts cannot be determined without this information• Fails to identify how insect eco-system (heart of wetland) will re-establish in the relocated wetland | <p>21o</p> |
| <p>11. TECHNICAL AND SPECIFIC PROJECT INFORMATION TO THE PUBLIC</p> <ul style="list-style-type: none">• Exclusion of the affected community agency (Leona Valley Town Council), the community at large, and affected property owners from participation in the development/design process of this project per CEQA• Failure to provide technical and specific information to the public | <p>21p</p> |
| <p>12. COMPLIANCE WITH CEQA LAW AND POLICIES</p> <ul style="list-style-type: none">• Failure to adequately analyze alternatives• Failure to involve the public• Broad, conclusory statements rather than hard data | <p>21q</p> |
| <p>13. COMPLETE AND THOROUGH ANALYSIS OF PROJECT ALTERNATIVES WITH SUPPORTING DOCUMENTATION AND JUSTIFICATION</p> <ul style="list-style-type: none">• Sterling Basin Flood Control Alternative• Reduced Design Standards Alternative• Additional Design Alternatives• Realignment Alternative• Environmentally Superior Alternative | <p>21r</p> |
| <p>14. IDENTIFICATION OF FUNDING MECHANISM AND BENEFITTED ASSESSED PROPERTIES</p> <ul style="list-style-type: none">• Assessment District/Community Facilities District• Negative financial impacts to property owners | <p>e.14</p> |

*AMARGOSA CREEK IMPROVEMENT PROJECT
DRAFT ENVIRONMENTAL IMPACT REPORT*

Following is a complete discussion of the DEIR deficiencies

AMARGOSA CREEK IMPROVEMENT PROJECT
DRAFT ENVIRONMENTAL IMPACT REPORT
DEFICIENCIES

21.F

WATER STUDIES AND ANALYSIS

1. WATER AVAILABILITY

The DEIR fails to provide sufficient analysis of ground water availability for the projected 40,000 acre feet of water required for this project and the projects this improvement project will generate. The following identifies inadequacies not addressed in the DEIR and warrants response.

f.1

1(a). Page 4.11-1 through 4.11-3. DEIR fails to address findings from the Los Angeles County Water Advisory Commission who in November 1991 recommended "limiting groundwater extractions in the Antelope Valley to the basin's safe yield". DEIR fails to identify methods in place or proposed mitigations that ensure cumulative, let alone this project's individual impact/management of "safe yield". The Commission went on to identify the State Water Project as interruptable and incomplete, with the capacity at best, to deliver only 54% of the water entitlements negotiated with public agencies statewide (ie; AVEK, PWD, and LCID). This report contradicts the 1988 Glen Reiter and Associates analysis of abundant SWP supplies through the year 2010. DEIR also fails to address recent environmental concerns in the Sacramento Delta which may further limit SWP deliveries and reduce or eliminate the existing questionable LACWW "conjunctive use" import to groundwater use balance.

1(b). Page 4.11-1 through 4.11-3. DEIR fails to address the Law Environmental Report January 1992, and the Cities of Palmdale and Lancaster's 1992 General Plans and EIR documents which state that the Antelope Valley aquifer is in a condition of

overdraft. Nor does the DEIR address the joint agency "Antelope Valley Water Group" which was formed as a result of concerns about dwindling groundwater supplies and is funding a valley wide study to identify impacts and develop a mitigation plan.

f.1

1(c). Page 4.11-3. DEIR states " water supply meets the policy of the Districts and AVEK of balanced and conjunctive use of groundwater and surface water". The DEIR impact analysis and mitigation is inadequate in that it fails to identify how this policy is managed today or will be managed in the future to ensure an adequate and stable supply of water is available. Since no water purveyor or agency with-in the Antelope Valley measures annual recharge and no agency collects cumulative (Valley-wide) annual groundwater extraction amounts, the conclusions arrived at above are based on speculation and hope by two purveyors, not fact. In the absence of any "Cumulative Groundwater Management Plan" for the Antelope Valley which includes all the purveyors not just LACWW and AVEK, but the 70 plus purveyors and agricultural interests, how can any near or long term predictions be made as to groundwater stability?

1(d). Pages 4.11-1 through 4.11-3. EIR analysis of groundwater availability for the projects identified is inadequate and currently under dispute, (ref litigation between LVTC and LACWW) plus does not address recent data/studies which contradict the conclusions stated. Studies of the proposed well sites which will support this project and others conflict as to well pumping capacities. Example; the GSI Water study prepared in Feb.1990 indicates well yields will be in excess of 2000 GPM, yet the latest study commissioned by LACWW, (RCS Aug. 1992) states the area will be lucky to see yields of 500 to 1000 GPM. The study goes on to say that much groundwater data about this area is unknown. Example;

- A) The number and location of existing domestic wells plus present use and demand is unknown.
- B) No long term aquifer test data exists for area wells.
- C) Adequacy of water bearing sediments for public water supply

wells is unknown.

The report goes on to identify numerous potential impacts as a result of the missing data. Based on the above, it would be wholly inappropriate to conclude adequate groundwater supplies exist. See appendix E.

f.1

1(e). Pages 4.11-1 through 4.11-3. DEIR analysis uses outdated AVEK/USGS well monitoring data from 1970 to 1987 to support a position that groundwater levels have risen in the areas where wells are to be placed. When in fact since 1987, groundwater levels have fallen as a result of increased urban demand, SWP delivery reductions, and a flawed conjunctive use policy which encourages unbridled water use without recharge balance. (ie; no annual recharge measurements are maintained to manage demand, safe yield).

1(f). Pages 4.11-1 through 4.11-3. DEIR analysis fails to address recent AVEK/USGS published data from June 1992 which show;

A) 1992 saw the largest single year decline in Antelope Valley water levels in over 40 years.

B) Half the wells within the monitoring program declined an average 4ft in 1992 from 1991 with the single maximum well drop of 51ft.

These facts were further substantiated by the release of the LAC 1990-91 and 1991-92 hydrologic reports which concluded "the groundwater level in the Lancaster Basin has declined steadily since 1925 and reached a new historic low during this report period".

1(g). DEIR fails to address June 1993 AVEK/USGS well monitoring data. Data shows that in spite of historic 92/93 rainfall, 44% of the wells studied within the Antelope Valley continued to drop and 14 wells actually reached historic lows. This is but further data attesting to the shortage of ground water and the failure of the existing conjunctive water use policy to balance supply and demand.

2 QUALITY

2(a). The DEIR fails to provide analysis for exclusion of an upstream point of entry infiltration system to capture and treat the first non-point source surface run-off from roadways and streets.

2(b). The DEIR analysis of sedimentation basin/wetland/detention basin benefits to water quality enhancement is inadequate. Referenced author Walesh 1989 makes numerous references to might or may reduce ground water pollutants as a result of non-point source surface run-off from roadways/streets. Analysis provided is based on conceptual guess-work and not supported by fact.

2(c). The DEIR analysis would lead readers to believe that over 90% of pollutants would be trapped by the proposed basin design, when in fact this figure only applies to suspended solids with no data addressing the impact from the "other" ground water pollutants.

2(d). Page 4.3-11,12 DEIR impact analysis and subsequent mitigation for ground water quality in both the Leona Valley and the Lancaster subunit is inadequate. The DEIR fails to identify total pollutant loads and type breakdowns expected (significant cumulative water quality impacts) as a result of this project and the other 23 identified projects. The DEIR fails to identify the pollutant types and quantity which will not be removed by the basins proposed and will enter the Lancaster subunit and the Leona Valley water table. The Amargosa Creek is identified by the USGS as the third largest recharge stream to the Lancaster subunit (approximately 1,000 acre ft.) Polluted groundwater would have significant long term impacts to groundwater users in the Antelope Valley.

3. RECHARGE

3(a). Page 4.1-10. DEIR fails to identify studies/analysis that supports

f.2

f.3

conclusion that Leona Valley "groundwater presumably flows to the southeast, paralleling the Amargosa Creek".

f.3

3(b). The DEIR also fails to identify studies/analysis to support conclusion that "groundwater presumably discharges into the deep alluvial sediments in the adjacent Antelope Valley".

Conclusions for the above based on "presumably", hearsay, and conjecture, are grossly inadequate. Surface waters only from the Amargosa Creek provide recharge to the Lancaster subunit. Existing studies identify the Leona Valley groundwater basin as a closed, separate and distinct basin from the Antelope Valley aquifer, with no subsurface hydraulic connection. A re-evaluation of subsequent assumptions used in the DEIR based on these errors, warrants review. RCS Engineering in August 1989 published a study providing evidence that the Leona Valley is not part of the Lancaster subunit due to the fact that the San Andreas Fault creates a "groundwater barrier" between these two valleys.

3(c). The DEIR channelization proposed between 25th St. West and Ave. N will reduce ground water recharge to the Lancaster subunit. The DEIR fails to provide analysis/impact that this channelization will have on adjacent and regional public and private well water availability. Reduction in recharge would have significant long term impacts on ground water availability for the Antelope Valley.

4. WATER TABLE

f.4

4(a). DEIR fails to identify impacts and mitigation measures as a result of elevated groundwater levels this project and its 23 identified resultant projects will create. Documentation/studies are absent from the DEIR of past/present groundwater conditions within Leona Valley, ie; well inventories, septic systems, agricultural land uses, nitrate conditions, water quality levels, historical/seasonal groundwater

levels, and locations of ancient and new active natural springs. The recent 92/93 winter rainfall amounts matched closely the 84/85 season and were less than the 69 season, yet groundwater reached surface levels and resulted in structure/property damage, road damage to Elizabeth Lake road, Godde Hill road, 90th Street West, and Bouquet Canyon road, and high nitrate levels necessitating well shut downs. This phenomonam has received no analysis/impact in the DEIR. Since excessive water is the root cause, the DEIR fails to address the impact-future new water introduction will have this project and adjacent properties.

f.4

4(b). Page 4.1-7. DEIR analysis of land subsidence is inadequate and absent in that it fails to recognize soil instability, sinkholes, and depressions which have historically occurred throughout Leona Valley as recently as 1993. LAC Public Works has extensive history of road repairs/replacement as a result of depressions/sinkholes. The Leona Valley Town Council (LVTC) identified these issues, findings of new springs, and soil liquification problems to the City of Palmdale engineer, City Administrator and the General Manager of the Ritter Ranch in April of 1993, and requested their participation in an ongoing USGS study. The City Administrator declined participation as did the General Manager of Ritter Ranch who went on to further to deny any access to the property for study. Absent this cooperation and adequate funding from the project proponents, this analysis and subsequent mitigation identification cannot be completed.

4(c) Ref page 4.1-14. DEIR states increased groundwater recharge will have a "positive impact" yet provides no basis in fact (studies) to support this conclusion. In fact, this condition will have a negative impact and increase standing water levels and flooding. Currently the Leona valley is under study by the USGS to determine the cause of current elevated groundwater levels (at surface) and develop mitigation options. This project and the 23 identified other projects will exaggerate this existing problem and have not been addressed.

Analysis is absent regarding:

A) impacts to septic systems

f.4

- B) impacts to wells, both use availability and water quality
- C) increased detention basin absorption rates
- D) existing and future sink holes, depressions and land subsidence
- E) increased susceptibility to earthquake damage due to saturated quaternary age soils
- F) mosquito abatement
- G) increased potential for structure damage
- H) damage to crops/orchards-root rot
- I) ancient and new natural springs
- K) resulting new biological resources

4(d). Analysis is absent of impacts from the emergence of new springs and resultant flooding on "adjacent properties" as a result of road surface sealing (100ft wide plus) and development of proposed properties (increased impervious surfaces). Ref page 4.1-13, DEIR analysis is inadequate in the identification of existing and projected groundwater levels, with resulting mitigation missing/deficient for roadway collapse and or hydroconsolidation from soil liquification.

4(e) DEIR fails to address impacts/mitigation this project and the 23 other identified projects will have on the Leona Valley's shallow and fragile closed ground water basin with the introduction of new copious amounts of water. (the Ritter Ranch project alone plans to apply/use in excess of 10,000 acre ft water)

4(f). DEIR fails to provide analysis/impact 2 million plus cu yd of soil excavation/re-location will have on the local water table in Leona Valley. DEIR fails to provide analysis/impact these excavations will have on adjacent wells, i.e.; well draw downs due to basin demand and resulting ground water level imbalance. Impact analysis and mitigation is warranted for both basin and borrow site impacts to the water table and adjacent wells.

FLOOD CONTROL

1. The DEIR fails to provide adequate analysis of flood potential on downstream properties. Absent from the DEIR is rationale for the CFS flow downgrade from the original 1991 DEIR and this DEIR. The DEIR fails to provide analysis of ongoing studies/litigation pending to further reduce CFS values and potentially negate the need for this projects flood control provisions with accompanying significant design changes.

f.5

WETLAND/RIPARIAN

1. Page 1.0-17 item G, what does this mean? Is it that this wetland located in Basin B will never be properly restored due to flood control mandates to clear vegetation? If so, how does this DEIR propose to successfully accomplish a zero net loss of wetlands which the DEIR identifies as a mitigation?

f.6a

2. The DEIR fails to identify how removal of sedimentation, bulk and vegetation will be periodically removed from Basin B and other basins located in wetlands without impacting the wetland eco-system habitat?

6b

3. The DEIR fails to identify how the removed wetland will be maintained during staging for re-plantation? Irrigated? If after commencement of re-location activities, the region enters into another drought period, what impact is expected to the re-located wetland during staging and re-planting? What mitigation is proposed?

6c

4. The studies listed in the DEIR indicate that all wetland analysis was completed during the seven year statewide drought, a time when the wetland habitat was mostly dry. It would be reasonable to assume that new previously un-documented biological resources are now present in the numerous "wet" wetland areas proposed for change by this project. The DEIR biological resources inventory/analysis and subsequent mitigation is inadequate, a re-inventory of this wetland habitat, particularly during

6d

the "wet" season is warranted.

5. DEIR fails to provide analysis of impacts nor provide mitigation for polluted wetland surface waters utilized by wildlife for drinking. Absent are long range impacts to wildlife and native biological resources.

6e

7. The maps depicted in the DEIR do not accurately define the wetland boundaries. Recent infrared photography (MAY 93) of the Leona Valley show a much larger wetland area and identify wetland areas missing from the DEIR. Subject photography is available through LA County Public Works, Attn D. Poplar. Additional video documentation from the Leona Valley Town Council is available upon request.

6f

8. 5. 7. Ref. page 4.4-33 para 4.4.2a. This project and resultant developments it supports will reduce, and in some cases eliminate raptor foraging habitat, including protected species. The DEIR fails to identify mitigation during the time the wetlands will be obliterated from the habitat area. The DEIR also fails to identify what will become of existing wildlife during the wetland removal/re-plantation, what provisions will be made for their maintenance and survival, and what wildlife are not expected to return and what environmental impacts these events will have?

6g

9. The DEIR fails to identify the impacts of the removal of the wetland to the insect eco-system and the food-chain it supports, which is the very foundation of a wetland. The communities in this eco-system are well-established and hundreds of years old. The DEIR fails to provide a plan or mitigation for maintenance/relocation and reintroduction of this critical component of the wetland to its new location.

6h

10. What effect will the increased noise levels, increased air pollution, increased human and household pet activity and changed climate have upon the relocated wetland ecosystem? What impact will the presence of activity on the golf course have on the relocated wetland habitat and migratory routes? What negative impact will the wetland ecosystem have on the golf course? Fencing is absent from the DEIR.

6i

What impact is expected?

11. Successful wetland habitat replacement programs are historically rare. The DEIR provides no analysis or documentaiton or examples of prior successful wetland relocations. The degree of success of such attempts, amongst others, are directly related to amount of money spent on the venture - the more money - the greater the chance of success! What economic mitigation or plan has been proposed to ensure the successful implementation this mitigation?

6j

12. 4.4.1c states cuttings, seeds and plants grown from the original riparian/wetland areas will be used to revegetate the relocation area.

- What is the timetable for this revegetation effort?
- According to the DEIR, project construction is due to begin Spring 1994. Considering the length of time needed to establish a nursery of native plants through the proposed mitigation program of cuttings and seeds, what is being done to (a) collect these cuttings and seeds, (b) where is this nursery located, and (c) will these new native species be of sufficient growth to support wildlife within the timeframe listed in the DEIR mitigation?
- The current wetland site includes a natural artesian spring that feeds the riparian/wetland area. The DEIR fails to identify the method by which this deep spring is to be relocated. What data was used in the DEIR to develop the mitigation program for artesian spring relocation?
- In general, this DEIR is extremely vague in its description of the revegetative program for the wetlands. Note, that if too long a time elapses between destruction of the current site and revegetation of the future site, habitat will be disrupted irreparably and the mitigation measure will have failed.

6k

13. The DEIR fails to identify and/or mitigate the impact of the project's (or future projects) noise barriers in relation to the disruption of the migratory path of local species. Natural migratory routes have not been identified, nor have sitings of these

6l

barriers been designed to prevent the disruption of this critical component of the area's varied habitat survival.

14. The mitigation measures which propose constructing culverts as passageways for wildlife have not been a proven means of perpetuating foraging and range corridors. Wildlife generally follow their own "roadmaps" and trails and do not easily adapt to routes which lead them through artificial tunnels in the midst of heavily populated areas. This DEIR does not mitigate this concern, as the proposal is doomed from the start and so are the wildlife whose range has been divided by a "freeway". DEIR needs to present a more proven mitigation measure.

6m

15. The DEIR fails to address biological impact to Amargosa Creek as a result of year round additional runoff. Specifically, the DEIR fails to identify new types/quantities of insects/wildlife (mosquitoes and the ensuing food chain expected) or their impact and mitigation.

6n

16. The DEIR fails to provide analysis/impact to wetland boundaries as a result of year round water run off/percolation (40,000 acre ft water) as a result of this project and the 23 identified developments it supports. Will wetland boundaries grow and encroach on adjacent properties as has occurred with the emergence of new springs in 1993? Impact analysis is absent for adjacent properties along with adequate mitigation.

6o

BASINS

1. The DEIR fails to address flood basin siltration/sealing potential as experienced in basins within the Antelope Valley that require periodic pumping.

7a

2. The DEIR fails to address soil types planned for basins and impact potential for lost recharge capability.

7b

3. The DEIR referenced RBF drainage study failed to perform a sedimentation yield study due to "relatively low sediment production in this area...in the upper watershed". Historic area storms have resulted in considerable run-off which has clogged storm drains, caused property damage and through deposition has raised surface elevations most notable in wetland creek areas. The conclusion arrived at above is not supported by study or facts. This same study goes on to say, " to adequately answer the bedload transport and erosion issues, information on the current sediment load in the creek, as well as a bedload transport study would be necessary". According to Walesh 1989, "sedimentation will occur in most detention/retention facilities even though they may not be explicitly designed to serve a sedimentation function. Unexpected sedimentation may have adverse impacts on D/R facilities, such as loss of storage caused by sedimentation accumulation, unsightly accumulation of suspended solids, and other debris near the inlet and partial obstruction of outlet works, primarily from buoyant debris, accordingly, designers must make a preliminary assessment of likely sediments loads.? This same study utilized .5 to 1 dwelling units per acre to base existing run off calculations when the Leona Valley is zoned 1 dwelling unit per 2.5 acres. DEIR analysis is inadequate and presents an inadequate design/mitigation.

7c

TRAFFIC STUDIES

21.G

1. The Elizabeth Lake Road "re-design" was started in July 1990 and is described in the DEIR as "ongoing", however, the DEIR fails to identify any traffic study/analysis which addresses construction traffic for this project and the other 23 proposed developments through the year 2010?

g.1

2. The DKS Traffic study mentioned in the DEIR is insufficient and incomplete for this DEIR analysis as it was completed in July 1990 prior to commencement of the road "re-design", and two years prior to the Ritter Ranch and City Ranch design approval which identified construction requirements. Obviously, a study completed in 1990 could not possibly have accurately identified requirements that would not be identified until 2 or 3 years later!

g.2

3. DEIR fails to address traffic impacts and offers no mitigation for the roadway segments identified below in the July 1990 DKS traffic study/Palmdale General Plan.

Example;

| | Existing | | Forecasted 2010 | |
|---|----------|-----|-----------------|-----|
| | ADT | LOS | ADT | LOS |
| Godde Hill Rd. | 3,000 | A | 28,000 | C |
| Eliz. Lk. Rd. between Godde Hill & Bouquet Cyn | 6,800 | A | 28,900 | C |
| Eliz. Lk Rd west of Bouquet Cyn Rd. | 3,600 | A | 14,700 | E |
| Bouquet Canyon Rd. | 1,800 | A | 8,800 | A |

The study recommends 4 lane divided major roadway improvements to Godde Hill Road and the section of Elizabeth Lake Road between Godde Hill and Bouquet Canyon Road in order for traffic to be mitigated to LOS C. The study recommends Elizabeth Lake Rd. west of Bouquet Canyon Road remain at 2 Lanes Major and operate at LOS E. The Study figure for Bouquet Canyon Road at forecast 2010 of 8,800 ADT's is in-correct, 14,200 ADT's will occur on Bouquet Canyon Road. With no road improvement as planned, Bouquet Canyon Road will operate at LOS E. (Elizabeth Lake road segment from Godde Hill road to Bouquet Canyon 28,900 ADT, minus Elizabeth Lake road segment past Bouquet Canyon road of 14,700 ADT, results in 14,200 ADT on Bouquet Canyon road). DKS traffic analysis fails to adequately address the Bouquet Canyon road capabilities and expansion mitigation. DEIR ADT figures for Godde Hill Road do not match the Palmdale General Plan Circulation Element (1993) Table C-5 or match the DKS study figures. Page 4.9-18 states in small print, "Please note that the project will not be improving the Bouquet Canyon/Godde Hill portion of Elizabeth Lake Road". EIR fails to identify reasons/rationale for omission.

g.3

4. DEIR fails to provide traffic analysis of conflicts between proposed expanded urban commuter use and existing and proposed agricultural roadway use. ie; livestock loading and transport, farm tractors, hay loaders, and other farm equipment and machinery use.

g.4

5. Analysis and mitigation is missing for reduced speeds/signage and roadway pullout provisions.

g.5

6. DKS traffic study cited as evidence in the DEIR is deficient and is based on guess-work rather than hard data and has been challenged under testimony at public hearings:

- Tom Horne, City Traffic Engineer for the City of Palmdale stated at the Palmdale City Council Hearing, Ritter Park Associates, January 29, 1992, regarding the adequacy of DKS finding on traffic volume on Bouquet Canyon Road and San Francisquito Road, "the best you could do at this point would be to go back to SCAG models and try to make a guess, sort of like they [DKS] had to do on the Bouquet Canyon Road." The DEIR needs to revisit their traffic analysis on the impact on Bouquet Canyon and San Francisquito Roads with data, not "guessimates".
- Further, Tom Horne testified that the DKS Study included erroneous information about the connection roadways but he "felt" that the study was within "the right ballpark". This type of subjective guesswork was typical of what DKS included in their study.
- In regards to San Francisquito Road, Tom Horne again testified that "we didn't really feel that they [traffic] would go that far." Contrary to this opinion expressed by Mr. Horne, when Bouquet Canyon Road was closed due to damage caused by the '93 Winter Storms, commuters did indeed use San Francisquito Road as an alternate to SR 14 and Bouquet Canyon. It is not only reasonable but mandatory that San Francisquito be included in the DEIR traffic study.

g.6

- Additionally, the following experts and users testified against the adequacy of the Traffic Study which is used in this DEIR: (1) Richard Redman, Engineering & Economics, (2) Don Williams, Senior Planner with the Department of Community Developers of the City of Santa Clarita, (3) Jill Klajic, Mayor of the City of Santa Clarita, (4) Ed Klein, Traffic Engineer, City of Santa Clarita, (5) Ed Dunn, Community Traffic Organization, (6) Pat Salitore, President of the Santa Clarita Valley Civic Association, (7) Kris Rodriguez, Bouquet Canyon resident, (8) Steve Foxwell, CALTRANS, and the Leona Valley Town Council.

g.6

7. 4.9 of the DEIR Traffic and Circulation section, describes Elizabeth Lake Road as the main east-west artery and a regionally significant thoroughfare in the Antelope Valley. This is a gross misrepresentation of the use and location of the Elizabeth Lake Road. Elizabeth Lake Road is located not in the Antelope Valley, but in the Leona Valley. It does not serve as a major route between I-15 and I-5 nor is it a connection between the Ventura County border and the San Bernardino County border. Currently Highway 138 is the major thoroughfare, and the Metropolitan Bypass appears on planning maps as the future major east/west arterial. Elizabeth Lake Road serves the small unincorporated communities of Leona Valley, Elizabeth Lake, Lake Hughes, Green Valley, and Three Points.

g.7

8. In addition, CALTRANS has approved the P-8 alternative route in its expansion plans for Highway 138. P-8 does not connect with Elizabeth Lake Road, therefore, future expansion and improvement of this east/west arterial does not include Elizabeth Lake Road.

g.8

9. If Elizabeth Lake was the major arterial connection between I-15 and I-5, how can the DEIR justify or substantiate the fact that only 5.9 miles of this roadway will be improved? Either the entire roadway be improved to accommodate the volume of traffic a "major arterial" will generate, or it be left as "the Old Road" to service the local traffic requirements.

g.9

10. The road dimensions listed in this DEIR are not consistent with the Ritter Ranch dimensions. Clarify discrepancy.

g.10

11. Phasing and interfacing with the City Ranch project circulation plan is not defined. Please include.

g.11

CONSTRUCTION IMPACTS AND MITIGATION

21.H

1. Page 4.7-5 and page 4.6-4 state construction will be temporary, yet the developments this project support are stated to continue 20 years plus with resultant construction traffic.

1a

A) Construction CNEL projections are missing from the DEIR for existing residences adjacent to Elizabeth Lake Rd. during the initial road expansion, and for construction traffic supporting the other 23 listed developments through the year 2010 who will use Elizabeth Lake Road.

B) The DEIR fails to identify construction noise mitigation plans and/or timetable for existing residences adjacent to Elizabeth Lake Rd. If any mitigation is proposed, will it be completed prior to construction start?

1b

C) Page 1.0-19 states construction will be limited to 6:30AM-8:00PM Monday through Saturday, yet Appendix C-1 (air quality analysis) was performed using 6:30AM-6:00PM Monday through Saturday. Since both construction noise and air quality are related, just what are the construction hours? Which analysis is correct?

1c

D) The Ritter Ranch EIR states that construction for that project will occur at times during differing hours as presented in this DEIR. Ritter Ranch construction traffic will make use of and contribute to the construction impacts as outlined in this DEIR. Explain the scheduling inconsistencies and determine the actual timetable for construction impacts.

1d

E) Has this DEIR factored in the impact of construction-related activities specifically during the heavily traveled commuter times?

1e

F) The impact of detours on Elizabeth Lake Road is not satisfactorily addressed. Nor are satisfactory mitigation measures presented. Elizabeth Lake Road is the primary roadway for the unincorporated communities of Leona Valley, Lake Elizabeth, Lake Hughes, Green Valley, and Three Points. Construction proposed for Elizabeth Lake Road would at times shut down this route and create a serious threat to residents particularly during an emergency (fire, earthquake, flooding, snow, medical, traffic, etc.). Routine detours and stoppages would create a hardship on travelers and severely impact those residences along the construction route. In addition, these communities gain no benefit from the project yet are made to endure this hardship and inconvenience with no compensation. How will citizens who will not benefit from this project be compensated for resultant negative impacts? Does this not leave the City vulnerable to litigation?

1f

2. DEIR fails to identify, or provide analysis and mitigation for the negative impact of construction traffic carrying road base materials/asphalt required for this project and the 23 identified projects it supports. Where will these materials come from, what are the local impacts at these sites, and which roadways will be impacted during transportation?

h.2

3. DEIR fails to identify quantities of fill material to be removed or specific locations from each borrow site, resulting in an incomplete grading, archaeological, and paleontology analysis. Grading policies and impacts in the borrow areas on the Ritter Ranch were not identified in the Ritter Ranch EIR. In public testimony, it was said that this item would be discussed in this project's DEIR - which it has not. The negative impact of the overall borrow area grading will result in air and noise pollution, soil erosion, alteration of drainage patterns, and warrants identification and mitigation.

h.3

Re-vegetation requirements are missing/vague for borrow and cut areas during the construction phase. To reduce the aesthetic impact to existing residents plus reduce fugitive dust emissions and erosion problems, revegetation should commence

immediately upon completion of individual site soil removal.

4. The DEIR fails to address erosion control and flood potential mitigation methods to be used during the approximate 18-month construction period of this project. Absent from the DEIR is any analysis of these impacts to public safety, properties, and the project.

h.4

NOISE ANALYSIS SPECIFIC TO THE LEONA VALLEY

21.1

1. Will electrical generators be used on site during the construction phase? What is the noise impact? What hours will they be in use? What mitigation for their impact?

i.1

2. What is the degree to which the terrain of the area will affect the propagation of sound? The naturally enclosed topography of this area will magnify and project sound in a different manner from sound generated in a flat, open area. Has this factor been incorporated into the analysis? The DEIR presents as its only evidence of this condition testimony by "several residents" on November 14, 1990. This is an inadequate compromise to provide a serious, technical, or credible study. The DEIR fails to accurately apply, evaluate, and mitigate if necessary, increased negative impacts to the noise environment of the Leona Valley. DEIR failsw to identify the existence of any acoustical anaylsis or community noise survey.

i.2

3. The DEIR fails to identify worst case construction schedule at the project site as well as the 23 "proposed" development sites. These schedules are critical to the identification of CNEL contours which would negatively impact the area more at certain times, and less at others.

i.3

4. 4.5.2a requires "...that future residential areas along Elizabeth Lake Road will require noise attenuation barriers..." according to City of Palmdale standards. Future residential development along Elizabeth Lake Road currently is within the purview of

i.4

the Leona Valley Community Standards District and the County of Los Angeles. How can the City of Palmdale enforce a mitigation to this project on property that is not within the City boundaries or jurisdiction? If this mitigation is not within the City's legal ability to enforce, then how can it be presented as a mitigation?

i.4

AIR RESOURCES IMPACT ANALYSIS AND MITIGATION

21.J

1. Page 4.2-17 states that the PM10 emissions "although significant, are considered temporary and would cease following project completion." The air resources analysis fails to adequately address construction air quality impacts from the 23 other proposed projects and the yet to be identified projects this road expansion will support.

j.1

2. Page 4.2-18 states " growth inducing impacts may effect a noticeable change to Leona Valley climate through urban heat." EIR analysis of climate change is inadequate. Past, present, and projected climate conditions are not documented in the EIR, ie; historical rainfall amounts, humidity levels, weather patterns, etc. even though this information is readily available. In addition, "urban heat" requires a more thorough definition and impact analysis.

j.2

NON-COMPLIANCE AND VIOLATION OF CITY STANDARDS AND POLICIES 21.K

1. The DEIR fails to identify and mitigate this Project's violation of at least 19 policies of the City of Palmdale's General Plan as adopted 1-25-93. Specific examples follow:

k.1

DEIR Violates City of Palmdale General Plan Land Use Policies;

Policy L1.2.3: Consider the provisions of adopted Memorandums of Understanding in

establishing land use regulations for areas to be annexed.

Policy L1.4.2 Item C: Require placement of roads, utilities and other infrastructure to be located outside of active fault zones, where feasible.

Policy L3.4.2: Adopt rural design standards in areas where minimum net lot size is 40,000 square feet or larger. (No rural standards exist)

Policy L7.1.1 Item M: Prohibit use of sound walls as a method for acoustical mitigation of building interiors. Noise mitigation shall be accomplished through proper site planning and the use of appropriate building and construction techniques.

Also not in compliance with City Development Code C Item 7 Rural Development Standards (including street improvements and street lighting) which currently do not exist.

Project failed to comply with City implementation measure H, "Coordination of land use decisions" by failure to coordinate land use decisions through "Systematic notification and consultation procedures with...adjacent jurisdictions and Town Councils".

DEIR Violates City of Palmdale General Plan Environmental Resources Policies;
Policy ER1.2: Protect scenic view sheds both to and from the City of Palmdale

Policy ER1.2.1: New development with the potential to substantially obscure or negatively alter the scenic backdrop to the City should be discouraged. "Scenic backdrop" refers to the significant ridge lines of the San Gabriels, the Sierra Pelona and the Ritter and Portal Ridges that form the City's skyline views.

Policy ER1.2.2: The following roadways are designated as City scenic highways.

k.1

Apply special design standards for projects adjacent to these highways (as contained in the implementation section) in order to protect their scenic qualities.

- a. Barrel Springs Road
- b. Tierra Subida Avenue
- c. Sierra Highway, South of Avenue S
- d. Elizabeth Lake Road
- e. Pearblossom Highway
- f. Bouquet Canyon Road
- g. Godde Hill Road

Policy ER2.1.4: Preserve natural drainage courses and riparian areas where significant concentrations of ecological resources exist.

Policy ER2.1.5: Preserve and maintain significant Joshua tree woodlands and other significant habitat areas. Early in the review of development projects, the feasibility of preserving any significant vegetation present on-site should be examined.

Policy ER4.1: Ensure that ground water supplies are recharged and remain free of contamination.

Policy ER4.1.2: Restrict building coverage and total impervious area in the vicinity of natural recharge areas.

Policy ER5.2.2: Encourage developers to maintain natural contours to the greatest degree possible, to eliminate the need for extensive land clearing, blasting, ground excavation, grading and cut and fill operations.

Goal ER8: Avoid the premature conversion of agricultural lands to urban use.

Policy ER Sect 3 Item G: Scenic Roadway Designations

The City shall protect scenic highways in the Planning Area. Scenic highways and roads

k.1

have been identified in Policy ER1.2.2 of Section 2. They include Barrel Springs Road, Tierra Subida Avenue, Sierra Highway (south of Avenue S), and Elizabeth Lake Road, Pearblossom Highway, Bouquet Canyon Road, and Godde Hill Road. These roadways possess scenic qualities that have provided outdoor recreation experience to travelers and hikers. Exhibit ER1 shows the location of these locally significant scenic streets and highways.

The City should apply to the State Scenic Highway Advisory Committee for State designation of these roadways. This designation could afford visitors the enjoyment of views along the routes and provide extra protection to this resource.

The City will establish a design criteria for designated scenic highways that requires specific design standards for nearby development. These standards could include the following: height limit to preserve view corridors, limits or standards for outdoor advertising and signs, maintenance of roadside landscaping, limits on grading activities along highways, and the prohibition of overhead utility rights-of-way along scenic highways. In addition, a visual impact analysis may be required for developments within overlay zone in order to preserve the visual qualities of scenic routes.

Policy ER Sect 3 Item R: The City will cooperate with local water providers and flood control agencies to develop a ground water recharge program. The City can contribute to this effort by ensuring that major recharge areas be kept undeveloped to aid in water recharge

DEIR Violates City of Palmdale General Plan Public Services Element Policies;
Policy PS1.2.5: Require that infrastructure be designed and constructed to meet ultimate capacity needs, pursuant to a master plan, so as to avoid the need for costly retrofitting.

Policy PS1.5.1: Through the development review process, inform adjacent cities, town councils and/or county agencies of development proposals which may impact their

infrastructure systems, and consider their input and recommendation in the land use decision process.

k.1

DEIR Violates City Noise Element Policy

Policy N1.1.3: "When proposed stationary noise sources could exceed an exterior noise level of 65 dBA CNEL at present, or could impact future noise sensitive land uses, require preparation of an acoustical analysis and mitigation measures to reduce noise levels to no more than 65 dBA CNEL exterior or 45dBA CNEL interior; if noise level cannot be reduced to these thresholds through mitigation, the new noise source should not be permitted. The CNEL contours described in the DEIR do not conform to the specifications of the City of Palmdale which call for a theoretical 65 decibel CNEL contour.

What rationale or justification does the City of Palmdale offer for requiring CNEL values to conform to their specifications of 65 decibels in the City yet promote this project which exceeds that value in the in the unincorporated areas of the Leona Valley?

2. Noise mitigation through the use of "sound walls" is aesthetically unsatisfactory and provides graffiti opportunities for the numerous gangs and taggers which have assaulted the City of Palmdale. These walls are not conducive to Elizabeth Lake Road's designation as a scenic corridor as they are urban in design and do not lend themselves to the rural landscape. In addition, they obstruct the scenic viewshed and destroy the existing character of the Leona Valley. In past project reviews and decisions, the Palmdale City Council has expressed a policy of preferring the implementation of berms, set backs, or other methods to attain sound attenuation. (Refer to Tierra Subida-related projects) Therefore, this DEIR mitigation is inconsistent with the City of Palmdale's previous decisions and General Plan policies and it does not provide suitable alternatives which historically would be preferred by both the City of Palmdale and the community of Leona Valley. In addition, use of solidly constructed sound walls is also inconsistent with the Leona Valley Community Standards District ordinance.

k.2

REGIONAL COMPATIBILITY STUDIES TO ESTABLISH CRITERIA WITH WHICH TO MEASURE AND DETERMINE NEGATIVE IMPACTS AND APPROPRIATE MITIGATIONS

21.L

1. Pages 4.7-6 and 4.7-7 incorrectly identifies the Leona Valley Community Standards District as proposed. The CSD was approved in Aug 1992 by the LA County Board of Supervisors.

1.1

2. Page 4.7-5. The Leona Valley CSD places restrictions on signage, fencing and preservation of existing natural contours, native vegetation and rock outcropping features. The Leona Valley portion of this project is governed by the CSD (except the Ritter Ranch), and as proposed, violates most of the CSD provisions.

1.2

3. Page 1.0-21 amongst others states, "impacts from the project will remain significant after mitigation as a result of the over-all change of character of Leona Valley." The DEIR fails to identify studies/analysis performed in Leona Valley to document the existing character, therefore, what criteria does the DEIR use to measure the change? Documentation of agricultural, social, economic, manufacturing, cottage industries, population, and compatibility with this project and the 23 others it will support are missing from the DEIR. An accurate and thorough assessment of this project's impact cannot be performed without this analysis.

1.3

4. Page 4.1-8. DEIR fails to identify boundaries of the "Leona Valley Study Area", the date study was performed, or any documentation of the field reconnaissance or discussions held to support stated conclusions. How many property owners were interviewed, what topics were discussed, where are the responses, what geotechnical report was used, and what procedures were used during the field reconnaissance?

1.4

5. Page 1.0-33 Impacts to the Ocotillo school are missing and should be addressed.

1.5

6. Documentation/studies are absent from the DEIR of past/present groundwater

1.6

conditions within Leona Valley, ie; well inventories, septic systems, agricultural land uses, nitrate conditions, water quality levels, historical/seasonal groundwater levels, and locations of ancient and new active natural springs.

1.6

7. The DKS Traffic Study failed to inventory and analyze the land use designations for properties abutting the Elizabeth Lake Road. Without this data, the DEIR cannot accurately determine impact or mitigation.

1.7

CONSISTENT AND EQUITABLE POLICY FOR IMPLEMENTATION OF
COMPENSATORY MITIGATION PROGRAMS

21.M

1. The DEIR fails to identify compensation by the City of Palmdale to existing residences who are impacted by un-mitigatable elevated noise levels? The DEIR is inconsistent in that it identifies monetary compensation to Lazy T Ranch for unmitigatable noise impacts, yet does not provide or offer monetary compensation to other residences impacted by unmitigatable noise levels. What criteria has the DEIR developed to determine eligibility for compensation benefits for mitigation of negative impacts? Is that criteria being administered in a fair and consistent manner? If not, why not?

m.1

2. Page 4.2-18 Mitigation measures are missing from the DEIR which identifies an increase in "urban heat" in the Leona Valley. What mitigation does the City of Palmdale propose for agricultural operations dependent on the current climate, which will be lost or severely impacted

m.2

3. DEIR fails to identify impacts and mitigation measures for declining adjacent property values as a result of this project, particularly those properties located in the vicinity of basin E. ie; lost viewshed, looking up at new road, noise, access restrictions, air quality reduction, water resources degraded, etc.

m.3

4. DEIR fails to identify the pollutant types and quantities the sedimentation

m.4

basins will not remove, and fails to provide impact analysis and mitigation to the closed Leona Valley groundwater basin used by residents for primary drinking and agricultural purposes (livestock and deciduous crops). Does the City of Palmdale propose a well monitoring program? Would the City of Palmdale pay for municipal water hook-ups and lines plus subsidize reduced water rates comparable to well pumping costs for the individual property owners? If not, why?

m.4

URBAN FLOOD CONTROL

21.N

1. The DEIR fails to provide evidence that existing developed properties from approximately 55th Street West to Godde Hill Road require urban flood control. This DEIR fails to provide through studies, inventory, or documentation, evidence that these properties or structures have suffered severe damage due to flooding or have the potential to suffer damage. The DEIR also fails to provide evidence that future development of this area will require oversized flood control proposed by this project. In addition, it has not provided evidence that downstream development requires the magnitude of this project.

n.1

MISCELLANEOUS COMMENTS

21.P

1. Exhibit 3.0-3A Project Overview

This exhibit "whites out" significant land areas west, south and north of the project area. For instance, Elizabeth Lake Road west of Godde Hill Road which services these properties will suffer LOS F conditions as a result of this project, yet those impacted properties are not represented. This omission is misleading and deceptive.

p.1

2. Exhibit 3.0-3c Project Overview

Residence at approximately 55th West is not identified.

p.2

3. Utility Line Relocations

Timetable for removal of "temporary overhead poles" is not established. Location and environmental impact of the trenches required for placement of underground utilities not specified.

p.3

4. Additional Water Availability

DEIR fails to identify quantity of water to be used during the construction phases and wetland replantation phases. How many acre feet of water will be used? Will this water be restricted to imported water use only? What assurances exist from Antelope Valley East Kern (AVEK) for water availability? In the event of AVEK water non-availability, which alternatives will be used and what impact will they have?

p.4

5. Seismic

The DEIR analysis of faulting and soil types (Geotechnical analysis) within the project area conflict with USGS Professional Paper 1039. Significant differences exist between DEIR map exhibits 4.1-1A and 4.1-1B. Which resource is correct? USGS or this DEIR? Explain the discrepancies and the impact on this analysis.

p.5

6. Rainfall Amounts

Page 4.3-1 Rainfall amounts listed for Leona Valley are in-adequate. Rain gauge stations are maintained with-in Leona Valley and can provide more accurate data. Private rain gauge readings for the 92/93 winter season have recorded a range of 32 to 46 inches.

p.6

7. No Substantive Evidence to Support This Project's Oversizing Components

The DEIR fails to provide evidence that the project area will serve 23 future development projects in or adjacent to the Leona Valley. Further the DEIR fails to identify the infrastructure requirements of these "23 projects". Because these 23 projects (except for Ritter Ranch) have not been processed or approved, it is premature for the City to plan for urbanization of the unincorporated community of Leona Valley in light of the fact that the Los Angeles County Board of Supervisors

p.7

recently approved the Leona Valley Community Standards Districts which through ordinance provides for the continued RURAL growth of the area. In short, the DEIR provides no justification, analysis or hard data to identify the future infrastructure requirements this project proposes to accommodate. Such analysis must include definitive data, not guesstimates.

p.7

8. November 1990 Scoping Meeting

This DEIR is dated May 1993 and states that it has been "subsequently modified" since the November 14, 1990 Scoping meeting held to discuss the 1990 version of the Amargosa Improvement Project. This DEIR justifies the City's failure to conduct any public meetings on the May 1993 DEIR (Scoping meetings) because, the two projects and DEIR's are "similar". It is unreasonable to claim that one public meeting held 3 and one half years ago on a "similar" but "modified" project fulfills CEQA requirements for public access to the process.

In addition, the November 1990 Scoping meeting was deficient in scope, specifics, and content. Attendees were told repeatedly that their questions and concerns could not be answered because they were "too technical" and that no one on the Scoping panel were able to answer them. Attendees were told that another meeting would be scheduled and the project engineers and technical personnel would be available to answer questions. Attendees requested this meeting so that they would have the opportunity to comment and provide input before the project plan got too far along and because this project directly impacted their properties. No meeting was ever scheduled by the City. Nor did the City prepare responses to the some 50 concerns raised by the attendees at the 1990 meeting.

p.8

Further exclusion of the property owners effected by this project was evidenced by a variety of project resolutions adopted by the Palmdale City Council as Consent Calendar Items.

The 30-day Notice of Preparation (NOP) was not circulated to the property owners in

the project or to others most effected by the project. Only select agencies were afforded the opportunity to review and comment.

The City of Palmdale is well aware of the concern that property owners in Leona Valley have toward this project. The negative environmental impacts cited in this DEIR will have little if any impact on the majority of the residents of Palmdale. These impacts will be borne almost entirely by the people in Leona Valley.

Rationale is missing as to why the City of Palmdale has refused for three and one half years to work with the impacted residents and property owners to create a project which meets the needs of not only special interest groups and the City of Palmdale, but also the property owners and residents of the unincorporated Leona Valley? What plan is offered to rectify this situation?

p.8

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

21.Q

This DEIR is inadequate on two distinct grounds, first the DEIR does not adequately describe the project within the meaning of CEQA because it fails to identify, discuss, and mitigate at least 100 items which may/will produce adverse environmental impacts.

Second, the DEIR's analysis of project alternatives is inadequate because it fails to consider adequately a reasonable range of alternatives and fails to analyze adequately whether the desired project could be located at a site other than Elizabeth Lake Road and Amargosa Creek.

q.1

CEQA provide that alternative location must be analyzed in detail whether or not they are deemed by the City of Palmdale or Ritter Park Associates to be infeasible or not desired.

Without meaningful analysis of the alternatives in the DEIR, neither the courts nor the public can fulfill their proper roles in the CEQA process as that would require

blind trust by the public. The City of Palmdale misses the critical point of CEQA that the public must be equally informed, and that the selection and discussion of alternatives fosters informed decision-making and informed public participation.

The only discussion the City of Palmdale has had with the general public occurred at what was labeled as a Scoping Meeting in November 1990. By the City's own admission, this Scoping Meeting was deficient as the City repeatedly stated that they could not provide the public with the analysis, discussion, or evidence that the public in attendance requested. In addition, the City made no reasonable attempt in 3 1/2 years to provide answers or information to the some 50 specific questions raised by the public at this meeting. The Leona Valley Town Council submitted two comprehensive reviews of the then current version of this project in response to the City's request for comments. The City failed to response either document. ((September 16, 1990 and October 4, 1991)

While some requirements of CEQA have been met in the presentation of alternatives, a critical component of CEQA, which is to produce information sufficient to permit a reasonable choice of alternatives so far as environmental aspects are concerned, is missing. It appears, however (as can be ascertained by the limited discussions), that the selected alternative produces substantially more adverse environmental impacts. Yet there is not presented sufficient and reasonable discussion or justification as to why the more adverse environmental alternative was selected over the less adverse environmental alternatives.

CEQA requires an answer to the central question: Does some alternative exist which could eliminate or substantially reduce the adverse environmental impacts of the project? Although this question is not answered in the DEIR, there is an alternative which can meet the goals of the project, the City, the developer, the public, and CEQA. The DEIR has not made a reasonable effort to provide this superior alternative and is therefore, sorely deficient. (A discussion of this proposed alternative is provided below.)

q.1

This leads to another alternative analysis issue and that is the level of analysis required to support a conclusion that an alternative - including an alternative site - is economically infeasible.

The level of economic information that was provided in the DEIR was not sufficient to support the rejection of an environmentally superior alternative on the grounds that it was economically infeasible. What is required by CEQA, and absent from this DEIR, is detailed information regarding the "comparative costs, comparative profit or loss, or to the extent appropriate, comparative economic benefit (or lack of) to the City of Palmdale, nearby communities such as Leona Valley, or the public - at - large. A factual detailed analysis of the costs of the alternatives must be disclosed so everyone can understand what makes an alternative economically infeasible.

If there is one principal deficiency running through this DEIR, it is the presentation of conclusions based on broad, conclusory statements in support of its choice of alternative. The public demands that the City of Palmdale engage in a thorough, careful and unbiased analysis of the impacts of approving or disapproving the proposed project. Because there are alternatives available which would lessen the severity of the project's impact on the environment, including location of the desired project at an alternative site, the reasons for foregoing those alternatives must be carefully spelled out, whether they are economic, social or technical. The City of Palmdale must ensure that the public decision-making process is well-documented so that decisions can be made from a position of information and knowledge and not mere conjecture or presumption.

q.1

Reference (included in this document by reference):

California Real Property Journal, Vol. 7, NO.3, Convention Issue 1989, "Extending the Rule of Reason: New Limits on the Range of Alternatives Required in an EIR, by Susan K. Kori

Laurel Heights Improvement Association of San Francisco, Inc. v. Regents of the University of California (1088) 47 Cal.3d 376, mod. (1989), 47 Cal.3d. 982A

Citizens of Goleta Valley v. Board of Supervisors (1988) 197 Cal.App.3d 1167, mod. 198 Cal.App.3d 859B

Residents Ad Hoc Stadium Committee v. Board of Trustees (1979) 89 Cal.App.3d 274)

San Bernardino Valley Audubon Society, Inc. v County of San Bernardino (1984) 155 Cal.App.3d 738

Foundation for San Francisco's Architectural Heritage v. City and County of San Francisco (1980) 106 Cal.App.3d 893

Village Laguna of Laguna Beach, Inc. v. Board of Supervisors, supra, 134 Cal.App.3d 1022

Topanga Association for a Scenic Community v. County of Los Angeles (1974) 11 Cal.3d 506

No Slo Transit, Inc. v. City of Long Beach (1987) 197 Cal.App.3d 241

ADEQUATE ANALYSIS OF PROJECT ALTERNATIVES

21.R

1. DEIR alternative analysis of the "Sterling Basin" is inadequate and warrants re-evaluation;

A) The 3 million cubic yards of excavated material from the Sterling Basin could be used to meet the fill requirements for the Elizabeth Lake Road rather than utilizing "borrow areas".

B) This option would eliminate the need for basins E and F.

C) The DEIR fails to perform an adequate cost trade off analysis/savings of the \$32 million dollar estimated land acquisition cost against the costs of this proposed project. It would seem that once the Sterling Basin option was properly analyzed, it would show to be an environmentally superior option and would be less costly. What environmental reasons are stopping this option from going forward?

D) On-going studies supporting a reduced flood potential, if adopted, would significantly reduce or negate the need for basins B & E.

E) An impact trade analysis or lost biological resources in the Sterling Basin area as opposed to the Amargosa Creek wetlands would show the Sterling Basin option less impacting.

r.1

2. Environmentally Superior Option - Proposed Alternative

It is recommended that the City of Palmdale consider the option provided below:

Utilize the "Sterling Basin Option" with the "Re-alignment Alternative". This option

r.2

would utilize Avenue R & S as well as Godde Hill Road as traffic arterials. Elizabeth Lake Road would remain unchanged with development infrastructure relocated within the Ritter Ranch. Since the DKS traffic study is inadequate and a new study warranted, this option needs to be explored and considered as a superior alternative to the one proposed.

Although this option violates the City of Palmdale's General Plan Circulation Element which designates Elizabeth Lake Road a "regionally significant major arterial" the option currently under consideration violates no less than 19 General Plan policies!

This proposed option would solve the Bouquet Canyon Road problem and traffic impact to points west including LOS F conditions.

This option would reduce impacts on earth resources by eliminating the extensive Elizabeth Lake Road grading/excavation and fill.

This option would reduce air quality impacts to Leona Valley and subsequent impacts to agricultural operations.

This option would leave the Amargosa Creek channel and wetlands intact while also reducing the pollutant load to Amargosa Creek.

This option would substantially reduce/eliminate the need for Basins B and E and the associated negative impacts.

This option would significantly reduce the impact to the biological resources by retaining the existing wetland eco-system.

This option would contain and provide for noise mitigation within Ritter Ranch, thus avoiding CNEL levels exceeding a level 65 contrary to City policy requirements.

r.2

This option would significantly reduce light and glare pollution plus negative aesthetics by avoiding the Elizabeth Lake Road expansion borrow and fill requirements.

This option would provide for more open space and not disturb wildlife habitat and migratory routes.

This option would reduce the risk of upset to facilities from natural and human events plus protect the Antelope Valley aquifer groundwater quality by not placing infrastructure over the San Andreas Fault and reducing surface run-off pollutants.

This option would result in less risk to existing cultural resources due to the elimination of Elizabeth Lake Road grading.

This option would receive a more favorable response from the unincorporated communities west of Palmdale.

This option would cost significantly less and is the environmentally superior alternative.

r.2

ATTACHMENTS C-E ARE AVAILABLE FOR REVIEW
AT THE CITY OF PALMDALE.

*AMARGOSA CREEK IMPROVEMENT PROJECT
DRAFT ENVIRONMENTAL IMPACT REPORT*

The following submits a letter from the Leona Valley Cherry Growers Association opposing the negative impacts of the project.

Leona Valley Cherry Growers Association
9538 Leona Avenue
Leona Valley, California 93551

June 20, 1993

Dear Leona Valley Town Council;

This letter is intended to state our concern toward the negative impact the Ritter Ranch/Freeway would have on the fruit orchards in Leona Valley.

The proposed freeway would create a major increase in traffic, thus bringing a mass of pollutants in the air. These pollutants to our knowledge, will increase valley temperatures, warmer temperatures will decrease the quantity and quality of fruit. On average it takes approximately four hundred hours of forty degree temperature or below to set the fruit nodules of cherry trees prior to blossoming. These same pollutants affect the health of other fruit trees as well.

The Leona Valley Cherry Growers Association, as a group relies on the sale of our fruit to the public as a small, but significant part of our income. If our crop is affected, our question is . . . who pays?

Leona Valley has the highest concentration of U-pick cherry trees in Los Angeles County. These u-pick orchards are only a part of the variety of trees that are grown in this valley, for both public and private use. In total the valley supports over 25,000 fruit trees.

I strongly recommend that the City of Palmdale look beyond the roadside of this proposed "freeway" and be more responsible toward the community it affects, as well as the environment, and the quality of life.

Sincerely,



T. Judge, Treasurer
Leona Valley Cherry Growers Association

Response No. 21

Mr. Robert Mallicoat

Leona Valley Town Council

- 21a. Detailed responses to these issues are provided below.
- 21b. The referenced documents were submitted for a previous project, which has been significantly changed, and is addressed in the subject Draft EIR. Applicable comments from the previous project were incorporated into the Draft EIR, and are reflected in the comment letter submitted for the current project.
- 21c. The submitted information is appreciated, and will be considered by the decision-makers during project deliberations.
- 21d. The submitted information is appreciated, and will be considered by the decision-makers during project deliberations. Climate issues are addressed in the Draft EIR, as well as Response No. 21j.
- 21e. This comment will be considered by decision-makers during project deliberations. The issues addressed in the comment letter are discussed in the Draft EIR.
- 21f. WATER STUDIES AND ANALYSIS

1. Water Availability (pp. 1 - 3 of Attachment B)

The information provided is appreciated, and hereby incorporated by reference into the Final EIR. It is acknowledged that regional water supply is a controversial issue with conflicting and/or inadequate information. It is further acknowledged that the developments facilitated by this project will be impacted by any future adverse water availability condition, as would most other existing and planned developments in the Antelope Valley and throughout southern California. The Draft EIR acknowledges that the project will have a significant growth-inducing and cumulative impact relative to water supply. However, the purpose of this project is to provide for infrastructure in accordance with the General Plan. No development project facilitated by this project will receive water service without the appropriate water agency making a finding that such water is available (through issuance of a "will serve letter"). Furthermore, it is considered outside the scope of this project to resolve state-wide and regional water supply issues. As noted in the comment, litigation and ongoing

studies are aiming to resolve this complicated issue. Also refer to Response Nos. 11 and 18c.

2. Water Quality (p. 4 of Attachment B)

The information and opinions provided will be considered by decision-makers during project deliberations. In accordance with NPDES requirements, each County will develop non-point water quality control measures as part of Drainage Area Management Plans, so that runoff water quality is in compliance with EPA criteria (these measures are not yet formalized). A Notice of Intent is also required to be submitted to Regional Water Quality Control Boards for construction-related discharges. The project will comply with requirements in place at the time construction permits are issued. In addition, as noted in the Draft EIR, the proposed design includes energy dissipators, sediment traps and detention basins, which are among the most effective means of reducing pollutant loads from street runoff.

Quantification of pollutant types beyond that provided (total solids) is considered speculative. As noted above, Los Angeles County will be required to achieve EPA pollutant standards in accordance with NPDES requirements.

3. Groundwater Recharge (pp. 4 - 5 of Attachment B)

Groundwater flow typically follows local topography and direction of surface drainage, which would be to the east for the western portion of Amargosa Creek. Even if the Leona Valley groundwater is not part of the Lancaster Subunit, the net effect on groundwater recharge would be the same, since the Leona Valley portion of the project is not proposed for channelization (recharge, in whatever form, would continue as present). Also refer to Response No. 18b.

The project is not channelizing Amargosa Creek between 25th Street West and Avenue N. Channelization would only occur between 25th Street West and 10th Street West (see Response No. 11b).

4. **Water Table** (pp. 5 - 7 of Attachment B)

4a-4e. The information presented is appreciated and is hereby incorporated by reference into the Final EIR. A high water table is a construction constraint that will be mitigated through standard construction practices (in the case of this project, Basin B design has already been proposed for modification to reduce dewatering requirements, as discussed in Response No. 14). Furthermore, the "project" is not aggravating the high water table problem, as it is designed to safely accommodate storm flows (with the exception of short periods of time during rainfall while the basins are detaining water). Geotechnical constraints associated with groundwater will be addressed as part of final design and construction plan preparation and approval.

Also refer to Response No. 11c.

5. **Flood Control** (p. 8 of Attachment B)

Refer to Response No. 14.

6. **Wetland/Riparian** (pp. 8 - 11 of Attachment B)

6a. Mitigation Measure 4.4.1b.g was provided to give primary authority of the wetland mitigation areas to a resource agency as opposed to a flood control entity, to minimize the potential for impacts associated with basin clearing for flood control purposes. Basin maintenance would primarily occur in the high-flow area described on page 4.4-2, and immediately around culvert inlet/outlets. The majority of the basin will be designed to support mature vegetation.

6b-c. The 404 permit required for this project will detail mitigation designs, monitoring and maintenance provisions. The 404 permit will indicate construction phasing of the mitigation concept (including temporary irrigation). Remedial measures will be specified in the 404 permit to correct for poor performance.

6d,6f. The Draft EIR utilized available data, field visits and consultation with CDFG and USFWS staff in estimating wetland areas and impact acreages. It is within the discretion of those agencies to revise the mutually agreed upon

"jurisdictional" wetlands addressed in the Draft EIR. The Draft EIR also notes that, without the project, the subject portion of Amargosa Creek, particularly in Basin B, would likely continue to incise, further reducing the value of basin wetlands (which are already degraded to the point of low grassy areas with minimal mature trees).

- 6e. Water quality discussion is provided above.
- 6g. Raptor foraging habitat is discussed on page 4.4-30 of the Draft EIR, and is identified as a significant cumulative impact. During construction, wildlife will be displaced by or avoid the immediate construction areas, particularly larger mammals. This is not considered significant due to the short-term nature of construction. Larger mammals are expected to return following construction, for which there are provisions for allowing wildlife movement and replacement of mature trees (such as mature tree replacement).
- 6h. The importance of micro-food chains is acknowledged, and is the reason for Mitigation Measure No. 4.4.1b.c, which requires Basin B sod to be excavated and saved, then returned for use in establishing a thriving wetland community.
- 6i. The wetland system will be enhanced, not "relocated", by providing for a more diverse and higher value wetland community. These wetland areas include buffers in many cases, and are not expected to be significantly impacted by the noted issues. Larger mammals may not frequent the wetlands during the day due to man's presence, although nocturnal visits should not be significantly disrupted. The intent of the mitigation concepts are to provide for a higher quality wetland area to offset habitat loss, and to maintain access to wetlands via the various wildlife corridors (drainages) in the area. Golf course uses will be buffered from the wetlands by either signage and/or fencing, as stated on page 3.0-19.
- 6j. Contrary to the statement, there are numerous examples of successful integration of wetland restoration areas into golf courses (including Dove Canyon Country Club, Coto de Caza, Tijeras Creek Country Club and

others)¹. The potential for vegetation loss in the initial years is acknowledged, and is the primary reason that the resource agencies (Army Corps of Engineers and California Department of Fish and Game) typically require higher than a 1:1 wetland replacement ratio as well as a wetland area monitoring and maintenance program. Any recreation areas near or within the wetlands would be passive, and subject to approval by the City of Palmdale and the resource agencies as part of the permit/agreement conditions. Implementation will be guided by a monitoring plan to be approved by ACOE.

- 6k. Revegetation will occur concurrent with project construction, with monitoring proceeding approximately 5 years after a given area is revegetated. Native stock will be obtained from removed vegetation and/or local nurseries (such as Tree of Life Nursery in San Juan Capistrano). Revegetation will include mature trees relocated from impacted areas, in addition to nursery stock. "Sufficient growth" is subjective, although the monitoring plan will provide an opportunity to modify and/or enhance the plantings if the growth rate is not acceptable.

The artesian spring will not be relocated. Rather, wetland design will take this into account (the modified grading concept for Basin B will minimize intrusion into the artesian well).

- 6l. Noise barriers are not expected to impact wildlife corridor movement, as noise walls will not be placed across corridors (such as creek beds left in natural states) or along parks. In addition, wetland areas are generally surrounded by buffers. Please note also that the "project" is not constructing any noise barriers (except possibly for one unit), as the noise walls along Elizabeth Lake Road and in the general area will be constructed as part of the development projects.
- 6m. The author(s) does not provide any alternative mitigation for the culverts, noted in the EIR to provide for wildlife crossing. It should be noted that the

¹ "Use of Wetland in Golf Course Design", Robert Trent Jones, Jr., Golf Course Management, July, 1989, pp. 82-86.

resource agencies did not comment on this mitigation, and another consultant (ERS) concurred with the plan, except that deer were noted as not likely using the culverts.

- 6n. Future increased nuisance water runoff from planned and approved development will create more steady, larger flows in Amargosa Creek. Although this is considered an impact of the development projects and not the Amargosa Creek Improvement Project (which merely accommodates this projected future flow), the impact is nonetheless considered to be a net positive, due to the greater floral and faunal diversity that will result from more consistent stream flows. It is acknowledged that increased and year-round flows may promote mosquitos, although this is not anticipated to be a significant impact due to existing vector control programs.
- 6o. Wetland boundaries are not expected to substantially increase beyond that proposed as part of the project mitigation, as wetlands will be limited primarily to basin areas and along the active portions of the stream channel. Mitigation requirements are based on existing wetland conditions. Beyond proposed mitigation, no significant expansion of wetland areas is expected due to the controlled nature of the creek. Also, as noted above, the increased flows are not due to the project; rather, the project accommodates projected increased flows based on General Plan buildout.

7. Basins

- 7a. The reservoir/basin facilities will be designed to meet all of the various City and County requirements regarding location, geologic stability, water quality, maintenance and operation. Basins will include standard design provisions to accommodate routine maintenance relative to siltation. The project will also include sediment traps.
- 7b. The soil types for Basin B will be similar or the same as existing, as the existing "sod" will be removed, stockpiled, irrigated and then replaced when basin grading is complete. Other basins may not include sod replacement, although this potential recharge drop (due to possible decreased permeability of imported soils) is not considered a significant impact in consideration of the potential recharge increase noted above due to the detention basins.

- 7c. As future flow rates are still under review (see Response No. 14), it would be speculative to conduct a quantitative estimate of downstream sediment production. Previous studies for the downstream portion of the project estimated that sedimentation would be in balance in the vicinity of SR-14. Downstream sediment production could be modified by increasing or decreasing the number and nature of upstream sediment and debris basins

(such that the depositional environment is not adversely affected at Edwards Air Force Base, which relies on a certain amount of annual deposition).

21g. TRAFFIC STUDIES

1. Cumulative construction traffic impacts would be speculative to quantify, due to the uncertain timing of the various planned projects in the area (project impacts are noted on page 4.9-11). It is acknowledged that the project construction, in combination with construction of the major development projects in the vicinity, will result in significant cumulative construction traffic. A percentage of this construction traffic is included in the Average Daily Trip forecasts. In addition, the major development projects, as well as the Amargosa Creek project, will achieve balanced grading for purely economical reasons to avoid the expense and time delay of offsite hauling, thereby minimizing construction traffic (see page 3.0-15 of the Draft EIR). Much of this construction traffic will be phased over many years, as noted in the comment letter.
2. Although the 1990 DKS Study was utilized in part, the 1993 General Plan Circulation Element Traffic Study was used for traffic volume forecasts and land use assumptions, as noted on page 4.9-1 of the Draft EIR.
3. In response to public concern at the 1990 scoping meeting, the project was revised to eliminate road improvements west of Godde Hill Road (due to concerns for growth-inducing impacts). Therefore, the Draft EIR focused on increased traffic capacity and associated impacts east of Godde Hill Road. Any traffic increases that will occur west of Godde Hill Road would therefore be due to background growth and/or other development projects, which is not a project impact. These cumulative impacts were addressed in the Ritter Ranch Specific Plan EIR and Palmdale General Plan EIR, and are both incorporated by reference into this Final EIR.

At some point in the future, it will be necessary to improve Elizabeth Lake Road west of Godde Hill Road, in accordance with the General Plan. However, this is a separate project.

4. The project would improve the "conflict" between agricultural and residential/commercial traffic, by providing additional travel lanes and a more safe roadway, due to improved lighting, sight distance and signage. A certain percentage of truck traffic is assumed in the daily volume forecasts used in transportation planning.
5. The purpose of this comment is uncertain. Reduced speeds are not proposed, as the project would provide for more safe travel lanes and thereby allowing safe vehicle travel at the posted speeds. Roadway pullout provisions are also not proposed, although the local transit authority may provide bus turnouts along Elizabeth Lake Road (turnouts, as opposed to roadside bus stops, would not significantly affect traffic flow).
6. As noted in Response No. 21g.2 above, the DKS Study was used only in part. The 1993 Circulation Element was used for all traffic volume forecasts. Also see Response No. 21g.3 regarding project relationship to traffic west of Godde Hill Road. The information provided in this comment will be considered by the decision-makers during project deliberations.
7. The description is consistent with County and City plans designating Elizabeth Lake Road as a major east-west arterial, as well as its function as the primary connector of Leona Valley and Santa Clarita with the Antelope Valley. The Draft EIR does not indicate Elizabeth Lake Road as a "major route" between I-15 and I-5.
8. Regional transportation planning, including Los Angeles County and Palmdale General Plans, show many "major east/west arterials", which include both Highway 138 and Elizabeth Lake Road.
9. The proposed project represents implementation of a very small part of the General Plan Circulation Element. In addition, some portions of this route (west of Bouquet Canyon and east of Palmdale) may only require two lanes to serve its purpose.

10. It is not clear what discrepancies the commentor refers to. The project geometrics for Elizabeth Lake Road may differ from those noted in project-specific documents such as Ritter Ranch. As this EIR is the most recent and is for a city-wide project, it takes precedence over project-specific documents.
11. The project will not significantly impact City Ranch circulation plans, which have allowed for the planned Elizabeth Lake Road improvements (also refer to Response No. 14).

21h. CONSTRUCTION IMPACTS AND MITIGATION

- 1a,1b. Construction noise is addressed on page 4.5-5 of the Draft EIR. CNEL projections are not provided, as construction hours are restricted adjacent to residential areas, and are governed by the Noise Ordinance. Construction mitigation is provided on page 4.5-7.
- 1c. The hours of 6:30 AM to 8 PM are correct. Use of 6 PM for air quality does not affect total pollutants, although the total construction time would be less and total daily pollutants would be slightly higher. No change in significance determinations would occur.
- 1d,1e. Refer to Response No. 21g.1.
- 1f. Construction-related congestion and detours are identified on page 4.9-11 of the Draft EIR. It is acknowledged as a significant inconvenience, although mitigation will reduce this to less than significant levels. Refer to Response No. 14, which identifies an alignment modification that would permit keeping open greater portions of the existing road while the new road is under construction. Residents of Leona Valley will benefit from the project by being provided a more safe, efficient travel route to and from the Antelope Valley (increased traffic would occur with or without the project, and the project provides more travel lanes and better sight distance).
2. Refer to Response No. 21g.1. It would be speculative to quantify this information.
3. The issues noted in this comment are addressed in the Draft EIR. Specific amounts of material to be removed from each Borrow Area (for the

Amargosa Creek Improvement Project) is not known, as it will depend on the nature and suitability of material within each Borrow Area. The impacts are not expected to significantly differ from the project construction impacts addressed throughout the document, as Borrow Area excavation and transporting will primarily involve grading operations onsite and transporting to nearby areas requiring fill along Elizabeth Lake Road. Contrary to the comment, grading, archaeology and paleontology was addressed in the Ritter Ranch Final EIR for the Borrow Areas. Mitigation for grading in Borrow Areas is provided in the Ritter Ranch Final EIR, as well as the Amargosa Creek Draft EIR (particularly Mitigation Measure No. 4.6.1).

4. Mitigation Measure No. 4.3.5 provides detailed erosion control requirements for construction.

21i. NOISE ANALYSIS SPECIFIC TO THE LEONA VALLEY

1. Project construction is expected to use some form of portable power, and may use electricity from existing overhead lines. The noise impact of these generators is not considered significant, as they will be in use during the allowable construction hours, and will be subject to Noise Ordinance restrictions.
2. We are not aware of any computer modelling in existence that could quantify the affect that subregional topography has on noise (i.e., "valley effects"). The noise analysis utilized the widely accepted model developed by FHWA, and used a number of conservative assumptions. The Draft EIR indicates that, in the project area, no unavoidable significant project impacts are expected. Pages 5.0-10 to 5.0-11 state that significant cumulative noise impacts are expected for the Leona Valley due to the development facilitated by the project, as the ambient noise levels, although not expected to exceed the CNEL standards, are expected to noticeably increase and alter the existing rural nature of Leona Valley.
3. Refer to Response No. 21g.1.

4. The measure refers only to those areas where, without noise attenuation, the exterior 65 CNEL would be exceeded. The County of Los Angeles, like the City of Palmdale, would not approve residential projects along major arterials without demonstrating that the applicable noise standards could be met. It is acknowledged that the County would be responsible for implementing this measure for a portion of future residential areas along the project (the measure is a standard condition of approval).

21j. COMPREHENSIVE AIR RESOURCES IMPACT ANALYSIS AND MITIGATION

1. A significant cumulative construction-related air quality impact is acknowledged, and is discussed in Section 5.0. PM10 emissions are mitigated on an individual project basis, in accordance with local, County and SCAQMD requirements. Also refer to Response No. 21g.1.
2. This issue is beyond the scope of a public improvement project that is implementing existing County and City General Plan Circulation Element designations for Elizabeth Lake Road. The question of climate changes brought on by buildout of adopted General Plan land uses is best addressed at the General Plan EIR stage.

21k. NON-COMPLIANCE AND VIOLATION OF CITY STANDARDS AND POLICIES

1. This comment will be considered by the City during deliberation on the project. The commentor offers several General Plan policies, although the policies primarily related to development projects adjacent to roadways, and not to the roadways themselves. Furthermore, the project design has minimized grading impacts, as discussed in the Draft EIR and in Response No. 14. Other issues raised in these policies (such as groundwater recharge) are addressed in the above responses. Regarding Policy L7.1.1, Item M, this is in reference to noise requirements of future development, not for roadway impact mitigation for existing housing. Regarding Policy N1.1.3, this policy relates to stationary noise sources, not vehicle noise (stationary noise is addressed in the above responses).
2. As noted above, this comment is not applicable, as the issue raised relates to noise planning for future residential areas, not mitigation for existing housing.

Mitigation Measure No. 4.5.2b will be modified to note that, as an alternative to solid (opaque) soundwalls, the City may use transparent walls and/or a combination of solid/transparent wall to minimize aesthetic impacts.

211. "REGIONAL COMPATIBILITY..."

1. The requested modification will be made in the Final EIR.
2. This comment will be considered by decision-makers during project deliberations. It should be noted that the CSD eastern boundary is at 50th Street West, which therefore covers only the western 1/3 of the project (east of 50th Street West is outside the CSD).
3. The Leona Valley is documented and analyzed in the Draft EIR (particularly on pp. 4.7-4 to 4.7-5). The Draft EIR provides a complete listing of references used in the preparation of the document, including site surveys in July of 1990 and January of 1993 (page 4.6-1). Substantial details on the Leona Valley lifestyle, physical, social, cultural and historical aspects were obtained directly from resident input at the November, 1990 scoping meeting, as well as considerable information submitted to the City in the form of earlier NOP comments and Draft EIR comments on the previously circulated Draft EIR.
4. See Response No. 211.3 above. Although the Town Council has established a CSD boundary, the Draft EIR reference to Leona Valley is in physical terms, which would put its eastern boundary in the vicinity of the alignment of 50th Street West.
5. Ocotillo School is beyond the extent of the proposed roadway improvements to Elizabeth Lake Road, constructed as a part of the proposed project, so the project will have no direct impact. Widening to the east of the proposed project may impact the school which is adjacent Elizabeth Lake Road, due to increased right-of-way requirements.
6. Refer to Response No. 21f.
7. This information was developed by DKS in conjunction with City staff and review of available County files, at the time of study preparation (July, 1990).

The names correspond to Traffic Analysis Zones, and do not necessarily reflect a specific development proposal. Furthermore, the dwelling unit assignments do not necessarily reflect pending proposals or entitlements, but rather reflect anticipated development potential based on current trends in southwest Palmdale and the City's General Plan Land Use Element. The traffic volumes addressed in the Draft EIR are based on updated projections contained in the 1993 City General Plan Circulation Element.

21m. "CONSISTENT AND EQUITABLE POLICY FOR ... MITIGATION ..."

1. In accordance with Mitigation Measure No. 4.5.2b, monetary compensation is not proposed as mitigation (monetary compensation is for right-of-way acquisition, as noted in Mitigation Measure No. 4.7.3).
2. We are not aware of any feasible mitigation to reduce this impact, which is identified as a potentially significant cumulative impact.
3. This is identified as an unavoidable significant impact. These properties will also receive material benefit from the project and adjacent developments by access to infrastructure, improved roadway conditions and adjacent amenities in projects facilitated by this project (such as the natural parks, active recreation areas, neighborhood commercial and office areas, and hiking trails in Ritter Ranch).
4. Refer to Response No. 21f.2.

21n. "URBAN FLOOD CONTROL"

The areas requiring flood protection include Elizabeth Lake Road (based on empirical observation and reported flooding during recent heavy rains, and projected flood levels in the future), and properties downstream of Godde Hill Road (based on existing and projected flood levels as provided in the City Master Plan of Drainage). As noted in Response No. 14, the design flows used to size project facilities are still under review and consideration.

21o. "COMPLETE BIOLOGICAL INVENTORY..."

Although this heading was included in the cover letter, a detailed explanation was not provided in Attachment B. Presumably, the commentor is referring to issues raised in previous correspondence (as attached to the letter). The issue of "micro eco-system" analysis of insects is provided in Response No. 21f.6h.

It should be noted that several biological resource studies have been conducted on the site, and that the Draft EIR does discuss several of the indicated species (including the Golden Eagle, Mojave Ground Squirrel, snakes and frogs). However, reports of local residents are not always dependable.

Previous statements made by the Town Council suggested that the EIR must include a full representation of all species which inhabit the area throughout the year, which indicates a misunderstanding of the role of CEQA review. CEQA project proponents are obligated to provide an analysis of biological values and any impacts which may occur as a result of the proposed project. The purpose of the EIR is to identify biological impacts that may be significant in nature and allow decision makers to decide on the project based upon reasonably complete information concerning impacts of the project to biological resources as well as other features of the environment. There are many other plant and animal groups, such as the lichens, fungi, aquatic insects, and spiders, which are not usually addressed in environmental documents since there is no body of knowledge supporting a possibility of significant impact. Listing of animals is intended mainly to characterize the quality of the various habitats. Sensitive animals do receive their own consideration due to the jeopardized nature of their population conditions.

21p. "TECHNICAL AND SPECIFIC PROJECT INFORMATION..."

1. These exhibits are intended to summarize the detailed construction plans available for review at the City of Palmdale, and are not intended to graphically represent all project and cumulative impact areas. The exhibits focus on the project features. It should be clarified that the project will not generate traffic, and will therefore not impact properties west of Godde Hill Road. In fact, the project intentionally excludes widening of the segment between Godde Hill Road and Bouquet Canyon Road for the very reasons noted in the comment.

2. 55th Street West (extension) would appear on Exhibit 3.0-3B. Exhibit 3.0-3B shows several residences in the vicinity of 55th Street West (extension).
3. The construction phasing of utility relocation is not known, as project phasing may ultimately occur in more than one phase. There are no significant impacts anticipated for utility trenching, as standard practices will mitigate any potential impacts.
4. The determination of the quantity of construction water for this project is somewhat speculative since construction watering is dependent on factors such as wind conditions and construction phasing. However, to reduce the impacts to the treated water supply, the EIR suggests that raw water be used for construction and landscaped irrigation. Refer to response to comment 18c.
5. Exhibits 4.1-1A and 4.1-1B in the Draft EIR are based on preliminary investigations, as noted on the exhibits. More detailed studies are currently being conducted by Earth Systems Consultants. The final design plans will be based on these more accurate studies.
6. This information is appreciated, and is hereby incorporated into the Final EIR.
7. The Draft EIR addresses the project defined in Section 3 of the Draft EIR. The need for the project is a separate issue, although facility sizing and design are based on available information, primarily General Plan buildout conditions, supplemented by City staff projections for specific development areas. This is considered a reasonable practice in planning for a long-term public facility such as water and sewer lines, to avoid removal and replacement multiple times as subsequent development approvals are granted. The "infrastructure requirements" met by the project are in direct response to the City's adopted General Plan.
8. Although the project has been substantially modified, the overall scope of issues relevant to Leona Valley has not significantly changed. The area of impact is essentially the same, although a portion of a previously circulated project (the "Phase I" portion) was added to this project. This issue is described in detail on pp. 3.0-6 to 3.0-7.

21q. "CEQA LAW AND POLICIES"

The issues of "deficient items" are addressed in the above responses.

The issue of project alternatives is addressed in the following response.

Public involvement has followed the CEQA requirements, at minimum. Public scoping meetings are not required by CEQA. Since the project did not change in scope for the Leona Valley portion, a second Scoping Meeting was not held. Construction level design plans were made available to the public as part of the previously circulated Draft EIR, as well as this Draft EIR. All prior public testimony received as part of the previously circulated Draft EIR was reviewed in preparation of the current Draft EIR, including the previously received NOP and Draft EIR comment letters. CEQA only requires posting a notice in an "adjudicated" local newspaper for public noticing, although the City endeavors to also notify concerned local groups and residents. The opportunity for public comment is being exercised as part of the Draft EIR comment letters being received. It is interesting to note that, despite the purported "deficiencies" in the Draft EIR and apparent dissatisfaction with the proposed design, and the availability of construction plans for the project, no specific design solutions have been offered for the Elizabeth Lake Road widening proposal and associated flood control facilities, with the exception of alternative locations (which fail to achieve basic project objectives of providing safe vehicular access to accommodate projected traffic on Elizabeth Lake Road, and providing for flood protection of areas downstream along Amargosa Creek).

21r. "COMPLETE AND THOROUGH ANALYSIS OF PROJECT ALTERNATIVES..."

1. The comment will be considered by the City during deliberations on the project. It should be noted that the Sterling Basin Alternative would not provide for upstream flood protection. Therefore, it is likely that certain upstream flood control facilities would be required in addition to the Sterling Basin to provide protection to Elizabeth Lake Road.
2. This comment will be considered by decision-makers during project deliberations. As discussed in the Draft EIR, this alternative would fail to meet basic project objectives. It should also be noted that the Sterling Basin/Realignment Alternative would not achieve the following:

- Amargosa Creek flood protection west of 25th Street West
- Elizabeth Lake Road safety/sight distance improvements
- Vehicular access and infrastructure for areas north of ELR

Finally, implementing this alternative would require a General Plan amendment to delete Elizabeth Lake Road as a major arterial, and to increase the classification for Avenues R and S. Furthermore, shifting traffic to Avenues R and S would significantly impact the approved development plans for projects south of Elizabeth Lake Road.

21s. "IDENTIFICATION OF FUNDING MECHANISM"

Although identified in the cover sheet, no detailed comment was provided. This issue is addressed in Response No. 19.

APPENDICES

FINAL ENVIRONMENTAL IMPACT REPORT

Amargosa Creek Improvement Project

SCH No. 90010820

AUGUST 1993

Prepared for:

The City of Palmdale

38306 9th Street East • Palmdale, California 93550

Prepared by:



Robert Bain, William Frost & Associates

JN 26763-4490

13.0 Appendices

A. Initial Study/NOP

**THE AMARGOSA CREEK IMPROVEMENT PROJECT
AND ASSESSMENT DISTRICT EIR**
(“Phase I” portion, 20th Street West to Avenue M)

Appendices Summary

The following is a descriptive summary of the reports and studies included in the appendix of the Draft Program EIR for the Amargosa Creek Improvement Project and Assessment District (EIR 88-2, SCH #88080303). The EIR was prepared by Michael Brandman Associates for the City of Palmdale Planning Department. The EIR and its appendices are available for viewing by interested parties at the City of Palmdale, 38306 9th Street East, Palmdale, CA.

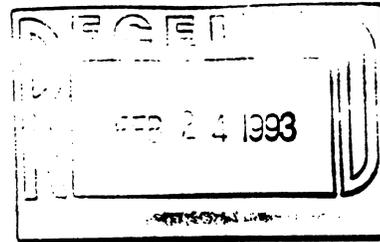
Appendix A includes the Initial Study, Notice of Preparation, and Notice of Preparation response letters. Notice of Preparation responses were received from Caltrans, the City of Palmdale Traffic/Transportation Engineer, the County Sanitation Districts, Pacific Bell, and Converse Consultants. Also included is a listing of those agencies and individuals which were sent a Notice of Preparation letter.

Appendix B includes geotechnical background material, specifically soil boring log information provided by Geosoils, Inc.

Appendix C includes a survey of biotic resources found within the project area. The survey lists those plant and animal species which were either observed or expected to occur within the project area. Also included is the Mojave Ground Squirrel Live-Trapping Program report prepared by Michael Brandman Associates.

Appendix D includes cultural resource investigation reports conducted for the project area. The appendix includes the following reports: A Cultural Resources of a Portion of the Amargosa Drainage System Within the City of Palmdale by R. W. Robinson, Paleontological Sensitivity, City of Palmdale by Robert E. Reynolds, San Bernardino County Museum, and Report of Archaeological Reconnaissance Survey by Richard Wessel, Northridge Center for Public Archaeology.

Appendix E includes a conceptual engineering site plan for the previously proposed drainage channel improvements prepared by BSI Consultants, Inc. The report contains detailed engineering drawings of the originally proposed channel design (much wider than the current proposal). Channel and culvert dimensions included in the report are based on the design flows used at the time of preparation.

GOVERNOR'S OFFICE OF PLANNING AND RESEARCH1400 TENTH STREET
SACRAMENTO, CA 95814

DATE: Feb 19, 1993

TO: Reviewing Agency

RE: CITY OF PALMDALE's NOP for
AMARGOSA CREEK IMPROVEMENT PROGRAM/ASSESSMENT DISTRICT- II
SCH # 90010820

Attached for your comment is the CITY OF PALMDALE's Notice of Preparation of a draft Environmental Impact Report (EIR) for the AMARGOSA CREEK IMPROVEMENT PROGRAM/ASSESSMENT DISTRICT- II.

Responsible agencies must transmit their concerns and comments on the scope and content of the EIR, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of this notice. We encourage commenting agencies to respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

LAURA LILE
CITY OF PALMDALE
38306 9TH STREET EAST
PALMDALE, CA 93550

with a copy to the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the review process, call Tom Loftus at (916) 445-0613.

Sincerely,

A handwritten signature in cursive script that reads "Christine Kinne".

Christine Kinne
Deputy Director, Permit Assistance

Attachments

cc: Lead Agency

NOP Distribution List

S = sent by lead agency.

X = sent by SCH

Resource Agency

Karen Cagle
Dept. of Planning & Waterways
1629 S Street
Sacramento, CA 95814
916/445-6281

Gary L. Hollaway
California Coastal Commission
631 Harvard Street, 4th Floor
San Francisco, CA 94103
415/543-8555

Reed Holderman
State Coastal Conservancy
1310 Broadway, Suite 1100
Oakland, CA 94612
415/464-1053

Dennis O'Byrne
Dept. of Conservation
1416 Ninth Street, Room 1326-2
Sacramento, CA 95814
916/225-5873

Div. of Mines and Geology
 Div. of Oil and Gas
 Land Resources Project Unit

Douglas Wickler
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1416 Ninth Street, Room 1516-2
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Hans Kretzberg
Office of Historic Preservation
P.O. Box 942896
Sacramento, CA 94296-0001
916/225-9621

Mike Doyle
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916/224-6423

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Recreation Board
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Sacramento, CA 95814
916/225-3740

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S.P. Bay Conservation & Dev't. Comm.
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415/557-3686

Nedell Gayson
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1416 Ninth Street, Room 215-4
Sacramento, CA 95814
916/445-7416

Fish and Game - Regional Offices

Gary Stacey, Regional Manager
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601 Locust
Rocking, CA 96001
916/225-2200 (R-442)

Jim Messersmith, Regional Manager
Department of Fish & Game
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670
916/355-0922 (R-438)

B. Hunter, Regional Manager
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P.O. Box 47
Yuba City, CA 94599
707/944-5518

G. Nokes, Regional Manager
Department of Fish and Game
1234 Flat Shaw Avenue
Fresno, CA 93710
209/222-3761 (R-421)

Fred A. Worthing, Jr., Reg. Manager
Department of Fish and Game
350 Golden Shore, Suite 50
Long Beach, CA 90802
213/990-5113 (R-635)

Independent Commissions
John R. Nuffer
California Energy Commission
536 Ninth Street, MS-15
Sacramento, CA 95814
916/225-9180

William A. Johnson
Native American Heritage Comm.
915 Capitol Mall, Room 288
Sacramento, CA 95814
916/225-7791

George Herth
Public Utilities Commission
503 Van Ness Avenue
San Francisco, CA 94102
415/557-1375 (R-597)

Ted Polubinski
State Lands Commission
1807 - 13th Street
Sacramento, CA 95814
916/225-7813

Business, Transportation, & Housing
Sandy Hearnard
California - Division of Aeronautics
P.O. Box 942874
Sacramento, CA 94274-0001
916/224-1853

Sgt. Jim Waddell
California Highway Patrol
Long Range Planning Section
Planning and Analysis Division
2555 First Avenue
Sacramento, CA 95818
916/445-1981

George Smith
Caltrans - Planning
P.O. Box 942874
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916/445-5570

Department of Transportation District Contacts

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1656 Union Street
Furka, CA 95501
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Rocking, CA 96001
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San Bernardino, CA 92403
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Andy Zeffman
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Bishop, CA 94314
619/872-0693 (R-627)

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Jim Christie
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619/237-6755 (R-631)

Chuck Linnon
Caltrans, District 12
2501 Pullman St.
Santa Ana, CA 92705
714/724-2061 (R-635)

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Yashek Cervinka
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1220 N Street, Room 104
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916/225-5227

Health & Welfare
Qay Tu
Dept. of Health
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Sacramento, CA 95814
916/223-6111

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Bob Fletcher
Air Resources Board
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916/222-8267

Jeanne Blacklee
Call. Waste Management Board
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Sacramento, CA 95814
916/227-0454

State Water Resources Control Board

Allen Patton
State Water Resources Control Board
Division of Loans & Grants
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Mike Fairmetela
State Water Resources Control Board
Division of Water Rights
901 P Street
Sacramento, CA 95814
916/224-5636

ALTERNATIVE
SOUTH COAST

SCH# 90010820

Regional Water Quality Control Board

NORTH COAST REGION (1)
1440 Guerneville Rd.
Santa Rosa, CA 95401
707/576-2220 (R-599)

SAN FRANCISCO BAY REGION (1)
1111 Jackson Street, Room 6000
Oakland, CA 94607
415/464-1255 (R-561)

CENTRAL COAST REGION (3)
1102 A Laurel Lane
San Luis Obispo, CA 93401
805/549-3147 (R-629)

LOS ANGELES REGION (4)
101 Center Plaza Drive
Ministry Park, CA 91754
213/620-4460 (R-640)

CENTRAL VALLEY REGION (5)
3443 Reiter Road, Suite A
Sacramento, CA 95827-3098
916/361-5600

Fresno Branch Office
3614 East Ashlan Avenue
Fresno, CA 93726
209/445-5116 (R-421)

Redding Branch Office
100 East Cypress Avenue
Redding, CA 96002
916/224-4845 (ATS 441)

LA MOUNTAIN REGION (6)
2092 Lela Tahoe Boulevard
P.O. Box 9428
South Lake Tahoe, CA 95731
916/544-3481

Yuba Branch Office
15428 Civic Drive, Suite 100
Victorville, CA 92392-2359
619/241-6583

COLORADO RIVER BASIN REGION (7)
73-271 Highway 111, Suite 21
Palm Desert, CA 92260
619/946-7491

SANTA ANA REGION (8)
6809 Indiana Avenue, Suite 200
Riverside, CA 92506
714/782-4130 (R-632)

SAN DIEGO REGION (9)
9771 Chabonmont Mesa Blvd., Suite B
San Diego, CA 92124-1331
619/265-5114 (R-636)

OTHER:
 OTHER:

TO: All Interested Parties

REVIEW DATE: February 1, 1993

FROM: Planning Department

SUBJECT: REQUEST FOR REVIEW OF THE INITIAL STUDY AND NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR AMARGOSA CREEK IMPROVEMENT PROGRAM, THE EXTENSION OF UTILITIES, ROADWAY IMPROVEMENTS AND CHANNEL IMPROVEMENTS ALONG AMARGOSA CREEK, FROM 10th STREET WEST TO GODDE HILL ROAD.

The attached Initial Study and Notice of Preparation of a Draft Environmental Impact Report have been forwarded to you for possible comment relating to your specific area of interest. Comments should be received within 30 days of your receipt of this notice and directed to: City of Palmdale Planning Department, 38306 9th Street East, Palmdale, CA 93550 Attn: Laurie Lile, or phone (805) 267-5241.

Copies sent to:

City of Palmdale

Deputy City Administrator
Planning Director
Counter Copy
City Engineer
Traffic Engineer
City Geologist
Public Works Director
Assessment District Engineer
City Library
City Hall Counter

State Agencies

State Clearinghouse
Caltrans
Native American Heritage
Commission
RWQCB Lahontan Region
Department of Health Services
Department of Water Resources
Department of Conservation
Public Utilities Commission
Air Resources Board
Department of Fish and Game

Federal Agencies

U.S. Fish and Wildlife Service
Army Corps of Engineers

County of Los Angeles

Dept. of Public Works
Regional Planning
L.A. County Sanitation Districts
L.A. County Waterworks Districts

School Districts

Westside Union School District
Hughes-Elizabeth Lakes District
Antelope Valley Union High School
District

Utilities/Services

Antelope Valley East Kern (AVEK)
Water Agency
Antelope Valley Water Purveyors
Association

Other

City of Lancaster
Southern California Association of
Governments
South Coast Air Quality Management
District
A.V. Archaeological Society
San Bernardino County Museum
West A.V. Historical Society
UCLA Archaeological Survey Office
Leona Valley Town Council
Palmdale Community Association

Notice of Completion Form A

Mail to: State Clearinghouse, 1400 Tenth Street, Sacramento, CA 95814 916/445-0613

Project Title: Amargosa Creek Improvement Program
 Lead Agency: City of Palmdale Contact Person: Laurie Lile
 Street Address: 38306 9th Street East Phone: (805) 267-5200
 City: Palmdale Zip: 93550 County: Los Angeles

Project Location
 County: Los Angeles City/Nearest Community: Palmdale
 Cross Streets: _____ Zip Code: 93550 Total Acres: _____
 Assessor's Parcel No. _____ Section: _____ Twp. _____ Range: _____ Base: _____
 Within 2 Miles: State Hwy #: 14, 138 Waterways: California Aqueduct
 Airports: Plant 42 Railways: SPRR Schools: various

Document Type
 CEQA: NOP Supplement/Subsequent NEPA: NOI Other: Joint Document
 Early Cons EIR (Prior SCH No.) _____ EA Final Document
 Neg Dec Other _____ Draft EIS Other _____
 Draft EIR FONSI

Local Action Type
 General Plan Update Specific Plan Rezone Annexation
 General Plan Amendment Master Plan Prezone Redevelopment
 General Plan Element Planned Unit Development Use Permit Coastal Permit
 Community Plan Site Plan Land Division Other Capital Improvement
 Subdivision Parcel Map,
 Tract Map, etc.)

Development type
 Residential: Units _____ Acres _____ Water Facilities: Type _____ MGD _____
 Office: Sq. ft. _____ Acres _____ Employees _____ Transportation: Type _____
 Commercial: Sq. ft. _____ Acres _____ Employees _____ Mining: Mineral _____
 Industrial: Sq. ft. _____ Acres _____ Employees _____ Power: Type _____ Watts _____
 Education _____ Waste Treatment: Type _____
 Recreational _____ Hazardous Waste: Type _____
 Other: flood control, infra-structure

Project Issues Discussed in Document
 Aesthetic/Visual Flood Plain/Flooding Schools/Universities Water Quality
 Agricultural Land Forest Land/Fire Hazard Septic Systems Water Supply/
 Groundwater
 Air Quality Geologic/Seismic Sewer Capacity Wetland/Riparian
 Archeological/Historical Minerals Soil Erosion/ Wildlife
 Compaction/Grading
 Coastal Zone Noise Solid Waste Growth Inducing
 Drainage/Absorption Population/Housing Toxic/Hazardous Landuse
 Balance
 Economic/Jobs Public Services/Facilities Traffic/Circulation Cumulative Effects
 Fiscal Recreation/Parks Vegetation Other _____

Present Land Use/Zoning/General Plan Use Present land uses include creek, roadway, and flood zones.

Project Description This project would construct flood control facilities and infrastructure along Amargosa Creek/Elizabeth Lake Road between Godde Hill Road and 10th Street West.

NOTE: Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. from a Notice of Preparation or previous draft document) please fill it in.

Revised October 1989

NOTICE OF PREPARATION

TO: All Interested Parties

FROM: Palmdale Planning Dept.
Attn: Laurie Lile
38306 9th Street East
Palmdale, Ca 93550

SUBJECT: NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE AMARGOSA CREEK IMPROVEMENT PROGRAM

The City of Palmdale will be the Lead Agency and will prepare an Environmental Impact Report for the project identified above. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project.

The project description, location, and the probable environmental effects are contained in the attached materials. A copy of the Initial Study X is, is not, attached.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this notice.

Please send your response to Laurie Lile at the address shown above. We will need the name for a contact person in your agency.

PROJECT TITLE: Amargosa Creek Improvement Program

PROJECT APPLICANT, if any: City of Palmdale

DATE: February 1, 1993

Signature

Molly Bayh

Title Director of Planning

Telephone (805) 267-5200

Reference: California Administrative Code, Title 14, Sections 15082(a), 15103, 15375.

wp1905(PLNCOM)

KEY
 S = Document sent by lead agency
 X = Document sent by SCH
 ✓ = Suggested distribution

REVIEWING AGENCIES

- | | |
|---|--|
| <u>Resource Agency</u> | Environmental Affairs |
| <u>Boating & Waterways</u> | <u>S</u> Air Resources Board |
| <u>Coastal Commission</u> | <u>APCD/AQMD</u> |
| <u>Coastal Conservancy</u> | <u>California Waste Management Board</u> |
| <u>Colorado River Board</u> | <u>SWRCB: Clean Water Grants</u> |
| <u>S</u> Conservation | <u>SWRCB: Delta Unit</u> |
| <u>S</u> Fish & Game | <u>SWRCB: Water Quality</u> |
| <u>Forestry</u> | <u>SWRCB: Water Rights</u> |
| <u>Office of Historic Preservation</u> | <u>S</u> Regional WQCB # <u>(Lahontan)</u> |
| <u>Parks & Recreation</u> | Youth & Adult Corrections |
| <u>Reclamation</u> | <u>Corrections</u> |
| <u>S.F. Bay Conservation & Development Commission</u> | Independent Commissions & Offices |
| <u>S</u> Water Resources (DWR) | <u>Energy Commission</u> |
| Business, Transportation & Housing | <u>S</u> Native American Heritage Commission |
| <u>Aeronautics</u> | <u>S</u> Public Utilities Commission |
| <u>California Highway Patrol</u> | <u>Santa Monica Mountains Conservancy</u> |
| <u>SCALTRANS District # 7</u> | <u>State Lands Commission</u> |
| <u>Department of Transportation Planning (headquarters)</u> | <u>Tahoe Regional Planning Agency</u> |
| <u>Housing & Community Development</u> | <u>Other</u> _____ |
| <u>Food & Agriculture</u> | |
| <u>Health & Welfare</u> | |
| <u>S</u> Health Services _____ | |
| <u>State & Consumer Services</u> | |
| <u>General Services</u> | |
| <u>OLA (Schools)</u> | |

Public Review Period (to be filled in by lead agency)

Starting Date: 2/8/93 Ending Date: 3/10/93
 Signature: [Handwritten Signature] Date: 2/3/93

| | |
|---|---|
| Lead Agency (Complete if applicable): Consulting Firm: <u>RBF</u> Address: <u>P.O. Box 19739</u> City/State/Zip: <u>Irvine, CA 92713</u> Contact: <u>Kevin Thomas</u> Phone: <u>(714) 472-3505</u> | For SCH Use Only: Date Received at SCH: _____ Date Review Starts: _____ Date to Agencies: _____ Date to SCH: _____ Clearance Date: _____ Notes: _____ |
| Applicant: <u>City of Palmdale</u> Address: <u>38306 9th Street East</u> City/State/Zip: <u>Palmdale, CA 93550</u> Phone: <u>(805) 267-5200</u> | |

CITY OF PALMDALE
PLANNING DEPARTMENT
INITIAL STUDY QUESTIONNAIRE

APPLICATION NO: Amargosa Creek Improvement Program

NAME OF APPLICANT: City of Palmdale

LOCATION OF PROJECT: Along Elizabeth Lake Road and Amargosa Creek, between 10th Street West and Godde Hill Road.

GENERAL PLAN LAND USE DESIGNATION: Low Density Residential, Ritter Ranch Specific Plan, Special Development, City Ranch Specific Plan, Single Family Residential (3.1-6 du/ac), Multi-family Residential, Community Commercial.

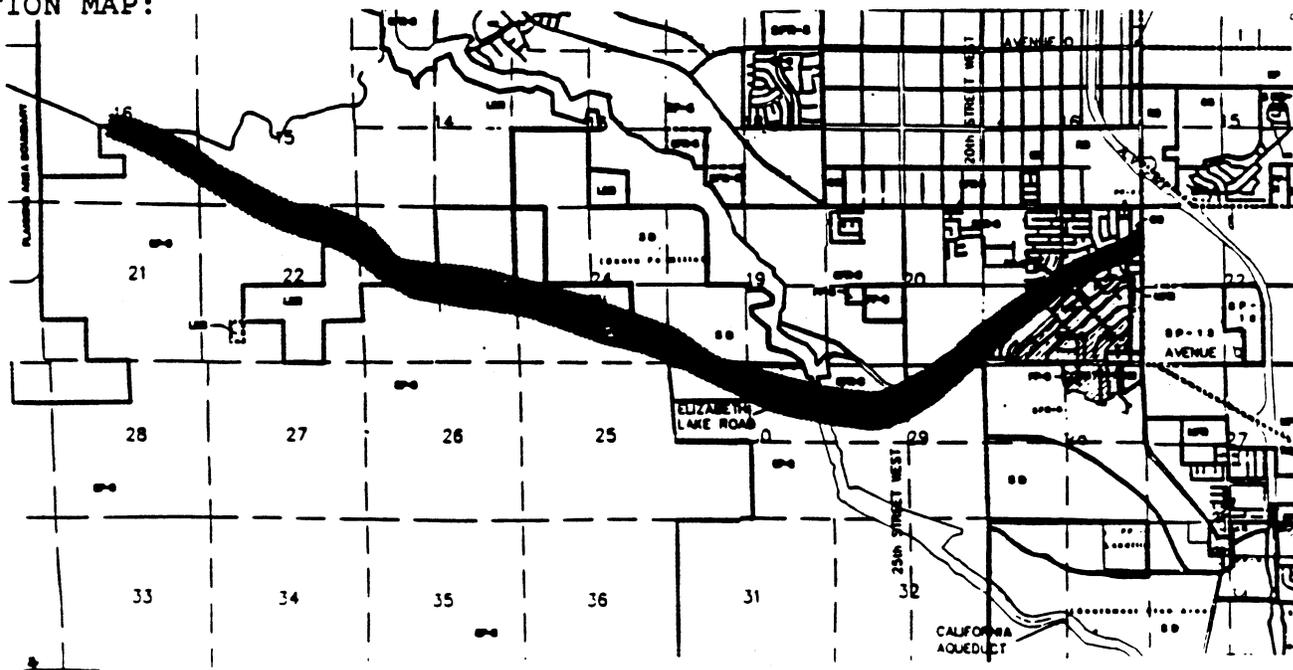
PROPOSED GENERAL PLAN LAND USE DESIGNATION: N/A

EXISTING ZONING: Ritter Ranch Specific Plan, City Ranch Specific Plan, Santa Fe Specific Plan, R-1-7000, M-A, RPD-3U, L.A. County A-2-2

PROPOSED ZONING: N/A

PRESENT LAND USE: two-lane road way, ephemeral creek

LOCATION MAP:



Amargosa Creek Improvement Program

I. APPLICABILITY OF THE INITIAL STUDY

- A. Is the proposed action a "project" as defined by CEQA: (See Section VI. of the City's CEQA Guidelines. If more than one application is filed on the same site, consider them together as one project.) Yes No
- i. If the project qualifies for one of the Categorical Exemptions listed in Section 6.C. of the City's CEQA Guidelines, is there a reasonable possibility that the activity will have a significant effect due to special circumstances? Yes No N/A

II. INITIAL STUDY REVIEW

- A. Does the project require a 30-day State Clearinghouse review? Yes No

III. PROJECT ASSESSMENT

- A. Project Description: The project consists of the construction of a number of infrastructure improvements along Elizabeth Lake Road/Amargosa Creek between 10th Street West and Godde Hill Road. The improvements will include the widening of Elizabeth Lake Road from two lanes to four to six lanes along much of the length of the roadway; the placement of main utility lines within the right-of-way (i.e. water, sewer, natural gas, electrical, telephone, cable); and lastly, the modification of Amargosa Creek channel along most of its length. In addition, a large detention basin will be located near Godde Hill Road to detain storm water runoff. These improvements will facilitate the development of the southwestern portion of the City of Palmdale, up to the Leona Valley area, and ensure that downstream areas are relieved of the potential flooding hazard that currently exists. The downstream portion of Amargosa Creek is currently proposed for realignment and channelization to reduce the flooding hazard along its course.
- B. Description of the Project Site: Currently, the Amargosa Creek is an ephemeral stream, running from the Sierra Pelona Range across the floor of the Antelope Valley and finally emptying into Rodgers Dry Lake. The improvements will pass through the Amargosa Creek canyon. Currently, Elizabeth Lake Road, some rural residences and the Lazy-T Ranch are the only intrusions into this canyon. Amargosa Creek is in a relatively natural condition. Riparian vegetation is present along most of its length. Near Leona Valley, the streambed has been degraded by long-term cattle grazing, and typical riparian vegetation is not as evident. Vegetation outside of the actual streambed consists of Joshua Tree/Juniper woodland, and open grassland. The Amargosa Creek vicinity is known to contain a number of

Amargosa Creek Improvement Program

archaeological sites, including at least one Native American burial site, that could, potentially be disturbed by the proposed improvements. Downstream from 25th Street West, the Creek enters the Antelope Valley where single family residential development is located adjacent to the creek's flood zone.

C. Surrounding Land Uses: Single family residential uses and the Lazy-T Ranch are dispersed along the existing route of Elizabeth Lake Road. However, most of the upstream alignment is undeveloped. From 25th Street West to 10th Street West, the alignment is bordered by vacant parcels and single family residential developments.

D. Is the proposed project consistent with:

| | Yes | No | N/A |
|---|----------|-----|----------|
| City of Palmdale General Plan | <u>X</u> | ___ | ___ |
| Applicable Specific Plans | <u>X</u> | ___ | ___ |
| City of Palmdale Zoning Ordinance | ___ | ___ | <u>X</u> |
| South Coast Air Quality Management Plan | <u>X</u> | ___ | ___ |
| Congestion Management Plan | <u>X</u> | ___ | ___ |
| Regional Mobility Plan | <u>X</u> | ___ | ___ |
| Growth Management Plan | <u>X</u> | ___ | ___ |

E. Have any of the following studies been submitted?

- X Geology Report
- ___ Soil Report
- ___ Slope Map
- ___ Line of Sight Exhibits
- X Air Quality Report
- X Hydrology Report
- X Biological Study
- ___ Native Vegetation Preservation Plan
- ___ Hazardous Materials/Waste
- ___ Noise Study
- ___ Traffic Study
- ___ Visual Analysis
- X Archaeological Report
- ___ Paleontological Study
- ___ Historical Report
- ___ Public Services/Infrastructure Report
- ___ Fiscal Impact Analysis
- ___ Solid Waste Generation Report

YES NO MAYBE N/A

IV. ENVIRONMENTAL IMPACTS

(Explanation of all yes, no and maybe answers is required).

A. Earth

Based on the geotechnical or soils study for the project, review by the City's Engineering Department, and/or the Draft General Plan Update:

1. Soils

a. Are there any areas of potential differential settlement on the project site which could significantly impact development of the proposed project?

___ X ___

b. Is the site in an area of high shrink/swell (hydrocompaction) potential which could significantly impact development of the proposed project?

___ X ___

c. Is the site in an area of potential subsidence?

___ X ___

d. Will the project result in a significant increase in wind or water erosion of soils, either on- or off-site?

___ ___ X ___

e. Could the project result in siltation deposition, or erosion which may modify a stream channel, or adversely affect downstream flood control facilities?

___ ___ X ___

The Geotechnical Report prepared for the project did not identify any areas of differential settlement or high shrink/swell potential. The soil erosion potential of the project area is characterized as moderate, with areas of high and very high erosion potential in the vicinity according to Exhibit 3-4 of the General Plan Final EIR. Because erosion in this area will likely result in sediment entering Amargosa Creek, detailed erosion and sediment control measures will have to be developed and implemented prior to construction. In addition, the project will require a 404 permit from the U.S. Army Corps of Engineers prior to placement of any fill material in the Creek channel. The impacts and associated mitigation measures will be discussed in the project's EIR.

YES NO MAYBE N/A

2. Earthquakes

Based on the Alquist-Priolo Special Studies Zone Act Maps/Fault-Rupture Hazard Zones in California (1985), or the geotechnical report for the project site:

a. Is the site in a fault rupture hazard zone?

X _____

If yes:

i. Is there an active or potentially active fault on the project site?

X _____

ii. Does the project include a school, emergency or public facility, day care center, nursing home, or high rise building?

_____ X _____

Much of the site is within the Alquist-Priolo fault hazard zone. Therefore, the potential exists for rupture of the utility lines and disruption of access along Elizabeth Lake Road in the event of an earthquake. Although the project does not include critical facilities as defined by the Alquist-Priolo Special Studies Zone Act of 1972, the impacts from seismic hazards should be evaluated in an environmental impact report.

3. Slopes

Based on the U. S. G. S. Topographic Map, the slope map submitted for the project, the geotechnical report for the project, and/or a site inspection:

a. Does the project site contain slopes of 10% or greater?

X _____

b. Is any significant modification of major landforms proposed?

X _____

c. Is the project in an area of landslide risk, or are landslides present on the project site?

X _____

YES NO MAYBE N/A

- d. Will project grading create slopes, on- or off-site, that could be subject to landslides, mudslides, or erosion?

X

The Amargosa Creek canyon is flanked by steep slopes for much of its length. It is expected that in most areas, slopes of over ten percent (10%) will need to be modified in order to accommodate the road widening or channel modifications. The effect will, however, be localized. Slope stability and visual impact due to the modification of these slopes will be evaluated in an EIR.

The steep slopes found in the Amargosa Creek Canyon are likely to be subject to rock and landslides, especially in the event of a seismic event. Detailed geotechnical investigations, which will evaluate the risk of landslides, have been carried out along the length of the route. The findings and recommendations offered in the technical reports of these investigations will be summarized in the EIR to be prepared for this project. That document will assess the significance of the risk and suggest possible mitigation measures.

The project will modify the landforms, watercourses and natural setting currently found in the Amargosa Creek canyon. The landforms found here include steep-sided slopes pushed up by the San Andreas fault, low rolling hills contorted by the pressure of the nearby fault traces, and the channel of the Amargosa Creek. The proposed project will modify, to some degree, each of these landforms. The straightening of Elizabeth Lake Road will require extensive fill areas to even out the undulating road bed. The extent to which modification will occur will vary, and in some instances, result in insignificant changes from the current setting. However, the impacts from the proposed project will be examined in the project's EIR.

4. Quarry Zone

Based on a site inspection, the City's General Plan Land Use Map, and/or the Significant Gravel Resource Area Maps of the State Department of Mines and Geology:

- a. Would development of the project impede the extraction of significant mineral resource deposits?

 X

Although the stream course of Amargosa Creek contains sand and gravel resources, the extent of these resources for extraction purposes is minimal and they are not designated by the State Department of Mines and Geology as Significant Resource Areas. Therefore, this does not constitute the potential for a significant impact on the environment.

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YES NO MAYBE N/A

B. Air

Based on the criteria in the South Coast Air Quality Management Handbook for the Preparation of EIRs (1987), the Air Quality Study prepared for the proposed project, the South Coast Air Quality Management Plan and EIR (1991), and/or the land use proposed:

1. Emissions

- a. Will the project result in significant air emissions or deterioration of ambient air quality either from stationary or mobile sources? ___ ___ X ___
- b. Could the proposed project produce potentially toxic air emissions? ___ X ___ ___
- c. Will the project potentially result in the creation of objectionable odors? ___ X ___ ___
- d. Could the project result in the alteration of air movement, moisture or temperature, or any change in climate either locally or regionally? ___ X ___ ___

The actual improvements are not expected to generate significant air pollutants. However, the extension of infrastructure and utilities will be potentially growth inducing. Therefore, the indirect impacts of additional traffic-related mobile source emissions could be significant. In addition, construction-related emissions could be temporarily significant. Therefore, the issue of growth inducing impacts relating to air quality should be examined in an EIR.

C. Water

1. Natural Streams, Springs, and Wetlands

Based on the type of project, the U.S.G.S. Topographic Maps, the exhibits and studies submitted for the project, and/or a site inspection:

- a. Does the project site contain a blue-line stream, spring, seep or wetland? ___ X ___ ___

YES NO MAYBE N/A

- b. Will the project include changes in the course or volume of water in a local stream or wetland which require Department of Fish and Game or Army Corps of Engineers permits?

X — — —

- c. Will the project result in the loss of, or changes to, significant stands of riparian vegetation?

X — — —

Amargosa Creek is shown as a blue-line stream on U.S.G.S. topographic maps. Proposed channelization of portions of the creek will require permits from both the California Department of Fish and Game and the U.S. Army Corps of Engineers. Riparian vegetation exists along much of the upstream portion of the project. Proposed construction will eliminate some, but not all, stands of riparian vegetation. Impacts to Amargosa Creek and associated vegetation will be addressed in the project EIR.

2. Other Surface Waters

Based on a site inspection, and review of the Map of Aqueduct Facilities (Dept. of Water Resources, East Branch Hydrology Palmdale Area), and/or the Draft General Plan:

If the project is adjacent to or near the California Aqueduct:

- a. Could the project result in a significant increase in runoff of storm or nuisance water toward the aqueduct?

— X — —

- b. Will the project be significantly affected by storm or nuisance water runoff flowing through aqueduct culverts or pools?

— X — —

The proposed improvements will pass over the California Aqueduct at the Leona Siphon, located west of 25th Street West. The siphon passes under the existing creek and roadway. The intensity of stormwater runoff which traverses the canyon, passing over the aqueduct, will be reduced when the proposed upstream detention basin is constructed. Therefore, the project will reduce the potential for impacts to the siphon from stormwater runoff. There are no aqueduct culverts or pools adjacent to the project alignment. Therefore, this does not represent the potential for a significant impact to the environment.

Amargosa Creek Improvement Project

YES NO MAYBE N/A

Based on a review of the Draft General Plan and/or a site inspection:

- c. Is the project located above Lake Palmdale where urban runoff could significantly impact the lake?

___ X ___ ___

- d. Is the project located in an inundation area below Lake Palmdale dams, or Littlerock Dam?

___ X ___ ___

The project alignment is neither upstream from Lake Palmdale nor below Lake Palmdale or Littlerock dams.

Based on review of the FIRM Map, the Master Plan of Drainage and/or review by the Department of Public Works/Engineering:

- e. Is the site in an area of flood hazard as shown on the FIRM Map, or as identified by the Engineering or Public Works Departments?

X ___ ___ ___

- f. Will the project result in a significant increase in peak runoff that could increase flood hazard off-site?

___ X ___ ___

- g. Would development of the project impede the implementation of the City's Master Plan of Drainage or Drainage Management Plan?

___ X ___ ___

Amargosa Creek flood zone appears on the FIRM maps as Zone AO. The project involves the channelization and/or modification of approximately nine miles of the Amargosa Creek Channel. This channel will serve to transport storm water through the Amargosa Creek Canyon and the City of Palmdale, thereby minimizing flood hazards along its length. These improvements have been, or will be, shown on the City's Master Plan of Drainage as regional flood control improvements. Flood hazard issues will be addressed in the project's EIR.

- h. Will any aspect of the project result in discharge of materials into surface waters, or in any alteration of surface water quality, including but not limited to, temperature, dissolved oxygen, or turbidity?

___ X ___ ___

YES NO MAYBE N/A

- i. Will the project result in the significant alteration of the direction or rate of flow of groundwater?

— X — —

The project proposes extensive modifications to the Amargosa Creek channel, including filling portions of the streambed to widen Elizabeth Lake Road. Prior to construction, a Streambed Alteration Agreement will have to be obtained from the California Department of Fish and Game, and a 404 permit will be required from the U.S. Army Corps of Engineers. These issues will be addressed in the project's EIR.

Based on the type of project, project submittals and exhibits, and/or a site inspection:

- j. Could the project result in a change in the quantity of groundwater, either through direct additions or withdrawals, or through interception of an aquifer by cuts of excavations?

— X — —

- k. Could the project result in a substantial reduction in the amount of water otherwise available for public water supplies?

— X — —

No aspect of the project has been identified which will significantly affect the quantity of groundwater. The upstream portions of the channel will not be covered with impervious materials, and will therefore, allow for the percolation of stormwater. In addition, detention basins proposed along the length of the project will provide opportunities for runoff to enter the groundwater table. Therefore, this does not represent the potential for a direct significant impact to groundwater quantities. However, indirect impacts, caused by induced growth, on the availability of water supplies should be addressed in the project EIR.

D. Plant Life

Based on a site inspection, the biological report, and/or the Native Vegetation Preservation Plan submitted for the project:

- 1. Is there a significant stand of desert vegetation on the site which will be adversely impacted by the project?

X — — —

Amargosa Creek Improvement Project

YES NO MAYBE N/A

2. Will the project result in a reduction of the numbers of any unique, rare, or endangered species of plants?

___ X ___ ___

3. Will the project result in the introduction of invasive, non-native species of plants into an area; or will the project create a barrier to the normal replenishment of existing native plant species?

___ X ___ ___

4. Will the project result in a significant reduction in acreage of native vegetation?

___ ___ X ___

Vegetation along Amargosa Creek between 25th Street West and Godde Hill Road can be characterized as riparian in many locations. In other areas, vegetation is typical of desert washes. Cottonwood trees and willows are situated in proximity to open grassy meadows, currently grazed by cattle. However, riparian vegetation along the creek area has been degraded by grazing cattle. Biological surveys have been conducted to determine the significance of the habitat provided by the riparian vegetation, and whether any sensitive, rare or endangered species are present in the proposed right-of-way. In addition, the surveys provide a description of wildlife corridors, habitat types and vegetative communities. The findings and recommendations from these surveys will be presented in the environmental impact report prepared for this project.

E. Animal Life

Based on the biology report submitted for the project and/or a site inspection: will the proposal result in:

1. Will the project result in a significant loss of biological diversity?

___ ___ X ___

2. Will the project result in the reduction of the numbers of any unique, rare or endangered species of animals?

___ X ___ ___

3. Is the project located in a Significant Ecological Area where the introduction of animals associated with urbanization could adversely affect native species; or where the project will result in a barrier to the migration or movement of animals?

X ___ ___ ___

Amargosa Creek Improvement Project

YES NO MAYBE N/A

4. Will the project cause significant deterioration of, or loss of, existing fish or wildlife habitat?

___ ___ X ___

The project is located within the Ritter Ridge SEA. Biological surveys have been performed along the project alignment, which specifically address those species present on-site. The findings and recommendation made by project biologists concerning biological resources will be included in the environmental impact report prepared for the project.

The Department of Fish and Game will be consulted regarding the impacts to the natural channel of Amargosa Creek. The project is subject to the issuance of a Streambed Alteration Agreement prior to disturbing Amargosa Creek. This agency will be consulted regarding the scope of the EIR and the appropriateness of proposed mitigation to biological resources.

F. Noise

1. If the project is residential or noise sensitive, will it expose people to severe noise levels because it is located:

- a. adjacent to the Freeway? ___ ___ ___ X
- b. within 200 feet of the railroad? ___ ___ ___ X
- c. adjacent to an existing or future arterial street? ___ ___ ___ X

The project is not noise sensitive.

2. Is the proposed project within the Plant 42 over-flight area, or the 65 CNEL boundary?

___ X ___ ___

Based upon review of the City of Palmdale General Plan Overlay Map, the project is not within the Plant 42 over-flight area or the 65 CNEL boundary.

3. Will the project generate a noise level exceeding 65 CNEL at the project boundary after construction that could significantly impact an adjoining land use?

X ___ ___ ___

Traffic travelling on Elizabeth Lake Road will generate potentially significant noise levels exceeding (65 dB(A)) at the edge of the right-of-way after construction based on noise studies prepared for the City Ranch and Ritter Ranch projects. Therefore, potential noise impact will be addressed in the project EIR.

Amargosa Creek Improvement Project

YES NO MAYBE N/A

G. Light or Glare

Based on the type of project, and/or project submittals and exhibits:

- 1. Will the project produce significant new sources of light or glare that would disturb neighboring uses or significantly change the light environment visible from other areas of the City?

___ ___ X ___

Street lights will be located along Elizabeth Lake Road at various locations. The greatest impact anticipated from these lights will be increased light and glare in the Amargosa Creek Canyon. Increased glare may also be generated by the volume of traffic which will travel along Elizabeth Lake Road. Both of these issues will be addressed in the EIR prepared for the project.

H. Land Use

- 1. Will the project result in a substantial alteration of the present or planned land use of an area?

___ X ___ ___

- 2. Are adjoining or planned land uses greatly different from that of the proposed project so that a potentially substantial interface problem would be created?

___ X ___ ___

- 3. If the project is located within the Plant 42 AICVE zone, does it conflict with the joint land use policies established for those zones?

___ ___ ___ X

The proposed project will serve to encourage development of presently undeveloped areas. This could constitute a significant growth-inducing impact on the environment which should be analyzed in an EIR.

The widening of Elizabeth Lake Road to four or six lanes, in conjunction with channelization of Amargosa Creek, will eliminate its rural character and result in the loss of much of the existing Lazy-T Ranch. The existing residences will be impacted by increased noise and traffic. Therefore, these interface problems should be addressed in the EIR prepared for this project.

Amargosa Creek Improvement Project

YES NO MAYBE N/A

I. Natural Resources

1. Will the project result in a significant increase in the rate of use of any natural resources?

___ X ___ ___

2. Will the project result in the substantial depletion of any non-renewable natural resources?

___ X ___ ___

Construction of the project will require utilization of aggregate for concrete and asphalt. Aggregate resources sufficient for this project are available within the Antelope Valley. The amount of sand and gravel necessary for the project will not result in the substantial depletion of this resource. Therefore, this does not represent a significant impact to natural resources supplies.

J. Risk of Upset

1. Will the project result in a risk of an explosion or the release of hazardous substances (including, but not limited to, oil, pesticides, chemicals, or radiation) in the event of an accident or upset condition?

___ X ___ ___

The project alignment is largely within the Alquist-Priolo zone identified for the San Andreas Rift Zone. The proposed improvements could be subject to failure in the event of a major seismic incident. The failure of utilities could include broken gas, water and sewer lines, and disrupted electrical and telephone service. Also, such an event would likely render Elizabeth Lake Road impassable. These risks should be evaluated and mitigated to the degree possible in the project's EIR.

2. Will the project result in possible interference with any emergency response plan or emergency evacuation plan?

___ X ___ ___

Short-term impacts, during the construction phase of the project, may occur. Increased congestion or construction delays may impede emergency vehicles travelling along Elizabeth Lake Road. This temporary impact should be addressed, and appropriate mitigation applied, in the project's EIR.

3. Is the site included on any known State Hazardous Waste Site list?

___ X ___ ___

Amargosa Creek Improvement Project

YES NO MAYBE N/A

No known state hazardous waste sites are present along the project's alignment.

4. Is the project within or adjacent to a high fire hazard area as shown in the Draft General Plan, identified by the Los Angeles County Fire Department or based on a site inspection?

X — — —

A portion of the project alignment is within Fire Zone 4 (Brush Area) based on a review of the General Plan. Although a site inspection found fire prone vegetation adjacent to the proposed alignment, much of this existing fuel will be modified by the construction of the proposed improvements. It is anticipated that much of the length of the roadway will eventually be landscaped. This fuel modification will eliminate much of the fire hazard currently existing along Elizabeth Lake Road. Therefore, wildfire hazard does not constitute the potential for a significant impact on the environment.

K. Population

Based on the type of project:

1. Will the project significantly alter the location, distribution, density, or growth rate of the human population of an area?

— — X —

The extension of infrastructure and utility lines will serve to encourage growth in currently undeveloped areas. This, in turn, could result in a significant increase in population. This action is a potentially significant impact to the environment and should be analyzed in the context of an EIR.

L. Housing

Based on the type of project:

1. Will the project create a significant demand for additional housing?

— X — —

2. Will the project result in displacement of people from existing housing on the site?

— X — —

A site inspection found residences along the project site. However, preliminary alignment studies have determined that these

YES NO MAYBE N/A

N. Public Services

1. FIRE PROTECTION

What is the roadway distance and location of the nearest fire station: Station #24, located near the intersection of Avenue P and 10th Street West, and Station #114, located in the community of Leona Valley, are the nearest stations.

a. Will the project result in a need for significant additional fire protection services?

___ ___ X ___

2. POLICE PROTECTION

Are there any aspects of the project that would create a significant impact to police protection?

___ ___ X ___

Emergency services could be stretched to unacceptable levels in the event of large increases in population in the relatively distant southwest area of Palmdale. The impacts to the Los Angeles County Fire Department and Sheriff's Department should be addressed in an EIR.

3. SCHOOLS

a. In what elementary and high school attendance area is the project?

N/A

b. Approximately how many students will the project generate?

N/A

c. Would the students generated by the project significantly contribute to the affected schools exceeding their designed capacity?

___ ___ ___ X

Construction of the proposed project will result in indirect impacts to schools. Development of the area served by the proposed improvements will generate a significant increase in students. Therefore, this may result in a significant impact to the existing schools in the area. This impact on schools should be analyzed and addressed in a EIR.

4. PARKS AND RECREATION

Will the proposed project result in an impact on the quality or quantity of existing parks or recreational facilities, including trails or bicycle paths?

X ___ ___ ___

YES NO MAYBE N/A

Construction of the proposed project will result in indirect impacts to existing parks and recreation facilities. Although the approved specific plans have provided on-site parks, trails and recreation features, development of areas outside of the specific plans will generate a significant increase in demand for parks and recreational amenities. Therefore, this may result in a significant impact to the existing park facilities. This impact on parks should be analyzed and addressed in a EIR.

5. PUBLIC FACILITIES

Will the proposed project have a significant impact on maintenance of public facilities, including roads, drainage facilities, slopes, open space and trails?

___ ___ X ___

The proposed improvements constitute public facilities which will require periodic maintenance. Maintenance responsibilities will fall to either the City of Palmdale, Los Angeles County, or specific utility purveyors. Funding for maintenance of the proposed facilities may be augmented through public financing mechanisms, should those mechanisms be used to fund the construction of the proposed facilities. At the present time, those entities responsible for maintenance of the proposed facilities have not indicated that their service levels will be significantly impacted by the proposed development. Therefore, this does not constitute the potential for a significant impact to the environment.

6. LIBRARY SERVICES

Will the project result in a significant impact to library services due to increased population?

___ X ___

A branch library facility is proposed in the vicinity of the project alignment within the Ritter Ranch Specific Plan. Therefore, any increased demand for library services, which may occur as an indirect impact from construction of the proposed infrastructure and utilities, will not represent a significant impact to library services.

7. OTHER GOVERNMENTAL SERVICES

Will the project have a significant impact on a government service or agency not listed above?

___ X ___

Based on the scope of the project, development of the infrastructure and utilities is not expected to have a significant impact on other government services or agencies. Therefore, this does not represent a significant impact to the environment.

Amargosa Creek Improvement Project

YES NO MAYBE N/A

O. Energy

1. Will the project result in the use of substantial amounts of fuel or energy?

___ X ___ ___

2. Will the project result in a substantial increase in demands upon existing sources of energy, or require the development of new sources of energy?

___ X ___ ___

Construction of the project will result in a direct demand for energy, specifically fuel for construction equipment. In addition, street lighting located along the roadway will use electrical energy. This use of energy is not, however, substantial in terms of impacts to energy supply.

P. Utilities

Will the proposal result in a need for new systems, or substantial alterations to the following utilities:

1. Power or natural gas? X ___ ___ ___

2. Communications systems? X ___ ___ ___

3. Water? X ___ ___ ___

4. Sanitary sewer? X ___ ___ ___

5. Solid waste disposal? ___ X ___ ___

The project will result in substantial alterations to utilities in that current infrastructure will be modified to provide greater capacity and overhead utility lines will be placed underground. The extension of utility systems will impact each of the utility purveyors. The growth inducing nature of the project will mean that each system will have to be upgraded sufficiently to accommodate the projected population of the area. The impacts to each of these entities could be significant. Therefore, the impacts of the induced growth on utilities in the area should be analyzed in an EIR.

Q. Human Health

Based on the type of project:

1. Will the project create any health hazard or potential health hazard (excluding mental health)?

___ X ___ ___

Amargosa Creek Improvement Project

YES NO MAYBE N/A

- 2. Will the project result in the exposure of people to potential health hazards?

___ X ___ ___

There are no aspects of the project which have been identified as potential hazards to human health.

R. Aesthetics

- 1. Will the proposal result in the obstruction of any scenic vista or view open to the public, or will the proposal result in the creation of an aesthetically offensive site open to public view?

___ ___ X ___

The utility lines will be placed underground for the length of the project, which will have a beneficial aesthetic impact. However, the improvements to the roadway and the channel may have significant adverse impacts on the scenic qualities of the Amargosa Creek canyon. The degree to which the aesthetic values will be lost, and possible mitigation measures to alleviate that loss, will be discussed in the EIR prepared for the project.

S. Cultural Resources

- 1. Will the proposal result in the alteration or destruction of a prehistoric or historic archaeological site, or historic structure(s)?

X ___ ___ ___

Site inspection performed by: various, see below

- 2. Will the proposal result in potential adverse impacts on paleontological resources?

___ ___ X ___

Areas along the route, within the Ritter Ranch, City Ranch, and Santa Fe Specific Plan sites, have been surveyed by archaeologist for archaeological, historic and paleontological resources. These archaeological surveys have been performed by Robert S. White, Ron Bissell, Beth Padon, and Roger Robinson. One burial site, CA-LAN-767, was recorded within the Amargosa Canyon. Other sites noted in the vicinity include midden sites and lithic scatters. At least one historic site was also identified. The proposed project alignment has been surveyed by Ron Bissell and Roger Robinson. These reports, as well as their recommendations and conclusions, will be summarized in the project EIR.

Amargosa Creek Improvement Project

YES NO MAYBE N/A

T. Public Controversy

1. Is the project or action environmentally controversial in nature or can it reasonably be expected to become controversial upon disclosure to the public?

X — — —

The project may generate some public controversy in regard to growth inducing impacts. The EIR will address these impacts and discuss possible mitigation measures for incorporation into the project to reduce these impacts to the extent feasible.

V. Mandatory Findings of Significance

1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

X — — —

2. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time, while long-term impacts will endure well into the future).

X — — —

3. Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant).

X — — —

4. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

— X — —

YES NO MAYBE N/A

VI. Determination

On the basis of this initial evaluation:

 I find the proposed project WILL NOT have a significant effect on the environment, based upon the project description and mitigation measures which have been incorporated into the project, and a NEGATIVE DECLARATION will be prepared.

XX I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

This initial study was prepared by: Laurie Lile, Associate Planner

Date 2/2/93

William F. Emlen
William F. Emlen
(Principal Planner)

Date 2/3/93

Molly Bogh
Molly Bogh
(Director of Planning)

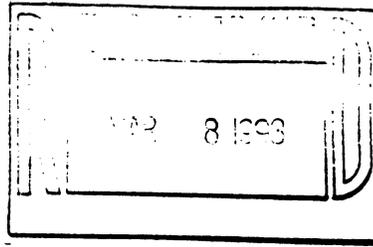
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March 4, 1993



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Councilman
George Runner
Councilman
James C. Gilley
City Manager

Subject: Notice of Preparation and Initial Study for the Amargosa Creek Improvement Program

Dear Ms. Lile:

Thank you for the opportunity to review the Notice of Preparation and Initial Study for the proposed Amargosa Creek Improvement Program. The following comments are from the City's Department of Public Works:

- During recent storms, the portion of Amargosa Creek between Avenue M and Avenue K-8 was inundated with a significant amount of silt and trash which resulted in "silted-up" of Amargosa Creek and subsequent flooding of the immediate area and areas downstream. Considering this, the City of Lancaster requests the environmental impact report consider installation of debris basins to mitigate downstream flooding hazards within the City of Lancaster.

Thank you for your consideration of these comments. If you have any questions, please contact Neil Hudson, City Engineer, at (805) 723-6088.

Sincerely,

Susan J. Barnett
Environmental Coordinator
Department of Community Development

SB

cc: Neil Hudson

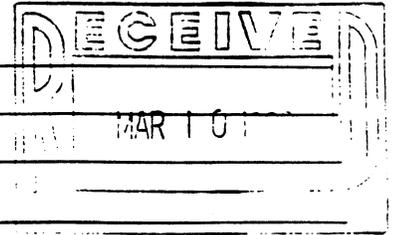
Cultural Resources Records Search
Quick Check

Lead Agency: City of Palmdale

Permit/Project #: Amargosa Creek Improve-ment Program Date: March 1, 1993

Case Planner: _____ Attached USGS Quad: _____

Brief Project Description: General Plan; Initial Study



UCLA ARCHAEOLOGICAL INFORMATION CENTER INITIAL RECORDS SEARCH 1

- / / The project area has been surveyed by a professional archaeologist and no cultural resources were found.
- / The project area has been surveyed by a professional archaeologist and cultural resources were found.
- / / The project area has not been surveyed by a professional archaeologist but cultural resources are likely to be in the area.
- / / The project area has not been surveyed by a professional archaeologist and cultural resources are not likely to be in the area.

RECOMMENDATIONS

- / A Phase I² archaeological survey should be completed prior to approval of project plans.
- / / A Phase II² testing program for determination of significance.
- / / It will be necessary to retain monitors for any earth moving operations.
- / / No archaeological work is needed prior to approval of the project plans but a halt-work condition should be in place in the event of cultural resources being discovered during construction.

COMMENTS

Portions of the project area have been surveyed, but the entire project area has not been surveyed. Several archaeological sites have been discovered in the area making the likelihood of encountering more cultural resources higher.

¹ This Quick Check does not cover cultural heritage sites, either listed or pending, such as historic buildings or points of interest.

² Phase I survey and Phase II testing includes a complete records search, field evaluation, and a final report with results and recommendations.

Date Completed: 3-5-93 Signature: [Signature]
UCLA Staff Archaeologist

Letter attached / /

(310) 825-1980



1993
M-217 1993
COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-4998
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (310) 699-7411, FAX: (310) 695-6139

CHARLES W. CHAFFIN
Chief Engineer and General Manager

March 15, 1993

File No: 20-00.04-00

Ms. Holly Weatherby
Robert Bein, William Frost & Associates
14725 Alton Parkway
Irvine, CA 92713-9739

Dear Ms. Weatherby:

Amargosa Creek Improvement Project

The County Sanitation Districts received a *Notice of Preparation of a Draft Environmental Impact Report* for the subject project on February 4, 1993. We offer the following comments regarding sewerage service:

1. The proposed project will be constructed along Elizabeth Lake Road and Amargosa Creek, between 10th Street West and Godde Hill Road. The area in question is outside the jurisdictional boundaries of the Sanitation Districts and will require annexation into District No. 20 before sewerage service can be provided to the proposed development. For specific information regarding the annexation procedure and fees, please contact Ms. Alma Horvath at (310) 699-7411, extension 2708.

2. Below is a list of trunk sewers in the project area:

| Name | Location | Size | Design Capacity (mgd) | Peak Flow (mgd) | Last Measured |
|-----------------------|--|------|-----------------------|-----------------|---------------|
| Trunk "C" Trunk Sewer | In Avenue P between 10th Street West and Division Street | 12" | 1.3 | 0.2 | 1991 |
| Trunk "D" Trunk Sewer | In Avenue Q between 10th Street West and Division Street | 10" | 1.2 | 0.2 | 1991 |

3. The wastewater generated by the proposed project will be treated at the Palmdale Water Reclamation Plant (WRP). The present design capacity of the Palmdale WRP is 8.0 million gallons per day (mgd), and the Palmdale WRP presently treats 7.4 mgd. In order to meet the current service demand, the Sanitation Districts are presently expanding the treatment capacity of the Palmdale WRP through surface aeration of the existing oxidation ponds. Stage IV of the ongoing Palmdale WRP expansion will increase the design capacity of the treatment plant to 15.0 mgd and is scheduled to be completed in mid 1994.
4. A copy of the Districts' average wastewater generation factors is enclosed to allow you to estimate the volume of wastewater the project will generate.

5. The Sanitation Districts are empowered by the California Health and Safety Code to charge a fee for the privilege of connecting to the Sanitation Districts' Sewerage System or **increasing the existing strength and/or quantity of wastewater attributable to a particular parcel or operation already connected**. A connection fee is required in order that necessary expansions to the Sewerage System can be constructed to accommodate new development. Payment of a connection fee will be required before a permit to connect to the sewer is issued.

6. According to current Districts' policy, developers who wish to connect to the Districts' sewerage system must construct any sewer lines which are necessary to convey wastewater generated by the proposed development(s) to the Districts' existing sewerage system. If it is determined that such a sewer line is of a regional nature, the Sanitation Districts may agree to assume ownership, operation and maintenance of the sewer line as long as it is constructed to Districts' specifications.

7. The design capacity of Districts' wastewater conveyance and treatment facilities are based on population forecasts adopted in the 1991 South Coast Air Quality Management Plan (AQMP). The AQMP was jointly prepared by the South Coast Air Quality Management District (SCAQMD) and the Southern California Association of Governments (SCAG) as a requirement of the Federal Clean Air Act (CAA). In order to conform with the AQMP, all expansions of Districts' facilities must be sized and service phased in a manner which is consistent with the Growth Management Plan (GMP). The GMP is a regional growth forecast for the counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial which was prepared by SCAG. Specific policies included in the GMP which deal with the management and distribution of growth are incorporated into the AQMP strategies to improve air quality in the South Coast Air Basin. The available capacity of Districts' conveyance and treatment facilities will, therefore, be limited to levels associated with approved growth identified in the adopted GMP/AQMP. As such, this letter does not constitute a guarantee of wastewater service, but is intended to communicate the Districts' willingness to provide this service up to the levels which are legally permitted and to inform you of the currently existing capacity and any proposed expansion of Districts' facilities.

If you have any questions, please contact the undersigned at (310) 699-7411, extension 2717.

Very truly yours,

Charles W. Carry


Marie L. Pagenkopp
Engineering Technician
Financial Planning &
Property Management Section

MLP:rc

Enclosure

LOADINGS FOR EACH CLASS OF LAND USE

| <u>USER CATEGORY</u> | <u>UNIT OF USAGE</u> | <u>FLOW (Gallons per Day)</u> | <u>COD (Pounds per Day)</u> | <u>SUSPENDED SOLIDS (Pounds per Day)</u> |
|---------------------------|----------------------|---------------------------------------|-------------------------------------|--|
| RESIDENTIAL | | | | |
| Single Family Home | Parcel | 260 | 1.22 | 0.59 |
| Duplex | Parcel | 312 | 1.46 | 0.70 |
| Triplex | Parcel | 468 | 2.19 | 1.05 |
| Fourplex | Parcel | 624 | 2.92 | 1.40 |
| Five Units or More | No. of Dwlg. Units | 156 | 0.73 | 0.35 |
| Mobile Home Park | No. of Spaces | 156 | 0.73 | 0.35 |
| Condominium | No. of Dwlg. Units | 156 | 0.73 | 0.35 |
| COMMERCIAL | | | | |
| Hotel/Motel/Rooming House | Room | 125 | 0.54 | 0.28 |
| Store | 1000 ft ² | 100 | 0.43 | 0.23 |
| Supermarket | 1000 ft ² | 150 | 2.00 | 1.00 |
| Shopping Center | 1000 ft ² | 325 | 3.00 | 1.17 |
| Regional Mall | 1000 ft ² | 150 | 2.10 | 0.77 |
| Office Building | 1000 ft ² | 200 | 0.86 | 0.45 |
| Professional Building | 1000 ft ² | 300 | 1.29 | 0.68 |
| Restaurant | 1000 ft ² | 1,000 | 16.68 | 5.00 |
| Financial Institution | 1000 ft ² | 100 | 0.43 | 0.23 |
| Service Shop | 1000 ft ² | 100 | 0.43 | 0.23 |
| Laundromat | 1000 ft ² | 3,825 | 16.40 | 8.61 |
| Service Station | 1000 ft ² | 100 | 0.43 | 0.23 |
| Auto Sales/Repair | 1000 ft ² | 100 | 0.43 | 0.23 |
| Car Wash | | | | |
| Tunnel - No Recycling | 1000 ft ² | 3,700 | 15.86 | 8.33 |
| Tunnel - Recycling | 1000 ft ² | 2,700 | 11.74 | 6.16 |
| Wand | 1000 ft ² | 700 | 3.00 | 1.58 |
| Wholesale Outlet | 1000 ft ² | 100 | 0.43 | 0.23 |
| Animal Kennel | 1000 ft ² | 100 | 0.43 | 0.23 |
| Nursery/Greenhouse | 1000 ft ² | 25 | 0.11 | 0.06 |
| Dry Manufacturing | 1000 ft ² | 25 | 0.23 | 0.09 |
| Lumber Yard | 1000 ft ² | 25 | 0.23 | 0.09 |
| Warehousing | 1000 ft ² | 25 | 0.23 | 0.09 |
| Open Storage | 1000 ft ² | 25 | 0.23 | 0.09 |
| Indoor Theatre | 1000 ft ² | 125 | 0.54 | 0.28 |
| Drive-in Theatre | 1000 ft ² | 20 | 0.09 | 0.05 |
| Nightclub | 1000 ft ² | 350 | 1.50 | 0.79 |
| Bowling/Skating | 1000 ft ² | 150 | 1.76 | 0.55 |
| Club (fraternal or civic) | 1000 ft ² | 68 | 0.29 | 0.15 |
| Auditorium, Amusement | 1000 ft ² | 350 | 1.50 | 0.79 |

| <u>USER CATEGORY</u> | <u>UNIT OF USAGE</u> | <u>FLOW (Gallons per Day)</u> | <u>COD (Pounds per Day)</u> | <u>SUSPENDED SOLIDS (Pounds per Day)</u> |
|--|-----------------------------|---------------------------------------|-------------------------------------|--|
| COMMERCIAL | | | | |
| Golf Course, Camp, and Park (Structures and Improvements) | 1000 ft ² | 100 | 0.43 | 0.23 |
| Recreational Vehicle Park Home for the Aged/ Convalescent Hospital | No. of Spaces | 55 | 0.34 | 0.14 |
| Mortuary/Cemetery | Bed | 125 | 0.54 | 0.28 |
| Spa/Gym (With Showers) | 1000 ft ² | 100 | 1.33 | 0.67 |
| Spa/Gym (W.O. Showers) | 1000 ft ² | 600 | 2.58 | 1.35 |
| Convention Center, Fairground, Racetrack, Sports Stadium/Arena | 1000 ft ² | 300 | 1.29 | 0.68 |
| | Average Daily Attendance | 10 | 0.04 | 0.02 |
| INSTITUTIONAL | | | | |
| College/University | Student | 20 | 0.09 | 0.05 |
| Private School | 1000 ft ² | 200 | 0.86 | 0.45 |
| Church | 1000 ft ² | 50 | 0.21 | 0.11 |

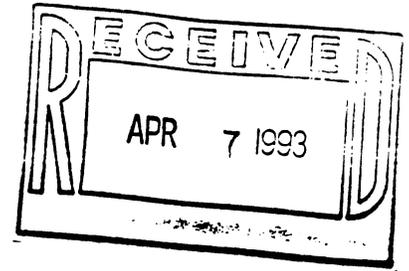


COUNTY OF LOS ANGELES

FIRE DEPARTMENT

1320 NORTH EASTERN AVENUE
LOS ANGELES, CALIFORNIA 90063-3294

(213) 881-2481



P. MICHAEL FREEMAN
FIRE CHIEF
FORESTER & FIRE WARDEN

March 30, 1993

Ms. Molly Bogh
Director of Planning
City of Palmdale
38306 9th St. East
Palmdale, CA 93550

Dear Ms. Bogh:

**SUBJECT: INITIAL STUDY -- CITY OF PALMDALE
FORMATION OF ASSESSMENT OF DISTRICT #92-1**

FORESTRY DIVISION

We have reviewed the Initial Study for the Draft Negative Declaration regarding the Formation of Assessment District #92-1 located in the City of Palmdale.

The proposed project will not have significant environmental impacts in the areas germane to the Forestry Division of the Los Angeles County Fire Department.

If you have any additional questions, please contact this office at the phone number shown above.

Very truly yours,

P. MICHAEL FREEMAN

BY
PAUL H. RIPPENS, CHIEF, FORESTRY DIVISION
PREVENTION BUREAU

PHR:rd

SERVING THE UNINCORPORATED AREAS OF LOS ANGELES COUNTY AND THE CITIES OF:

AGOURA HILLS
ARTESIA
AZUSA
BALDWIN PARK
BELL
BELLFLOWER
BELL GARDENS

BRADBURY
CALABASAS
CARSON
CERRITOS
CLAREMONT
COMMERCE
CUDAHAY

DIAMOND BAR
DUARTE
GLENDDORA
HAWAIIAN GARDENS
HIDDEN HILLS
HUNTINGTON PARK
INDUSTRY

RWINDALE
LA CANADA FLINTRIDGE
LAKEWOOD
LA MIRADA
LANCASTER
LA PUENTE
LAWNDALE

LOMITA
MALIBU
MAYWOOD
NORWALK
PALMDALE
PALOS VERDES ESTATES
PARAMOUNT

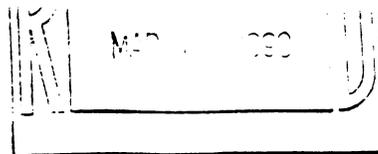
PICO RIVERA
RANCHO PALOS VERDES
ROLLING HILLS
ROLLING HILLS ESTATES
ROSEMEAD
SAN DIMAS
SANTA CLARITA

SIGNAL HILL
SOUTH EL MONTE
SOUTH GATE
TEMPLE CITY
WALNUT
WEST HOLLYWOOD
WESTLAKE VILLAGE



South Coast
AIR QUALITY MANAGEMENT DISTRICT

21865 E. Copley Drive, Diamond Bar, CA 91765-4182 (909) 396-2000



February 18, 1993

Ms. Laurie Lile
City of Palmdale
Planning Dept.
38306 9th Street East
Palmdale CA 93550

Dear Ms. Lile:

**Re: Notice of Preparation of a Draft Environmental Impact Report for
the Amargosa Creek Improvement Program**

SCAQMD# LAC930208-02

The South Coast Air Quality Management District (SCAQMD) appreciates the opportunity to comment on the Notice of Preparation for a Draft EIR for the Amargosa Creek Improvement Program. SCAQMD is responsible for adopting, implementing, and enforcing air quality regulations in the South Coast Air Basin, which includes the study area. As a responsible agency, SCAQMD reviews and analyzes environmental documents for projects that may generate significant adverse air quality impacts. In this capacity, SCAQMD advises lead agencies in addressing and mitigating the potential adverse air quality impacts caused by projects.

To assist the Lead Agency in the preparation of the air quality analysis for the EIR, the following is a summarization of key information for evaluating air quality impacts.

Baseline Information: Describe existing climate and air quality of the region and study area from the District Monitoring station located in the project source receptor area.

Identify and quantify all project **Emission Sources**.

Compare and assess anticipated project emissions with the District's **Thresholds of Significance** and the existing air quality of the region and study area.

Identify and assess **Toxic Source Emissions** within the study area.

Assess **Cumulative Air Quality Impacts** from the regional area.

Assess Consistency of the General Plan with the AQMP.

Identify and quantify Project Alternatives that may attain goals of the project with substantially fewer or less significant impacts.

Identify Mitigation Measures necessary to reduce air quality impacts substantially.

For additional information please refer to the District's "Air Quality Handbook for Preparing Environmental Impact Reports" to assess and mitigate adverse air quality impacts. Attached is a list of potential mitigation measures to reduce air quality impacts.

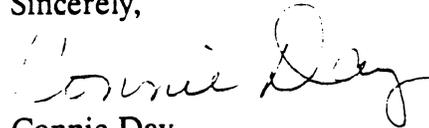
Upon completion of the Draft Environmental Impact Report, please forward two copies to:

Office of Planning & Rules
South Coast Air Quality Management District
21865 Copley Drive
P O Box 4939
Diamond Bar CA 91765-0939

Attn: Local Government - CEQA

If you have any questions, please call me at (714) 396-3055

Sincerely,



Connie Day
Program Supervisor
Local Government - CEQA

Attachment
(regnop)

ATTACHMENT

POTENTIAL MITIGATION MEASURES

To reduce particulate emissions from paved and unpaved roads, construction activities, and agriculture operations:

MITIGATION MEASURES

- o Use low emission mobile construction equipment (e.g., tractor, scraper, dozer etc.).
- o Develop trip reduction plan to achieve 1.5 AVR for construction employees.
- o Water site and clean equipment morning and evening.
- o Spread soil binders on site, unpaved roads and parking areas.
- o Apply District approved chemical soil stabilizers according to manufacturers specifications, to all inactive construction areas (previously graded areas which remain inactive for 96 hours).
- o Reestablish ground cover on construction site through seeding and watering.
- o Implement or contribute to an urban tree planting program to off-set the loss of existing trees at the construction site.
- o Employ construction activity management techniques, such as: extending the construction period; reducing the number of pieces of equipment used simultaneously; increasing the distance between the emission sources; reducing or changing the hours of construction; and scheduling activity during off-peak-hours.
- o Pave construction roads, and sweep streets if silt is carried over to adjacent public thoroughfares.
- o Reduce traffic speeds on all unpaved road surfaces to 15 miles per hour or less.
- o Require a phased-schedule for construction activities to minimize emissions.
- o Suspend grading operations during first and second stage smog alerts.
- o Suspend all grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour.
- o Wash off trucks leaving the site.
- o Maintain construction equipment engines by keeping them tuned.
- o Use low sulfur fuel for stationary construction equipment.
- o Utilize existing power sources (e.g., power pole) or clean fuel generators rather than temporary power generators.
- o Use low emission on-site stationary equipment.

To reduce automobile emissions by reducing the number of vehicles driven to a work site on a daily basis:

MITIGATION MEASURES

- o Provide local shuttle and regional transit systems and transit shelters.
- o Provide bicycle lanes, storage areas, and amenities.
- o Ensure efficient parking management.
- o Provide dedicated parking spaces with electrical outlets for electric vehicles.
- o Provide peripheral park-n-ride lots.
- o Provide preferential parking to high occupancy vehicles and shuttle services.
- o Charge parking lot fees to low occupancy vehicles.

To reduce automobile emissions by reducing the number of persons who must drive to a work site on a daily basis:

MITIGATION MEASURES

- o Promote Transportation Management Associations (TMAs).
- o Establish telecommuting programs, alternative work schedules, and satellite work centers.
- o Work with cities/developers/citizens in the region to implement TDM goals.

To reduce vehicular emissions through traffic flow improvements:

MITIGATION MEASURES

- o Configure parking to minimize traffic interference.
- o Minimize obstruction of through-traffic lanes.
- o Provide a flagperson to guide traffic properly and ensure safety at construction sites.
- o Schedule operations affecting traffic for off-peak hours.
- o Develop a traffic plan to minimize traffic flow interference from construction activities. Plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service.
- o Schedule goods movements for off-peak traffic hours.
- o Synchronize traffic signals.
- o Provide adequate ingress and egress at all entrances to public facilities to minimize vehicle idling at curbsides.
- o Provide dedicated turn lanes as appropriate.

To reduce the length of work trips while expanding the supply of affordable housing and creating an urban form that efficiently utilizes urban infrastructure and services:

MITIGATION MEASURES

- o Achieve a job/housing balance compatible with the Regional Growth Management Plan.
- o Encourage growth in and around activity centers, transportation nodes and corridors.
- o Promote future patterns of urban development and land use , making better use of existing facilities, and promoting mixed use development involving commercial and residential uses.

To reduce stationary emissions of operation related activities:

MITIGATION MEASURES

- o Require development practices which maximize energy conservation as a prerequisite to permit approval.
- o Improve the thermal integrity of buildings, and reduce the thermal load with automated time clocks or occupant sensors.
- o Introduce window glazing, wall insulation, and efficient ventilation methods.
- o Introduce efficient heating and other appliances, such as water heaters, cooking equipment, refrigerators, furnaces and boiler units.
- o Incorporate appropriate passive solar design, and solar heaters.
- o Use devices that minimize the combustion of fossil fuels.
- o Capture waste heat and reemploy it in nonresidential buildings.
- o Landscape with native drought-resistant species to reduce water consumption and to provide passive solar benefits.

To protect sensitive land uses from major sources of air pollution:

MITIGATION MEASURES

- o Integrate additional mitigation measures into site design such as the creation of buffer zones between a potential sensitive receptor's boundary and potential pollution source.
- o Require design features, operating procedures, preventive maintenance, operator training, and emergency response planning to prevent the release of toxic pollutants.

Previous NOP and Comments

TO: All Interested Parties REVIEW DATE: August 17, 1990
FROM: Planning Department

SUBJECT: REQUEST FOR REVIEW OF THE INITIAL STUDY AND NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR AMARGOSA CREEK IMPROVEMENT PROGRAM AND ASSESSMENT DISTRICT - PHASE II, THE EXTENTION OF UTILITIES, ROADWAY IMPROVEMENTS AND CHANNEL IMPROVEMENTS ALONG AMARGOSA CREEK, FROM 25th STREET WEST TO GODDE HILL ROAD.

The attached Initial Study and Notice of Preparation of a Draft Environmental Impact Report have been forwarded to you for possible comment relating to your specific area of interest. Comments should be received within 30 days of your receipt of this notice and directed to:

City of Palmdale
Planning Department
38306 9th Street East
Palmdale, CA 93550
(805) 272-9613

Attn: Laurie Lile

Copies sent to:

City of Palmdale

City Council (5)
Planning Commission (5)
City Attorney's Office
City Administrator
Deputy City Administrator
City Clerk
Planning Director
Environmental Planner
Counter Copy
Engineering
Traffic Engineer
City Geologist
Public Works Director
Assessment District Engineer
City Library
City Hall Counter
BSI

State Agencies

State Clearinghouse
Caltrans
Native American Heritage
Commission
RWQCB Lahontan Region
Department of Health Services
Department of Water Resources
Department of Conservation
Public Utilities Commission
Air Resources Board
Department of Fish and Game

Federal Agencies

U.S. Fish and Wildlife Service
Army Corps of Engineers

County of Los Angeles

Dept. of Public Works
Regional Planning
Health Department
L.A. County Sanitation Districts
L.A. County Waterworks Districts

School Districts

Westside Union School District
Hughes-Elizabeth Lakes District
Antelope Valley Union High School District

Utilities/Services

Antelope Valley East Kern (AVEK)
Water Agency
Antelope Valley Water Purveyors
Association

Other

City of Lancaster
City of Santa Clarita
A.V. Conservation District
Southern California Association of Governments
South Coast Air Quality Management District
A.V. Archaeological Society
San Bernardino County Museum
West A.V. Historical Society
UCLA Archaeological Survey Office
Leona Valley Land Use Chairman

NOTICE OF PREPARATION

TO: All Interested Parties

FROM:

Palmdale Planning Dept.
Attn: Laurie Lile
38306 9th Street East
Palmdale, Ca 93550

SUBJECT: NOTICE OF PREPARATION OF A
DRAFT ENVIRONMENTAL IMPACT REPORT

The City of Palmdale will be the Lead Agency and will prepare an Environmental Impact Report for the project identified below. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project.

The project description, location, and the probable environmental effects are contained in the attached materials. A copy of the Initial Study X is, is not, attached.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this notice.

Please send your response to Laurie Lile at the address shown above. We will need the name for a contact person in your agency.

PROJECT TITLE: Amargosa Creek Improvement Project and Assessment District - Phase II

PROJECT APPLICANT, if any: City of Palmdale

DATE: August 17, 1990

Signature



Title Director of Planning

Telephone (805) 272-9613

Reference: California Administrative Code, Title 14, Sections 15082(a), 15103, 15375.

wp4291

CITY OF PALMDALE
PLANNING DEPARTMENT
INITIAL STUDY

APPLICATION NO: Amargosa Creek Improvement Project and Assessment District - Phase II

NAME OF APPLICANT: City of Palmdale

LOCATION OF PROJECT: Along Elizabeth Lake Road and Amargosa Creek, between 25th Street West and Godde Hill Road.

GENERAL PLAN LAND USE DESIGNATION: City Ranch Specific Plan, Santa Fe Hills Specific Plan, Urban Residential, Open Space

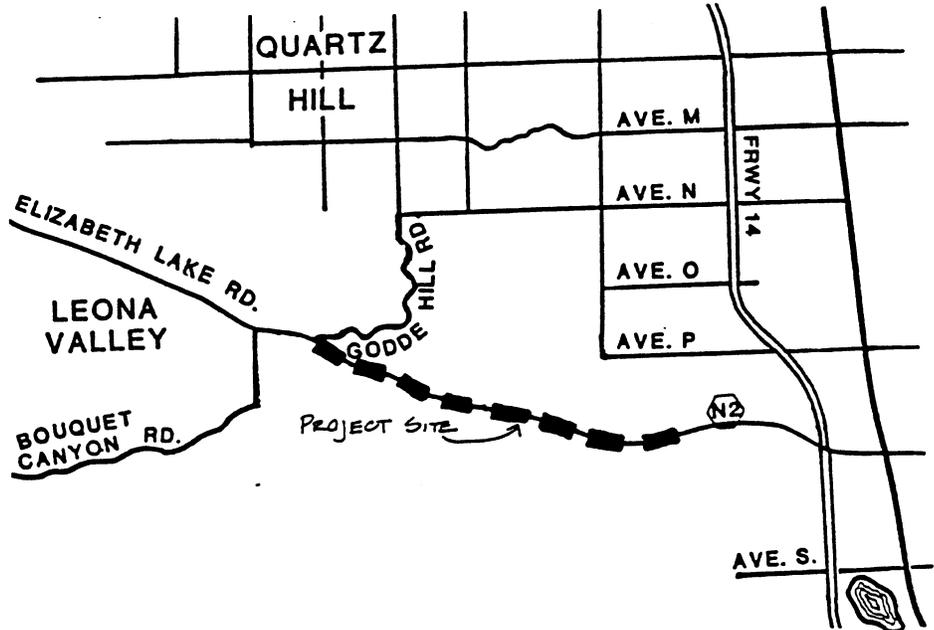
PROPOSED GENERAL PLAN LAND USE DESIGNATION: N/A

EXISTING ZONING: RPD-3U, L.A. County A-2-2

PROPOSED ZONING: N/A

PRESENT LAND USE: two-lane road way, ephemeral creek

LOCATION MAP:



- I. Is the proposed action a "project" as defined by CEQA: (See Section VI. of the City's CEQA Guidelines. If more than one project is present in the same area, consider them as one project.) Yes No
- II. Does the project qualify for one of the Categorical Exemptions listed in Section 6.C. of the City's CEQA Guidelines? (Where there is a reasonable possibility that the activity will have a significant effect due to special circumstances, a categorical exemption does not apply.) Yes No
- III. Does the project require a 30 day State Clearinghouse review? Yes No

IV. Project Assessment

1. Project Description: The project consists of the construction of a number of infrastructure improvements along Elizabeth Lake Road/Amargosa Creek between 25th Street West and Godde Hill Road. The improvements will include the widening of Elizabeth Lake Road from two lanes to four to six lanes along much of the length of the roadway; the placement of main utility lines within the right-of-way (i.e. water, sewer, natural gas, electrical, telephone, cable); and lastly, the channelization of much of the length of Amargosa Creek. In addition, several large detention basins will be located along the stream course to detain storm water runoff. These improvements will facilitate the development of the southwestern portion of the City of Palmdale, up to the Leona Valley area, and insure that downstream areas are relieved of the potential flooding hazard that currently exists. The downstream portion of Amargosa Creek is currently proposed for realignment and channelization under the Amargosa Creek Improvement Project to reduce the flooding hazard along its course. The proposed alignment of the downstream channel has been evaluated for environmental impacts by the Draft Environmental Impact Report for the Amargosa Creek Improvement Project and Assessment District, prepared by Michael Brandman Associates for the City of Palmdale, dated June 11, 1990.
2. Description of the project site: Currently, the Amargosa Creek is an ephemeral stream, running from the Sierra Pelona Range across the floor of the Antelope Valley and finally emptying into Rodgers Dry Lake. The improvements will pass through the Amargosa Creek canyon. Currently, Elizabeth Lake Road and some rural residences and the Lazy T Ranch are the only intrusions into this canyon. Amargosa Creek is in a relatively natural condition. Riparian vegetation is apparent along most of its length. Near Leona Valley, the streambed has been degraded by long-term cattle grazing, and typical riparian vegetation is not as evident. Vegetation outside of the actual streambed consists of Joshua Tree/Juniper woodland, and open grassland. The Amargosa Creek vicinity is known to contain a number of archaeological sites, including at least one Native American burial site, that could, potentially be disturbed by the proposed improvements.

3. Surrounding Land Uses: Single family residential uses and the Lazy T Ranch are dispersed along the existing route of Elizabeth Lake Road. However, most of the alignment is undeveloped.

4. Is the proposed project consistent with:

| | Yes | No | N/A |
|---|----------|----|----------|
| City of Palmdale General Plan | <u>X</u> | — | — |
| Applicable Specific Plan | — | — | <u>X</u> |
| City of Palmdale Zoning Ordinance | — | — | <u>X</u> |
| South Coast Air Quality Management Plan | <u>X</u> | — | — |
| Los Angeles County Areawide (208) Wastewater Management Plan | <u>X</u> | — | — |

5. Are any of the following studies required:

- Noise Study
- Native Vegetation Preservation Plan
- X Archaeological/Paleontological Report
- Soil Report
- X Geology Report
- X Hydrology Report
- Traffic Study
- X Biological Study
- Historical Report

INITIAL STUDY QUESTIONNAIRE

| | Yes | Maybe | No | N/A | |
|-----------------|---|----------|----------|----------|-------|
| A. Earth | | | | | |
| A.1. | Does the parcel contain slopes of 15% or greater? | <u>X</u> | _____ | _____ | _____ |
| A.2. | Is any portion of the project site in an area of medium or high landslide risk and are there any known landslides on the subject property? | <u>X</u> | _____ | _____ | _____ |
| A.3. | Is any significant modification of major landforms proposed? | <u>X</u> | _____ | _____ | _____ |
| A.4. | Does the site include any unique geological features or is it in a significant resource area? | _____ | _____ | <u>X</u> | _____ |
| A.5. | Is the parcel in an area of high shrink/swell potential as shown on Plate 14.6 of the Palmdale Community General Plan? | _____ | _____ | <u>X</u> | _____ |
| A.6. | If the sites are in an area of soils with high erosion potential according to Plate 14.7 of the Palmdale Community Plan, will the project result in a significant increase in wind or water erosion or siltation either off or on the site beyond the construction phase? | _____ | <u>X</u> | _____ | _____ |
| A.7. | Is the proposed project in an area of potential subsidence according to Exhibit 14.9 of the Palmdale Community General Plan or a special study? | _____ | _____ | <u>X</u> | _____ |
| A.8. | Will the project include critical facilities such as high-rise buildings, hospitals or schools, etc.? | _____ | _____ | _____ | _____ |
| A.9. | Is the site in a fault-rupture hazard zone as defined in the Alquist-Priolo Special Studies Zones Act of 1972 and as shown on the City's General Plan Land Use Map or other special study? | <u>X</u> | _____ | _____ | _____ |

| | Yes | Maybe | No | N/A |
|--|----------|----------|----------|-------|
| A.10. Are any faults located on the project site? | <u>X</u> | _____ | _____ | _____ |
| A.11. Are the fault(s) on the project site described in the geotechnical study for the site: | | | | |
| a. active | <u>X</u> | _____ | _____ | _____ |
| b. potentially active | <u>X</u> | _____ | _____ | _____ |
| c. inactive | <u>X</u> | _____ | _____ | _____ |
| B. <u>Air</u> | | | | |
| B.1. Will the project produce significant air pollutant emissions? | _____ | <u>X</u> | _____ | _____ |
| C. <u>Water</u> | | | | |
| C.1. Does the project involve a natural drainage course, a flood control channel or facility, or the California Aqueduct according to the City's Draft Drainage Master Plan, or the U.S.G.S. topographic maps? | <u>X</u> | _____ | _____ | _____ |
| C.2. Is the site in an area of flood hazard during the 100 year event as shown on the FIRM map, or other Public Works map? | <u>X</u> | _____ | _____ | _____ |
| C.3. Will the project result in a significant increase in peak run-off? | _____ | _____ | <u>X</u> | _____ |
| C.4. Would the project increase flood hazard off-site? | _____ | _____ | <u>X</u> | _____ |
| C.5. Will the project require the construction of on or off-site drainage facilities as shown on the Master Plan of Drainage of determined by the Department of Public Works? | <u>X</u> | _____ | _____ | _____ |
| D. <u>Plant Life</u> | | | | |
| D.1. Is a significant stand of Desert Vegetation present on the site? | <u>X</u> | _____ | _____ | _____ |
| D.2. Are any unique, rare or endangered species of plants present on the subject property? | _____ | <u>X</u> | _____ | _____ |

| | Yes | Maybe | No | N/A |
|---|----------|----------|----------|----------|
| D.3. Is a Desert Vegetation (or Joshua tree) Preservation Plan required? | ___ | ___ | <u>X</u> | ___ |
| E. <u>Animal Life</u> | | | | |
| E.1. Will the project result in a reduction of the numbers of any unique, rare or endangered species of animals? | ___ | <u>X</u> | ___ | ___ |
| E.2. Will the project result in a deterioration of any significant wildlife habitat? | ___ | <u>X</u> | ___ | ___ |
| E.3. Is consultation with the California Department of Fish and Game, as a trustee agency, required? | <u>X</u> | ___ | ___ | ___ |
| F. <u>Noise</u> | | | | |
| F.1. If the project is residential or noise sensitive is it located: | | | | |
| a. adjacent to the Freeway? | ___ | ___ | ___ | <u>X</u> |
| b. within 200 feet of the railroad? | ___ | ___ | ___ | <u>X</u> |
| c. adjacent to an existing or future arterial street? | ___ | ___ | ___ | <u>X</u> |
| d. within the Plant 42 AICUZ zone? | ___ | ___ | ___ | <u>X</u> |
| e. near any major source of industrial or other noise not covered above? | ___ | ___ | ___ | <u>X</u> |
| F.2. Will the project generate a CNEL noise level exceeding 65dB(A) at the project boundary after construction? | <u>X</u> | ___ | ___ | ___ |
| F.3. Is the project site adjacent to a land use that will, or will the project generate unusual periodic concentration of human activity? | ___ | ___ | <u>X</u> | ___ |
| G. <u>Light and Glare</u> | | | | |
| G.1. Would on or off-site land users be subject to light or glare that would disturb those residents? | ___ | <u>X</u> | ___ | ___ |

| | Yes | Maybe | No | N/A |
|---|--|----------|----------|-------|
| H. <u>Land Use</u> | | | | |
| H.1. Could the project serve to encourage development of presently undeveloped areas or increases in development intensity of already developed areas (examples include the introduction of new or expanded public utilities, new industry, commercial facilities and recreational activities)? | <u>X</u> | _____ | _____ | _____ |
| H.2. Are adjoining or planned land uses greatly different than that of the proposed project, so that a substantial or potentially substantial interface problem would be created? | _____ | <u>X</u> | _____ | _____ |
| I. <u>Risk</u> | | | | |
| I.1. Does the proposal involve or would it be subject to a risk of an explosion or the significant release of hazardous substances (including, but not limited to, explosives, pesticides, chemicals or radioactive materials) in the event of an accident or upset condition? | _____ | <u>X</u> | _____ | _____ |
| I.2. Is the project in the airport potential crash zone? | _____ | _____ | <u>X</u> | _____ |
| I.3. Is the project within or adjacent to a high fire hazard area as defined by the Palmdale Community Plan? | _____ | _____ | <u>X</u> | _____ |
| J. <u>Housing</u> | | | | |
| J.1. Will the project result in the displacement of people from the existing site? | _____ | <u>X</u> | _____ | _____ |
| K. <u>Population</u> | | | | |
| K.1. If a residential project, how many new residents will the development house? (2.7 persons per unit) | N/A (However, the project will result in a significant amount of residential growth by the extension of utilities into an essentially undeveloped area) | | | |

Yes Maybe No N/A

L. Schools

L.1. What elementary school district is the project located in?

- a. Westside Union
- b. Palmdale
- c. Keppel Union

L.2. What high school district is the project located in?

- a. Quartz Hill
- b. Palmdale

L.3. How many students in each of the following categories are expected?

- a. Elementary
- b. Junior High
- c. High School

L.4. Capacity of applicable schools?
 (Based on the most recent report by the School District.)

- Elementary _____ N/A
- Junior High _____ N/A
- High School _____ N/A

L.5. Attendance at applicable schools?
 (Based upon the most recent report of the School District.)

- Date of Count _____ N/A
- Elementary _____ N/A
- Junior High _____ N/A
- High School _____ N/A

M. Transportation and Circulation

M.1. Estimated a.m. and p.m. peak hour trips: (From Institute of Transportation Engineers, Trip Generation or the applicants traffic study.) N/A

M.2. Estimated average daily vehicle trips generated by the project: (from the Institute of Transportation Engineers, Trip Generation or applicants traffic study.) N/A

| | Yes | Maybe | No | N/A |
|---|-----|-------|-----|-----|
| M.3 Will the project result in traffic congestion? | ___ | _X_ | ___ | ___ |
| M.4. Does the project require the construction of off-site roadway or signalization improvements or contribution of traffic mitigation fees? | _X_ | ___ | ___ | ___ |
| M.5. Does circulation within the development provide an unacceptable level of safety required for the orderly flow of people and their vehicles? | ___ | ___ | ___ | _X_ |
| M.6. Will the project create or experience access problems as designed? | ___ | ___ | ___ | _X_ |
| M.7. Is parking adequate for the proposed project? | ___ | ___ | ___ | _X_ |
| N. <u>Emergency Services</u> | | | | |
| N.1. Roadway distance and location of the nearest fire station: Station #24, located near the intersection of Avenue P and 10th Street West, and Station #114, located in the community of Leona Valley, are the nearest stations. | | | | |
| O. <u>Aesthetics</u> | | | | |
| O.1. Is a major ridgeline or hillside area which is visible from the valley floor involved in the project? | ___ | ___ | _X_ | ___ |
| O.2. Will the proposal result in the creation of an aesthetically negative site open to public view or obstruction of any significant view vista? | ___ | _X_ | ___ | ___ |
| P. <u>Archaeological/Historical/Paleontological</u> | | | | |
| P.1. Has the site inspection for paleontological, historical and archaeological resources been performed? | _X_ | ___ | ___ | ___ |
| If yes, by <u>Roger Robinson, Ron Bissell, Beth Padon, Robert S. White</u> | | | | |
| P.2. Does the project include any resources of archaeological, paleontological, or historical significance and would the proposal result in an impact on a significant paleontological, archaeological or historical site, structure, object or building? | _X_ | ___ | ___ | ___ |

| | Yes | Maybe | No | N/A |
|---|----------|----------|----------|----------|
| Q. <u>Public Controversy</u> | | | | |
| Q.1. Is the project or action environmentally controversial in nature, or can it reasonably be expected to become controversial upon disclosure to the public? | <u>X</u> | _____ | _____ | _____ |
| R. <u>Utilities</u> | | | | |
| R.1. Are utilities adequate and available to serve the proposed project? | | | | |
| a. Water Supply | _____ | <u>X</u> | _____ | _____ |
| b. Electrical Supply | _____ | <u>X</u> | _____ | _____ |
| c. Natural Gas | _____ | _____ | _____ | <u>X</u> |
| d. Sewers | _____ | _____ | _____ | <u>X</u> |
| S. <u>Mandatory Findings of Significance</u> | | | | |
| S.1. Does the project have the potential to degrade the quality of the environment or curtail the diversity in the environment? | <u>X</u> | _____ | _____ | _____ |
| S.2. Does the project have the potential to achieve short-term, to the disadvantage of long-term environmental goals? | <u>X</u> | _____ | _____ | _____ |
| S.3. Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environment is significant.) In addition, "cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of the past projects, the effects of other current projects, and the effects of probable future projects.) | | | | |
| a. Traffic | _____ | <u>X</u> | _____ | _____ |
| b. Water | _____ | <u>X</u> | _____ | _____ |
| c. Wastewater | _____ | <u>X</u> | _____ | _____ |
| d. Schools | _____ | <u>X</u> | _____ | _____ |
| e. Flooding | _____ | _____ | <u>X</u> | _____ |
| f. Other | _____ | _____ | _____ | <u>X</u> |

Yes Maybe No N/A

S.4. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? X

VIII. List below the person or persons who prepared or participated in the preparation of the Initial Study:

Laurie Lile, Associate Planner, City of Palmdale
Kevin Thomas, Director, Environmental Services, RBF

IX. Determination

On the basis of this initial evaluation:

 I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

 I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because of the mitigation measures described on the MITIGATED NEGATIVE DECLARATION.

 XX I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

 Subsequent use of Program EIR.

 Use of Tiered EIR.

 8/16/90
Date

 Sonja I. Wilson
Sonja I. Wilson, Senior Planner
(Environmental)

 8/17/90
Date

 Clyde E. Evans
Clyde E. Evans, Director of Planning

CEE/SW/LKL/lob

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INITIAL STUDY RESPONSES

EARTH

A.1.

The Amargosa Creek canyon is flanked by steep slopes for much of its length. It is expected that in some areas, slopes of over fifteen percent (15%) will need to be modified in order to accommodate the road widening or channel modifications. The effect will, however, be localized. Slope stability and visual impact due to the modification of these slopes will be evaluated in an EIR.

A.2.

The steep slopes found in the Amargosa Creek Canyon are likely to be subject to rock and landslides, especially in the event of a seismic event. Detailed geotechnical investigations, which will evaluate the risk of landslides, will be carried out along the length of the route. The findings and recommendations offered in the technical reports of these investigations will be summarized in the EIR to be prepared for this project. That document will assess the significance of the risk and suggest possible mitigation measures.

A.3.

The project will modify the landforms, watercourses and natural setting currently found in the Amargosa Creek canyon. The landforms found here include steep sided slopes pushed up by the San Andreas fault, lower rolling hills contorted by the pressure of the nearby fault traces, and the channel of the Amargosa Creek. The proposed project will modify, to some degree, each of these landforms. The straightening of Elizabeth Lake Road will require extensive fill areas to even out the undulating road bed. The extent to which modification will occur will vary, and in some instances, result in insignificant changes from the current setting. However, the impacts from the proposed project will be examined in the project's EIR.

A.4.

Although the stream course of Amargosa Creek contains sand and gravel resources, the extent of these resources for extraction purposes is minimal and they are not designated by the State Department of Mines and Geology as Significant Resource Areas. Therefore, this does not constitute the potential for a significant impact on the environment.

A.5.

The site is in an area of low shrink/swell potential according to the Exhibit 14.6 of the Palmdale Community General Plan. Therefore, this does not constitute the potential for a significant impact on the environment.

A.6.

The soil erosion potential of the project area is characterized as moderate, with areas of high and very high erosion potential in the vicinity according to Exhibit 14.7 of the Palmdale Community Plan. Because erosion in this area will likely result in sediment entering Amargosa Creek, detailed erosion and sediment control measures will have to be developed and implemented prior to construction. The impacts and associated mitigation measures will be discussed in the project's EIR.

A.7.

The site is in an area of low risk of subsidence according to Exhibit 14.9 of the Palmdale Community Plan. Therefore, this does not constitute the potential for a significant impact on the environment.

A.8.

The project includes utilities, roadway improvements, detention basins, and channel modifications which are not listed in the Alquist-Priolo Special Studies Zone Act of 1972 as critical facilities. Therefore, there is no potential for a significant effect on the environment due to earthquake damage to a critical facility.

A.9., 10. and 11.

Much of the site is within the fault rupture hazard zone as shown on the Palmdale Community Land Use Plan. The potential of rupture of the utility lines and disruption of access along Elizabeth Lake Road in the event of an earthquake exists. Therefore, the impacts from seismic hazards should be evaluated in an environmental impact report.

AIR QUALITY

B.1.

The actual improvements are not expected to generate significant air pollutants. However, the extension of the sewer and water line will have the consequence of inducing growth. Therefore, the indirect impacts of additional traffic contributing mobile source emissions and the possibility of stationary source emissions could be significant. The widening of Elizabeth Lake Road could alleviate congestion, thereby reducing to a slight degree, growth-related emissions. However, that reduction is not considered to be so significant as to reduce air quality impacts to a level of insignificance. Therefore, the issue of growth inducing impacts relating to air quality should be examined in the context of an EIR.

WATER

C.1. through 5.

The project involves the channelization and/or modification of approximately 3.5 miles of the Amargosa Creek Channel. This

channel will serve to transport storm water flowing into Amargosa Creek, through the Amargosa Creek canyon and the City of Palmdale, thereby minimizing the flooding hazard along its length. The channelization of the downstream portion of the creek, between 25th Street West and Avenue M, has been analyzed in the EIR, prepared for the City by Michael Brandman Associates (MBA), entitled "Draft Program EIR for the Amargosa Creek Improvement Project and Assessment District." Placement of the utility lines and the road improvements along the natural creek channel will modify the flow of water by altering its location and velocity which will impact nearby property owners. Therefore, this issue must be addressed in an environmental impact report.

PLANTS

D.1. through 3.

Vegetation along Amargosa Creek between 25th Street West and Godde Hill Road can be characterized as riparian in many locations. In other areas, vegetation is typical of desert washes. Cottonwood trees and willows are situated in proximity to open grassy meadows, currently grazed by cattle. However, riparian vegetation along the creek area supporting cattle has been degraded by trampling. Biological surveys will be conducted to determine the significance of the habitat provided by the riparian vegetation, and whether any sensitive, rare or endangered species are present in the proposed right-of-way. In addition, the surveys will provide a description of wildlife corridors, habitat types and vegetative communities. The findings and recommendations from this survey will be presented in the environmental impact report prepared for this project.

ANIMALS

E.1. and 2.

A biological study will be performed along the project alignment. The report will specifically address those sensitive species potentially present on site, including least Bell's vireo, willow flycatcher, yellow warbler, tricolored blackbird, and San Emigdio blue butterfly. After field surveys, the findings and recommendation made by project biologists concerning any sensitive animal species will be included in the environmental impact report prepared for the project.

E.3.

The Department of Fish and Game will be consulted regarding the impacts to the natural channel of Amargosa Creek. The project is subject to the issuance of a Streambed Alteration Agreement prior to disturbing the original Amargosa Creek channel. This agency will be consulted regarding the scope of the EIR and the appropriateness of proposed mitigation to biological resources.

NOISE

F.1.

The project is not noise sensitive.

F.2.

Traffic travelling on Elizabeth Lake Road will generate noise levels exceeding 65 dB(A) at the edge of the right-of-way after construction based on noise studies prepared for the City Ranch and Ritter Ranch projects.

F.3.

The project will not generate unusual periodic concentrations of human activity nor is it adjacent to a land use that will do so based on a review of the proposed project and the project site. The proposed Ritter Ranch Specific Plan has shown an amphitheater in a preliminary version of their Specific Plan, in the vicinity of Elizabeth Lake Road. The capacity of the proposed facility has not been established. At this time, it is staff's understanding that an amphitheater in this location will serve the surrounding residential projects and will not likely draw large numbers of people to the site. Therefore, this does not constitute the potential for a significant impact on the environment.

LIGHT AND GLARE

G.1.

Street lights will be located along Elizabeth Lake Road at various locations. Greatest impact anticipated from these lights will be to the aesthetic values of the Amargosa Creek Canyon. Increased glare may be generated by the volume of traffic which will travel along Elizabeth Lake Road. Both of these issues will be discussed in the EIR prepared for the project.

LAND USE

H.1.

The proposed project will serve to encourage development of presently undeveloped areas. This could constitute the potential for a significant impact on the environment which should be analyzed in an EIR.

H.2.

The adjoining rural residences will not be compatible with the proposed road widening based on the judgment of the environmental planner. The widening of Elizabeth Lake Road to four or six lanes will eliminate its somewhat rural character and result in the loss of much of the existing Lazy T Ranch. The loss of this facility represents the loss of an existing commercial enterprise as well as a future recreational amenity. The existing residences will be impacted by increased noise and increased difficulty in entering the roadway. Therefore, these interface problems should be addressed in the EIR prepared for this project.

RISK

I.1.

The project site is largely within the Alquist-Priolo zone identified for the San Andreas Rift Zone. All the proposed improvements could be subject to failure in the event of a major seismic incident. The failure of utilities could include broken gas, water and sewer lines, and disrupted electrical and telephone service. Also, such an event would likely render Elizabeth Lake Road impassable. These risks should be evaluated and mitigated to the degree possible in the project's EIR.

I.2.

A site inspection and review of the airport potential crash zone map revealed that the project site is outside of this area. Therefore, this does not constitute the potential for a significant impact on the environment.

I.3.

The project is not within the wildfire hazard area based on a review of the General Plan. Although a site inspection found fire prone vegetation adjacent to the proposed alignment, much of this existing fuel will be modified by the construction of the proposed improvements. It is anticipated that much of the length of the roadway will be landscaped. This fuel modification will eliminate much of the fire hazard currently existing along Elizabeth Lake Road. Therefore, wildfire hazard does not constitute the potential for a significant impact on the environment.

HOUSING

J.1.

A site inspection found residences along the project site. However, preliminary alignment studies have determined that these residences can be avoided. Therefore, there is no potential for a significant impact on the environment due to displacement of residents.

POPULATION

K.1.

The extension of utility lines will serve to encourage growth in currently undeveloped areas. This, in turn, will result in a significant increase in population. This action could result in a significant impact to the environment and should be analyzed in the context of an EIR.

SCHOOLS

L.1,2,3,4 and 5.

The increase in population in the area to be served by the proposed project will result in a proportional increase in students. Therefore, this will have a significant impact to the existing schools in the area. This impact on schools should be analyzed and addressed in a EIR.

TRAFFIC

M.1,2,3, and 4.

The increase in population will result in a significant increase in regional traffic. Elizabeth Lake Road, and Avenue S, will both experience significant increases in average daily traffic volumes and will likely operate at unacceptable service levels. The impact to circulation due to extension of infrastructure and utilities should be addressed in an EIR.

EMERGENCY SERVICES

N.1.

Emergency services could be stretched to unacceptable levels in the event of large increases in population in the relatively distant southwest area of Palmdale. The impacts to the Los Angeles County Fire Department and Sheriff's Department should be addressed in an EIR.

AESTHETICS

O.1. and 2.

The utility lines will be placed underground for the length of the project. However, the improvements to the roadway and the channel will have significant impacts on the scenic Amargosa Creek canyon. The degree to which the aesthetic values will be lost, and possible mitigation measures to alleviate that loss, will be discussed in the EIR prepared for the project.

ARCHAEOLOGICAL/PALEOLONTOLOGICAL/HISTORIC RESOURCES

P.1. and 2.

Areas along the route, within the Ritter Ranch, City Ranch, and Santa Fe Specific Plan sites, have been surveyed by archaeologist for archaeological, historic and paleontological resources. These archaeological surveys have been performed by Robert S. White, Ron Bissell, Beth Padon, and Roger Robinson. One burial site, CA-LAN-767, was recorded within the Amargosa Canyon. Other sites noted in the vicinity include midden sites and lithic scatters. At least one historic site was also identified. The proposed route outside of these large project areas has not been surveyed. Prior to preparation of the EIR, these areas will be surveyed and a cultural resources report which compiles the archaeological information for the entire route will be prepared. The findings and recommendations expressed in this study will be incorporated into the EIR prepared for this project.

PUBLIC CONTROVERSY

Q.1.

The project may generate some public controversy in regard to growth inducing impacts. The EIR will address these impacts and discuss possible mitigation measures into the project to reduce these impacts.

UTILITIES

R.1.

The extension of these utility lines will, in turn, impact each of the utility purveyors. The growth inducing nature of the project will mean that each system will have to be upgraded sufficiently to accommodate the projected population of the area. The impacts to each of these entities could be significant. Therefore, the impacts of the induced growth on utilities in the area should be analyzed in an EIR.

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PUBLIC UTILITIES COMMISSION
State Clearinghouse
1400 Tenth Street
Sacramento, CA 95814

CALTRANS
120 South Spring Street
Los Angeles, CA 90012

Native American Heritage Commission
915 Capitol Mall Rm. 288
Sacramento, CA 95814

California Regional Water Quality Control Board
Lahontan Region
15428 Civic Drive
Suite 100
Victorville, CA 92392-2459

Department of Water Resources
Project Review
1416 Ninth Street
Sacramento, CA 95814

Department of Conservation
1416 Ninth Street, Room 1326-2
Sacramento, CA 95814

Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

Air Resources Board
1102 Q Street
Sacramento, CA 95814

Department of Fish and Game
Attn: Fred A. Worthley, Jr.
330 Golden Shore, Suite 50
Long Beach, CA 90802

U.S. Fish and Wildlife Service
Laguna Niguel Field Office
24000 Avila Road
Laguna Niguel, CA 92656

Richards, Watson, & Gershon
333 South Hope Street, 38th Floor
Los Angeles, CA 90071-1469

California Dept. of Mining & Geology
Division of Dam Safety
ATTN: Mike Fox

(916) 323-5355

U.S. Corps of Engineers
P.O. Box 2711
Los Angeles, CA 90053-2325

LIC VIGNERON

L.A. County Dept. of Public Works
900 S. Fremont Ave.
Alhambra, CA 91803

L.A. County Regional Planning
320 West Temple
Los Angeles, CA 90012

L.A. County Health Dept.
335-A East Ave. K-6
Lancaster, CA 93534

L.A. County Sanitation District
P.O. Box 4998
Whittier, CA 90607

L.A. County Waterworks District
419 W. Avenue J
Lancaster, CA 93534

Westside Union School District
46809 North 10th St. East
Lancaster, CA 93534

Antelope Valley Union High School District
44811 N. Sierra Hwy.
Lancaster, CA 93534

City of Lancaster
44933 N. Fern Ave.
Lancaster, CA 93534

City of Santa Clarita
Planning Department
23920 Valencia Blvd., Suite 300
Santa Clarita, CA 91355

Southern California Association of Governments
600 South Commonwealth Avenue
Suite 100
Los Angeles, CA 90005

South Coast AQMD
9150 Flair Drive
El Monte, CA 91731

Antelope Valley Archaeological Society
Attn: Richard Norwood
P.O. Box 4514
Lancaster, CA 93539

UCLA Archaeological Survey Office
Attn: Bruce Love
University of California, Los Angeles
Los Angeles, CA 90024

Leona Valley Land Use Chairman
9611 Leona Ave.
Leona Valley, CA 93551

BSI
1415 E. 17th St.
Santa Ana, CA 92701

L.A. County Sherrif's Department
1010 W. Avenue J
Lancaster, CA 93535

L.A. County Fire Department
1110 W. Ave. J
Lancaster, CA 93535

Palmdale School District
38300 Sierra Highway
Palmdale, CA 93550

Soledad-Agua Dulce School District
32248 Crown Valley Road
Acton, CA 93510

Antelope Valley Landfill
1200 W. City Ranch Road
Palmdale, CA 93550

Antelope Valley Bus, Inc.
660 W. Ave. L
Lancaster, CA 93534

Southern California Edison
P.O. Box 4349
42060 10th St. West
Lancaster, CA 93534

Southern California Gas
44416 Division Street
Lancaster, CA 93534

Pacific Bell
2130 Ward Ave.
Simi Valley, CA 93065

Palmdale Water District
2005 East Ave. Q
Palmdale, CA 93550

Los Angeles City Dept. of Airports
1 World Way
P.O. Box 92216
Los Angeles, CA 90009-2216

Sunnyside Farms Water Company
42110 21st Street West
Lancaster, CA 93536

California Waste Management Board
1020 Ninth Street, Room 300
Sacramento, CA 95814
Attn: Mike Leao

Department of the Air Force
Plant No. 42
Palmdale, CA 93550

California Highway Patrol
44245 N. 20th St. West
Lancaster, CA 93550

State Office of Historic Preservation
P.O. Box 942896
Sacramento, CA 95811

Office of Planning and Research
Project Notification and Review
1400 Tenth Street, Room 121
Sacramento, CA 95814

White Fence Farms Water Company
42005 N. 20th St. West
Quartz Hill, CA 93536

Palm Ranch Irrigation District
4827 W. Ave. L-12
Quartz Hill, CA 93536

Quartz Hill Water District
42141 N. 50th St. West
Quartz Hill, CA 93536

Antelope Valley East Kern (AVEK) Water Agency
35401 116th St. East
Pearblossom, CA 93553

Littlerock Creek Irrigation District
35141 North 87th St. East
Littlerock, CA 93543
Attn: Donna Carrell

Keppel Union School District
12189 E. Ave. V-12
Pearblossom, CA 93553

Antelope Valley Community College District
3041 West Ave. K.
Lancaster, CA 93534

Hughes-Elizabeth Lakes District
16633 Elizabeth Lake Road
Lake Hughes, CA

Eastside Union School District
6742 East Ave. H
Lancaster, CA 93534

Lancaster School District
44711 N. Cedar Ave.
Lancaster, CA 93534

TO: City of Palmdale
Planning Department
38306 9th Street East
Palmdale, CA 93550

ATTN: Laurie Lile

FROM: Land Use Committee, Leona Valley Town Council

DATE: September 16, 1990

RE: Initial Study and Notice of Preparation of a Draft Environmental Impact Report for the **AMARGOSA CREEK IMPROVEMENT PROJECT AND ASSESSMENT DISTRICT - PHASE II**

Thank you for the opportunity to review the Initial Study and Notice of Preparation of a Draft Environmental Impact Report for this project. Our comments are attached. We would like these comments to be entered into the record toward both the Initial Study and the EIR, although we anticipate having to generate additional comments for the latter report.

The contact person for our agency is Tina Rodriguez, Chairperson of the Land Use Sub-Committee which developed this response.

PC:

Initial Study Amargosa Creek Phase II
Leona Valley Town Council

We have the following general concerns about the project:

1. **THE CONTEXT:** Phase II of the proposed project is specifically designed to service both the proposed Ritter Ranch development and proposed City Ranch South. Without the Ritter Ranch development there would be no need for a four to six lane highway extending into Leona Valley. While we recognize the advantages of looking at this project separate from the Ritter Ranch Specific Plan, we are nevertheless concerned that this project NOT be evaluated in a vacuum. We are happy to see that those who prepared this Initial Study have not attempted to hide the facts, but have instead acknowledged the increased growth that will be created by this project.

2. **THE MAP:** The map included is insufficiently detailed. What is the western boundary of the proposed project? The map gives Godde Hill Road, but Palmdale Public Works says the project will extend 2,000 feet west of Godde Hill. Which is it? Also, the depiction of Elizabeth Lake Road is not accurate; it fails to show the many curves that currently exist. We would also like to see a map which shows the current topography and includes the many steep slopes as well as the canyons created by the Amargosa Creek.

Most important, we would like to see exactly what this project is planned to look like, as it is impossible to evaluate its impact without a detailed planning map. What part of the road will be six lanes? four? two? Where are the bridges? signals? access roads? Where will the creek be channelized? Where will the path of the highway lie? What hills will be destroyed, whose and how much land will be taken, where will the detention basins be located, etc.?

In sum: To evaluate this project accurately, two maps should be created: one, to show what currently exists, and the other to show the proposed project as it would appear upon completion.

3. **THE ASSESSMENT DISTRICT:** Nothing about money has been included in the Initial Study, yet the project calls for an assessment district to be established. Where are the proposed boundaries of this district? Who is included in the assessment district? What assurances do we have that we will not be forced to join at a later date, even though we might not be using the services? (Recall that some Acton residents have been assessed for water that they have not and will never use.) Exactly what is being assessed? The developers of Ritter Ranch have stated that they plan to have one or more sewage treatment facilities on their property - why then do they need to run a sewer line down Elizabeth Lake Road, and why is it necessary to create a separate sewage assessment district? The existing levels of infrastructure service the community of Leona Valley satisfactorily. Will we soon be required to pay for improvements that we have absolutely no need for, but which are nevertheless forced upon us by the developers and by the City of Palmdale?

4. We strongly recommend that in addition to those already mentioned on page 3 of the Initial Study, the following studies or reports should be required: **Noise, Native Vegetation Preservation Plan, Soil, Traffic, and Historical.** The reasons for this recommendation will be found in the text below.

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The following are our specific comments, generally keyed to the text of the Initial Study. The responses in (CAPS) and in parentheses are those listed on the Initial Study; our opinions and arguments follow.

A. Earth

A1, A2: (YES) We agree, and would like to add our concerns for modification of the land and slopes possibly leading to erosion, landslide, earthquake damage, and destruction of the visual landscape.

A3: (YES) We agree, and are concerned about fill. How much will be used, what will be the impact of settling, how will dust be controlled? Will alterations in land forms destroy the historical stage coach route?

A4: (NO) We disagree - should be YES. Antelope Valley College students are hoping to prospect for gold in the project area. We also find the project area to contain unique geologic features: the canyon is a rift zone, unique and unusual, and is worthy of preservation.

A5: (NO) We question whether or not the subject area is included on Plate 14.6 of the Palmdale Community General Plan, and if not, how can shrink/swell be evaluated? Most of the project area lies outside the current G.P., and the Ritter Ranch G.P.A. which will include this area has not yet been approved.

A6: (MAYBE) We disagree - should be YES. We find a point of high erosion at Lazy T Ranch. Also, is this area shown on Plate 14.7? (See comments for A5.)

A7: (NO) We disagree - should be YES. Subsidence will be created by this project and by the profound increase in growth provided for by this project. Also, is this area shown on Plate 14.9? (See comments for A5.)

A8: (NOTHING MARKED) We believe that YES is the answer here. This project is designed to provide infrastructure for critical facilities, and must be evaluated for this use, especially as it is planned for a multi-hazard zone.

A9: (YES) We strongly agree. We would also like to know for what level of earthquake on the Richter scale is the project being planned?

A10 & A11: (YES) We agree, and have serious concerns about who will carry the liability for damage both to person and property if a natural disaster such as an earthquake should occur (in the next 30 years, according to predictions). Not only will the gas, water, electric, sewer and road be interrupted or destroyed, but the "city" of Ritter Ranch, population 25,000, will require emergency aid. We believe that if the City approves a plan that is ripe for disaster, then the City should be prepared to carry its financial costs.

B. Air

B1. (MAYBE) We disagree - should be YES. The project will bring suburbanization and its attendant pollutants to rural Leona Valley, Bouquet Canyon, the Bouquet Canyon reservoir (a source of drinking water), and will

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add to the pollution of Palmdale and the Antelope Valley floor, and of course the Antelope Valley freeway. In addition, since many of the residents of Leona Valley depend upon agricultural uses, pollution will seriously damage crops and orchards and thus have a significant economic impact.

C. Water

C1 & C2: (YES) We agree, and would like to note that the Amargosa Creek is recorded as a Blue Line Stream on U.S.G.S. maps. Thus, any alterations must be first approved by the appropriate Federal government agencies.

PLEASE NOTE: WE STRONGLY OBJECT TO ANY CHANNELIZATION OF THE AMARGOSA CREEK! IN ADDITION TO ITS STRONGLY ADVERSIVE AESTHETICS, CHANNELIZATION WILL RUIN LOCAL VEGETATION AND ROB WILDLIFE OF WATER ACCESS. BUT MOST IMPORTANT, IT WILL PREVENT GROUNDWATER RECHARGE IN THE LEONA VALLEY AREA, AS ALL WATER WOULD THEN BE CHanneled OUT OF LEONA VALLEY, AND OUR WELLS MAY GO DRY!

C3 & C4: (NO) We disagree - should be YES, and as a "NO," conflicts with A-6. By paving such a large portion of the canyon floor this project itself will increase run-off, but even greater increases in run-off will be found in the proposed Ritter Ranch development for which this project was initiated. The natural landscape provides for gradual absorption of rainfall into the soil; with 7,500 homes and large-scale commercial buildings, with the miles of roads and parking lots to be installed, the potential for flood increases greatly.

C5: (YES) We question whether or not the subject area is shown on the Master Plan of Drainage for the City of Palmdale. We would also like to have an impact study of drainage facilities - what effect will these facilities have on existing environmental conditions (ex. wildlife, safety, etc.)

D. Plant Life

D1: (Yes) We agree. This rift zone is a unique area for desert vegetation.

D2: (MAYBE) We disagree - should be YES. Both Joshua trees and manzanita are found on the subject property, as well as other unique or rare species.

D3: (NO) We strongly disagree - should be YES. Why is no Preservation Plan required? The stand of Joshuas that was recently destroyed by arson can be re-planted, and those trees which currently exist should be preserved.

E. Animal Life

E1 & E2: (MAYBE) We disagree - should be YES. The project itself (road, channelized creek, lights, etc.) will destroy access to water and habitats for local and migratory wildlife. However, the impact of the Ritter Ranch development, inseparable from the proposed Amargosa Creek project, will have a devastating effect upon local and migratory wildlife, possible endangered species included. We request that any study of wildlife take place across the four seasons, and that local residents be interviewed regarding the sightings they have made.

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PLEASE NOTE: IT IS IMPORTANT TO ANALYZE THE EFFECTS ON WILDLIFE OUTSIDE THE PROPOSED PROJECT'S NARROW CORRIDOR. THIS PROJECT, AND THE RITTER RANCH DEVELOPMENT THAT IT IS PLANNED TO SERVICE, WILL IRREVOCABLY DESTROY SURROUNDING WILDLIFE MILES BEYOND ITS LISTED BOUNDARIES.

And if anyone cares, this project will also destroy another "endangered species," the human being who wants to live in a rural environment. It will destroy our black skies, the beauty we see all around us, and much, much more. This project and its accompanying Ritter Ranch development will destroy our spirits, and the loss to our lives will be irreparable and devastating.

E3: (YES) We agree.

F. Noise

F1: (N/A) We agree.

F2: (YES) We agree, and would like to require that a noise evaluation be made not only during daytime hours, but during peak rush hours and at night, during late and early A.M.. We would also like the evaluation of noise to be conducted on the connecting streets (Bouquet Canyon and Godde Hill), as well as a projection for the proposed Ritter Ranch development. We also hope that noise levels for the residents of the developments along Elizabeth Lake Road will be ascertained.

F3: (NO) We STRONGLY disagree - should be YES. First, we consider rush-hour traffic to be periodic, and there will be considerable rush-hour traffic generated by the Ritter Ranch development. Second, the staff's understanding of the use of the amphitheatre does not agree with what was implied by the recent survey sent to residents of the Antelope Valley by the developers of Ritter Ranch and the City of Palmdale. The survey strongly implies that the Ritter Ranch will create recreational uses for the entire region (of course it did not mention who will pay for these uses!), not just for the surrounding residential projects. Besides, these surrounding projects are providing their own recreation if we are to believe the proposed City Ranch, at least. How many golf courses can Elizabeth Lake Road absorb along a five mile stretch? We believe there will be a significant impact of human activity generated by this project - **THAT IS ITS VERY PURPOSE!!!**

G. Light and Glare -

G1: (MAYBE) We strongly disagree - should be YES. As off-site land users, the residents of Leona Valley will absolutely feel the impact the lights and glare created by this project and the developments it serves. Most of our night sky is still black, but this project and the development it serves will destroy our ability to see what remaining stars are still visible.

H. Land Use

H1: (YES) WE STRONGLY AGREE, and take strong exception to this project. It will destroy our rural life style and our economic base. It will have a negative impact on our agricultural uses, and will depreciate our property

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values.' Most of the residents of Leona Valley moved here to escape the city, but this project, and the development it serves, will force the city upon us again. The damage could be mitigated somewhat with a buffer zone of open space adjacent to large acreage homes, but the developers will not comply. At least 55% of the Ritter Ranch lies within the boundaries of Leona Valley. Approval of this project and the proposed Ritter Ranch Specific Plan will destroy a large part of Leona Valley.

H2: (MAYBE) We strongly disagree - A SUBSTANTIAL INTERFACE PROBLEM WILL BE CREATED. Lot sizes in Leona Valley range from less than one acre to several hundreds of acres. In the so-called "core," the most frequently occurring lot size is 2.5 acres. Leona Valley is zoned for agricultural uses, and residents raise livestock and grow crops. LEONA VALLEY IS RURAL - when the City is proposing six lanes of asphalt and 7,500 homes in the eastern part of Leona Valley, how can it NOT create a substantial interface problem? (cf. H1.) Although it is not a dirt road, we consider Elizabeth Lake Road to be "very" rural, not just "somewhat" rural. Its widening will also cause a loss of current commercial uses at the Lazy T Ranch and recreational uses for the residents of Palmdale who currently use this facility to board their horses. The City Ranch and Ritter Ranch developments have promised equestrian centers and trails; equestrian centers, however, are often promised, but rarely built.

I. Risk

I1: (MAYBE) We disagree - should be YES. The site is in a seismic, water and fire hazard zone; an accident or natural disaster could release dangerous substances into the air with a rupture or explosion of pipes. (cf. A9 - 11.)

I2: (NO) We disagree - should be YES. Commercial flights pass over Leona Valley daily, and although they won't admit it, low-flying jets out of Edwards AFB use the valleys and hills of Leona Valley to practice radar evasion techniques.

I3: (NO) We strongly disagree - should be YES. With nine fires set in the Leona Valley area this past July, several of them set on Elizabeth Lake Road, how can it be said that the project is not within a high fire hazard zone? The Los Angeles County General Plan lists the area of the Ritter Ranch project and this Amargosa Creek Project as a high wildfire danger area, Zone IV. Finally, is the project area even included in the Palmdale Community Plan?

J. Housing

J1: (MAYBE) We disagree - should be YES. Approximately 25 residences will be directly impacted due to their location along Elizabeth Lake Road, which, when straightened, will undoubtedly turn the front yards of several homes into a four or six-lane highway. Should the owners want to move away, their homes may be difficult to sell. Already a number of long-term residents of Leona Valley have moved away because of the growth headed our way; this project and the Ritter Ranch development it supports will undoubtedly result in the displacement of more. It may be called "voluntary," but people would not leave if the city were not threatening to destroy our culture, jobs, and way of life. (cf. H.2.)

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K. Population

K1: (N/A) We strongly agree with the comment that the project will result in a significant amount of residential [and commercial] growth in an essentially undeveloped area. Again, there is a **serious interface problem** here!
Leona Valley currently consists of about 500 single family homes, farms, and ranches. There are approximately 880 registered voters within our boundaries. The Ritter Ranch Specific Plan contains 7,500 dwelling units, at 2.7 persons per unit. Most of these units are slated to be built on land within the Leona Valley boundaries, on lots of 1/3 acre or less. There is no question - the Ritter Ranch development will dominate Leona Valley, and as such IS STRONGLY CONTESTED BY MOST OF LEONA VALLEY'S RESIDENTS. (cf H1-2.)

L. Schools

L1-5: (N/A) We disagree - should be YES for all. The Westside School District is currently overcrowded, and we strongly recommend that this project not be approved unless each of the the proposed developments it services obtains will serve letters from the school district.

M. Transportation and Circulation

M1 & 2: (N/A) We disagree - should be YES. Although the road itself does not generate vehicle trips, it is nevertheless essential to evaluate a.m. and p.m. peak hour trips as well as average daily trips. This project has been separated from the proposed developments which actually generate the traffic, and it is essential that this impact be studied.

We agree with the analysis in the Initial Study: traffic will most likely operate at unacceptable levels, not only on Elizabeth Lake Road and Avenue S, but also on Bouquet Canyon and Godde Hill Roads, the AV Freeway, Sierra Highway, and Palmdale Boulevard. These latter five roads should be included in the EIR for this project and that of the Ritter Ranch (and City Ranch).

M3: (MAYBE) We disagree - should be YES. True, the planned road is wide, but each place where it narrows will be a dangerous and congested bottleneck.

M4: (YES) THIS ANSWER CONCERNS US! Are we to pay for "improvements" which will destroy our rural lifestyle and our economic basis? Are we going to be assessed a fee to use the road, stop at the traffic signals which we didn't want in the first place? What does this mean? If all of this infrastructure is to service the developments, why don't they build their own roads on their own property, and leave Elizabeth Lake Road as it is??

M5-7: (N/A) We agree - these are relevant for the Ritter Ranch Specific Plan. Hopefully they will be addressed in its EIR.

N. Emergency Services

N1: The fire station in Leona Valley, Station #140 (not #114) is a volunteer "call station," and cannot hope to serve the additional 25,000 people brought to Leona Valley by this project. Who will pay for the additional hires, the

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Leona Valley Town Council

police, fire, emergency services needed for Ritter Ranch? (cf. K1 & M4.)

O. Aesthetics

O1: (NO) We disagree - should be YES. Both the Ritter Ridge and the Portal Ridge are visible from the valley floor and from Elizabeth Lake Road. And again, this Amargosa Creek project cannot be separated from the developments which it is designed to serve. The Ritter Ranch contains quite a large area of hillsides which are involved in the project by virtue of the way they will be destroyed when the developers come in with their heavy equipment and grade almost all of them level. The beautiful alluvial fans, the valley floor sloping gently to the Amargosa Creek, the rolling hills and stately mountains, the meadows and marshes, the multiplicity of vegetation and rock forms in the Amargosa canyon, and the Amargosa creek itself - these will all be ruined for the rest of time. Once destroyed, they cannot be rebuilt.

O2: (MAYBE) We strongly disagree - should be YES. (Please see O1 above.) To most of the residents of Leona Valley, clustered tract homes on suburban and city size lots surrounded by block walls, are definitely "an aesthetically negative site" (and sight!) Many of us also think that golf courses are ugly: they are artificial, absolutely urban, and violate every principle of Nature and the seasons. A significant view vista will be disturbed, not because we can't see something, but because we can. The "City of Ritter Ranch" will be visible from miles around, both by day and by night. It is not a badly-designed plan, but it is totally incompatible with the existing aesthetics of Leona Valley.

P. Archaeological/Historical/Paleontological

P1: (YES) We strongly agree, and urge that every measure be taken to investigate both what currently still exists on the subject property and what may have been destroyed, either by theft or vandalism. Both artifacts and endangered vegetation have been known to disappear when they find themselves in the unfortunate path of a developer's bulldozer.

Q. Public Controversy

Q1: (YES) WE STRONGLY AGREE! Most of the residents of Leona Valley are firmly opposed to any development which threatens our current land uses and low-density rural environment and ecosystem, and the Ritter Ranch development is at the top of this list. Palmdale is well aware of our objections, as is the county. We will continue to protest the size and scale of the current Amargosa Creek project and the Ritter Ranch Specific Plan to which it is attached.

R. Utilities

R1 a-d: (MAYBE and N/A) We disagree, and are confused by the contradiction between what is checked on the initial study and the descriptive paragraph which suggests that the answer should be NO to each utility. The most critical component is water. There hasn't been a developer that AVEK doesn't like, and this agency continually reassures the public that there is plenty of

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water. How can we believe this when we know that the groundwater is being depleted at a rate five times that of its replenishment, when the entire state continues to experience a severe drought, when the city of Los Angeles is investigating out-of-state water sources, when our California farmers are being cut back by 50% or more, and when most cities with either a water problem or a social conscience have water rationing? We strongly agree that utilities will be impacted, and urge that the EIR take a regional approach to impact. If it's appropriate for the Ritter Ranch to use a regional approach to justify the need for a golf course and other amenities, then it's certainly appropriate to take a regional approach to water and other necessities.

S. Mandatory Findings of Significance

S1: (YES) We absolutely agree. This project and the proposed high-density developments which it is intended to serve are incompatible with rural business and local economic survival. There are minimum acreage requirements to support orchards, horse breeding and training facilities, cattle, etc., and we foresee nothing but destruction to these businesses when suburbia comes to Leona Valley. We believe that almost every aspect of the quality of our environment will be significantly degraded. Indeed, the future of our ability to keep livestock may be at stake. Los Angeles City is currently entertaining an ordinance which will disallow the keeping of horses within city limits - is Palmdale soon to follow? Leona Valley is at present quite diverse, with many home occupations and businesses. Palmdale forbids home occupations, and the intolerance of city people for country living is well known. We foresee the destruction of not only our diversity, but our way of life. Does Palmdale intend and desire this effect?

S2: (YES) Again, we agree. The obvious short-term goal is money. The City is in debt and developer fees are one way to ease that debt. Unfortunately, the impression given by the City Council is that it has no philosophy of planning other than to follow the dollar: the boundaries of the City will be drawn to include any new pot of gold. We hope that this impression is incorrect, and that the City will NOT write Letters of Overriding Consideration when it finds that many of the impacts are unmitigatable, but will instead require that the developers modify their plans so that they do not have significant impacts on the environment.

S3, a-d (MAYBE); S3, e (NO): We disagree - all should be YES. The cumulative effects of the project will be enormous - the character and topography of Leona Valley will be completely changed, in numerous ways, as described above.

S4: (NO) **WE ABSOLUTELY DISAGREE!** The proposed project and the increased growth which it is designed to facilitate will cause substantial adverse effects on human beings, both directly and indirectly. We have already described a number of these effects, including but not limited to economic, physical, cultural, spiritual, emotional, etc. For the past three years we have been engaged in a struggle to preserve our rural environment. We are up against megabucks, big, big money, major power and influence. We are fighting developer mercenaries who get paid for being nasty and aggressive, and who appear to have little or no conscience or ethics. And, we are alone in our fight - politicians give lip service to helping us, but the bottom line is

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Leona Valley Town Council

that both the County and the City of Palmdale support the developers. This project and the projects that it is designed to service have already caused many of us adverse effects on our mental and physical health, our jobs, our families, our homes, and our ability to relax and enjoy life. At this stage in the game, our only source of protection is the City of Palmdale. If mitigation and change in design is not required by the City, then we can only anticipate a deeply distressing and terribly sad future for ourselves and for our children, here in Leona Valley.

All the above notwithstanding,

We urgently request that any forward motion of the Amargosa Creek Improvement Project and Assessment District - Phase II be delayed until such time as the proposed Ritter Ranch Specific Plan and the Specific Plans for City Ranch and Santa Fe Springs have been approved. IF APPROVED "AS IS," THIS PROJECT WILL CREATE A JUSTIFICATION FOR HIGH DENSITY IN EACH OF THESE RESIDENTIAL DEVELOPMENTS.

To approve this project before evaluating the developments which created and require it is to act prematurely. WE URGE YOU TO WAIT UNTIL ALL OF THE RELEVANT DEVELOPMENTS PROPOSED HAVE PASSED THE APPROVAL PROCESS AND HAVE BEEN GIVEN AN APPROVED LAND USE/DENSITY. ONLY THEN WILL WE KNOW HOW WIDE THE ROAD NEEDS TO BE.

City of Lancaster

44933 North Fern Avenue
Lancaster, California 93534
805-723-6000



Wm. G. Pursley
Mayor

George Lee Root
Vice Mayor

Rev. Henry W. Hearn
Councilman

Arnie Rodio
Councilman

George S. Theophanis
Councilman

September 25, 1990

City of Palmdale
Planning Department
Attn: Laurie Lile
38306 9th Street East
Palmdale, California 93550

Subject: Amargosa Creek Improvement Program and Assessment District - Phase II, the Extension of Utilities, Roadway Improvements and Channel Improvements along Amargosa Creek, from 25th Street West to Godde Hill Road NOP

Dear Laurie:

Thank you for the opportunity to review the Notice of Preparation and Initial Study for the above referenced project. The following comments are from our City Engineer, Ken Putnam:

- The Amargosa Creek Watershed (including the project area and the area downstream of 25th Street West) should be investigated to determine the feasibility of drainage reclamation and groundwater recharge of the main basin (Lancaster Subunit) of the Antelope Valley Groundwater Basin. Should such be determined to be feasible, the project should include identified needed facilities.

If you have any questions regarding these comments, please direct them to Mr. Putnam at (805) 723-6088. Also, we would appreciate the opportunity to review the Draft EIR when it becomes available for public review. Please submit the Draft EIR to my attention at the above noted address.

Sincerely,

Susan J. Barnett
Environmental Coordinator
Department of Community Development

SB

cc: Ken Putnam, City Engineer

11-14-90

TO : CITY OF PALMDALE
AMALGOSSA SCOPING MTR 11/14/90

I'M SUBMITTING THE FOLLOWING CONCERNS FOR CONSIDERATION IN PREPARATION FOR YOUR EIR ON THE AMALGOSSA CREEK / ELIZABETH LK ROAD WIDENING.

100' WIDE ROAD WITH CENTRAL DIVIDER AND ASSUMING A NORTH/SOUTH FENCE ADJACENT TO THE ROAD WILL POSE THE FOLLOWING PROBLEMS ;

- RESTRICT / STOP EXISTING WILDLIFE CROSSINGS THUS UPSETTING ECOLOGICAL BALANCE, IE; PREDATOR HABITS AND RESULTING IMBALANCES.
- DOES NOT PROVIDE FOR EQUESTRIAN TRAFFIC ON THE NORTH SIDE OF ELIZABETH LAKE ISL. AND CENTER ISLANDS WOULD INHIBIT CROSSINGS.
- MAJOR ROAD (ELIZ. LAKE RD) WOULD POSE PROBLEMS FOR ADJACENT INGRESS / EGRESS, POSS. NECESSITATING AN ADJ SERVICE ROAD TO FUNNEL SIDE TRAFFIC TO SET INGRESS / EGRESS POINTS.

I WOULD ALSO LIKE TO GO ON RECORD AS BEING OPPOSED TO THIS PROJECT SINCE IT'S SOLE PURPOSE IS TO PROVIDE DEVELOPMENT EXPANSION IN THE LEGNA VALLEY UNDER THE GUISE OF FLOOD CONTROL.

ALSO THE TRAFFIC STUDY CONDUCTED BY DKS 7/90 CLAIMS WITHOUT RITTEN & CITY PLANCH PROJECTS THE ELIZABETH LAKE ROAD WILL NOT SUPPORT 2010 TRAFFIC DEMANDS FROM THE OTHER DEVELOPMENTS.

OVER ...

IT SHOULD BE NOTED THAT THE "OTHER"
SMALLER DEVELOPEMENTS CANNOT AFFORD THE
ELIZABETH LAKE RD PROJECT AND WOULD MOST
LIKELY NOT BE ABLE TO GO FORWARD WITH OUT
THE BITTER & CITY RANCH PROJECTS FUNDING THIS
PROJECT.

AGAIN, THIS PROJECTS PRIME PURPOSE IS
IN SUPPORT OF DEVELOPEMENT TO WHICH I'M OPPOSED,

THANK YOU FOR CONSIDERATION.

MARIA JOHNSTONE
8353 ELIZABETH LAKE RD
LEONA VALLEY, CA 93551

805-270-1402

PAUL AND ALICE SLOANE
Windancer Ranch
39830 86TH Street West
Leona Valley, CA 93551

RECEIVED
NOV 2 1990
PUBLISHED WITH THE PRESS

November 14, 1990

Ladies and Gentlemen:

Cities today are no longer an individual community - they are part of a global community. They must look beyond their own immediate needs and aspirations to what is good for our planet, and to what is good for all of its living things. With this in mind, it is time for the City of Palmdale to stop viewing the land in the Antelope Valley as a place for rampant growth. Other cities have failed to do this and their chance to preserve natural geological features and plant and animal habitats are now lost forever. In most cases, they regret not having the foresight to do this and are now scrambling to undo, if at all possible and at great expense, the havoc they have wrought. Unfortunately, delicate ecological systems once destroyed, can never be restored.

The desert is a delicate ecological system. Continued growth without responsible husbandry, will more than likely put Palmdale in that same group of cities that must try to repair the damage they have done.

The skys of the Antelope Valley are no longer crystal clear. With increased traffic, what will they be like in the years to come? How then will we be scrambling to clean them up, and at what cost?

Our water supply is stretched to the limit with rationing a very real possibility. With many many more people, where will the additional water come from? And where will the huge amount of money come from that will be required to bring that water here?

Trash disposal is no longer a problem to ignore. Cities everywhere are running out of landfill sites. With an additional large population increase, Palmdale is sure to be in the predicament of asking 'where can we safely dispose of mega-tons of additional trash'? The attitude of 'not in my neighborhood' still prevails. The cost of disposal promises to be staggering.

And who can put a price on the loss of the natural habitats of our native plants and animals? These God-given delights are food for our spirits and can never be replaced if lost. Mankind will be infinitely poorer without them.

Leona Valley is a place in harmony with the Earth. To bring big city development into this unique environment threatens the delicate ecosystem. You, as public officials, are responsible for the health of our planet. To be the cause of the death of even one creature or wildflower because you didn't care enough for Mother Earth, would diminish you as human beings.

Do you want to be known in the future as the governing body that only saw new money for the city's coffers and turned your backs on your responsibility to our earthly home? Or, do you want to go down in history as the leaders with vision...as men who knew that we are neighbors to the world, and who left a proud legacy to the people of the future.

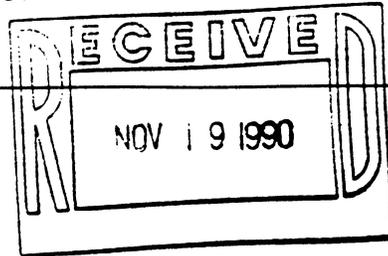
Ladies and gentlemen, make a start. Start in your own backyard. Make a decision to keep Leona Valley rural.

Thank you,



Alice Sloane

Paul & Alice Sloane
39830 86th Street W
Leona Valley, CA 93551
(805) 270-0375



November 16, 1990

Ms. Laurie Lile
Associate Planner
City of Palmdale
38306 9th Street East
Palmdale, CA 93550

Dear Ms. Lile:

Enclosed is a copy of the past 5 years rain/snowfall record for Leona Valley that you requested at the Amargosa Creek Scoping meeting November 14th. I began recording the rain and snowfall on October 21, 1985 and I have continued to measure and record this information with the best possible accuracy to date.

It is interesting to note that the wettest months over the past 5 years are October thru May. If I recall correctly your EIR study was done during the fair weather months of April through September. I agree with the suggestion made at the meeting to do a four seasons EIR study.

I had not made a practice of recording the ice conditions as an ongoing project, however, I did note the 1 -1/8" build-up of ice in large containers of water during December of 1987. Since then I have noted the first ice which has been in October of 1989 & 1990.

Since moving to Leona Valley 10 years ago, I can testify to the fact that we get snowed in nearly every year.

One other subject that I consider myself very knowledgeable on is the traffic on Bouquet Canyon Road. I have been driving this road from end to end for 10 years. The change in traffic and the demographics of the drivers has changed dramatically since the Quartz Hill area has been developed. Bouquet Canyon is the alternate route of choice to these folks because HWY 14 is so crowded.

Anyone with a lick of common sense would realize that an enlarged Elizabeth Lake Road dumping out on Bouquet Canyon Rd will attract even more drivers to use the Bouquet Canyon alternate.

I have no concept at this time on what your EIR traffic study shows regarding the projected impact on Leona Valley and Bouquet Canyon, however, I respectfully request that this study include input from the California Highway Patrol, Los Angeles County Sheriff Dept, and CALTRANS. I have no doubt if asked, these agencies will report a rapidly rising accident and death rate in Bouquet Canyon, and report Bouquet Canyon Road to be unable to handle the projected increased volume of traffic, especially during the wet, ice, and snow seasons.

Thank you for the opportunity to submit this information, it is my sincere hope that it will be used wisely.

Cordially,

A handwritten signature in black ink, appearing to read "Paul G. Sloane".

Paul G. Sloane

cc: Leona Valley Town Council
Mr. John Mayfield - Palmdale Planning Commission
Mr. Bob Toone - Palmdale City Administrator
Ms. Ruth Benell - LAFCO
Supervisor Michael Antonovich

| Month Day | Rain Fall | Month Day | Rain Fall | Month Day | Rain Fall | Month Day | Rain Fall | Month Day | Rain Fall | Month Day | Rain Fall | Month Day | Rain Fall |
|-----------|-----------|-----------|------------|-----------|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| 2-21 | .25 | 4-3 | .2 | 12-25 | .75 SNOW | 9-29 | T. SHWS | | | | | | |
| -9 | 2.00 | 5-20 | .4 | 12-27 | 1.5 SNOW | 10-20 | 1" ICE | | | | | | |
| -25 | 1.20 | 9-2 | .2 | 1989 | | | | | | | | | |
| -30 | .80 | 10-20 | 1.2 | 1-1 | 1 3/4" SNOW | | | | | | | | |
| -4 | .40 | 10-29 | .2 | 1-3 | .2 | | | | | | | | |
| NOV | 1" | 10-31 | 2.4 | 1-5 | .3 | | | | | | | | |
| 486 | | 11-1 | .4 | 1-7 | .2 | | | | | | | | |
| 1-30 | 2-2 | 11-4 | .5 | 2-4 | 1.2 | | | | | | | | |
| 1-21 | 1.2 | 11-17 | .4 | 2-8 | 2" SNOW | | | | | | | | |
| 2-12 | .5 | 12-4 | .7 | 2-7 | 6" " | | | | | | | | |
| 2-12 | .3 | 12-6 | .2 | - | 14" TL | | | | | | | | |
| 2-14 | 2.0 | 12-14 | 1 1/8" ICE | 3-1 | .2 | | | | | | | | |
| 2-15 | 1.8 | 12-16 | 9" SNOW | 5-9 | SHWS | | | | | | | | |
| 2-21 | .7 | 12-17 | 14" SNOW | 5-10 | .3 | | | | | | | | |
| 2-8 | 1.4 | 12-29 | 2" " | 5-15 | .1 | | | | | | | | |
| - | 1.0 | 1988 | | 9-16 | .2 | | | | | | | | |
| - | .5 | 1-5 | .4 | 9-19 | .3 | | | | | | | | |
| - | 2.1 | 2-2 | .4 | 10-21 | .1 | | | | | | | | |
| -5 | .1 | 2-23 | .4 | 10-22 | .3 | | | | | | | | |
| -7 | .2 | 2-29 | .4 | 10-26 | 1 1/2" ICE | | | | | | | | |
| 1-17 | 1.4 | 3-1 | .2 | 11-25 | .5 | | | | | | | | |
| 2-6 | .1 | 4-14 | .7 | 1990 | | | | | | | | | |
| 2-7 | .6 | 4-19 | 1.2 | 1-2 | .3 | | | | | | | | |
| 2-8 | .2 | 4-20 | .2 | 1-12 | 1.3 | | | | | | | | |
| 4-8 | 1.2 | 4-23 | .3 | 1-15 | .3 | | | | | | | | |
| NOV 16 | .4 | 5-5 | 3" SNOW | 1-1 | 1 1/2" SNOW | | | | | | | | |
| 17 | .2 | 5-20 | .1 | 1-30 | .2 | | | | | | | | |
| 2-9 | .3 | 7-20 | T. STRM. | 2-4 | 2" SNOW | | | | | | | | |
| 2-13 | .3 | 2-20 | . | 2-17 | 1.0 | | | | | | | | |
| 2-20 | FEURER | 11-13 | .8 | 2-18 | 1 1/2" SNOW | | | | | | | | |
| - | 1/2" SNOW | 11-23 | .1 | 3-4 | LT SNOW | | | | | | | | |
| -5 | 2" SNOW | 11-24 | .2 | 2-11 | .25 | | | | | | | | |
| -6 | 1.0 | 2-15 | 3" SNOW | 3-22 | .3 | | | | | | | | |
| -14 | .3 | 12-16 | 1.2 SNOW | 2-3 | SHWS | | | | | | | | |
| 2-22 | .7 | 2-20 | 1.1 | 2-1 | T. SHWS | | | | | | | | |

1985 }
 2-21 TO } 4.6" RAIN 1.0" SNOW
 2-31 }
 1986 } 16.7" RAIN 0" SNOW
 1987 } 2.5" RAIN 18.9" SNOW
 1988 } 7.5" RAIN 3.75" SNOW
 1989 } 3.9" RAIN 15.75" SNOW
 1990 }
 YTD } 3.7 RAIN 3.5" SNOW
 11-15-90 }

T/STRM = THUNDER STORMS
 Shws = RAIN SHOWERS - NOT MEASURABLE
 Tshws =

NOTE:
 1 1/8" ICE 12-14-87
 1 1/4" ICE 10-26-89
 1 1/2" ICE 10-20-90



Green Valley Town Council
Post Office Box 846
Green Valley, California 91350

President
Terry Kaldhusdal

Vice-President
Jeanne Nelson

Treasurer
Phillip Brazier

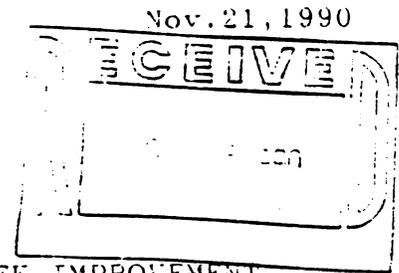
Recording Secretary
Jerry Lee Streatly

Corresponding Secretary
Richard L. Bultman

City of Palmdale
Planning Department
38306 9th. Street East
Palmdale, CA 93550

ATTN: Laurie Lile

SUBJECT: E.I.R. for the AMARGOSA CREEK IMPROVEMENT
PROJECT AND ASSESSMENT DISTRICT - PHASE II



Dear Ms. Lile:

After reviewing the initial study of the subject project by the Leona Valley Town Council and as presented at the E.I.R. SCOPING meeting at the Senior Citizens Center on 10th. East. Palmdale on Nov. 14, 1990.

We also wish to place on record that the project is not compatible with the Antelope Valley Areawide General Plan for the unincorporated areas such as Green Valley, Bouquet Canyon and Leona Valley.

The proposed "straightening" and widening of Elizabeth Lake Road with the resultant projected 25,000 inhabitants and 45,000 vehicular trips per day of the Ritter Ranch project is of great concern to Green Valley.

The proposed Elizabeth Lake Road improvement ending at approximately Bouquet Canyon, will create a traffic bottle neck with overflow traffic channeling down scenic Bouquet Canyon which is not designed to handle a large volume of vehicles in a safe manner. Also the overspill will also funnel down San Francisquito Canyon Road to further the already hazardous traffic conditions.

Looking forward to hearing from your office. Our next Town Council meeting is December 3, 1990.

Sincerely

Green Valley Town Council
Phillip J. Brazier, Treasurer, Chairman Traffic Committee

B. Geotechnical Engineering Report

**GEOTECHNICAL ENGINEERING REPORT
CITY OF PALMDALE ASSESSMENT DISTRICT 90-1
ELIZABETH LAKE ROAD
30TH STREET WEST TO 90TH STREET WEST
PALMDALE, LOS ANGELES COUNTY, CALIFORNIA
VOLUME I**

Text
Geologic Data (Appendix A)
Standard Grading Specifications (Appendix D)

**PREPARED FOR
RITTER PARK ASSOCIATES**

B-3345-L03

MARCH 29, 1991

DRAFT



Buena Engineers, Inc.

AN EARTH SYSTEMS, INC. COMPANY

1024 WEST AVENUE M-4 • P. O. BOX 2866 • LANCASTER, CALIFORNIA 93539 • (805) 948-7538

March 29, 1989

B-3345-L03

Ritter Park Associates
849 West Palmdale Boulevard
Palmdale, California 93550

Attention: Mr. Steven Penn

Subject: **GEOTECHNICAL ENGINEERING REPORT**
City of Palmdale Assessment District 90-1
Elizabeth Lake Road
30th Street West to 90th Street West
Palmdale, Los Angeles County, California

Presented in the following text is a Geotechnical Engineering Report prepared, as authorized, for a portion of the proposed Assessment District 90-1 improvements for Elizabeth Lake Road and Amargosa Creek from 30th Street West to 90th Street West.

This report summarizes our observations of on-site geotechnical conditions, and provides conclusions and recommendations based upon our analyses of data obtained from field exploration and laboratory testing programs. The data provided in this report should be utilized during project design refinements. No guarantee or warranty is made or implied that any additional subsurface exploration, laboratory testing, and engineering analyses will not change the conclusions or opinions included in this report.

The conclusions and recommendations contained in this report were based upon our understanding of the proposed project and on our analyses of the data obtained from the field and laboratory testing programs. These analyses and recommendations are in accordance with the applicable standards of care for our profession at the time this report was prepared.

ENGINEERING OFFICES:

VENTURA
(805) 642-6727

LANCASTER
(805) 948-7538

FIELD OFFICES:

BAKERSFIELD
(805) 327-5150

SANTA BARBARA
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SAN LUIS OBISPO
(805) 544-6187

March 29, 1989

B-3345-L03

This report completes our scope of services in accordance with our agreements. Other services which may be required such as final design reports, plan review, additional geotechnical evaluation, and grading observation are additional services and will be billed according to the fee schedule in affect at the time the services are provided.

We appreciate this opportunity to be of service. If you need clarification of the information contained in this report, or if we can be of additional service, please contact the undersigned.

Respectfully submitted,

BUENA ENGINEERS, INC.

Reviewed by:

Bruce A. Hick
R.C.E. #45784
Expires 12/31/94

Clayton R. Masters
R.G. #4943

Daniel Schneidereit
Project Geologist

Mark S. Spykerman
C.E.G. #1174

cc: 8-Ritter Park Associates (draft copies only)

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APPENDIX A

Geologic Data

Site Plan and Geologic Map (Plates A-I to A-L)

Geologic Cross-Sections A-A' to R-R' (Plates A-LI to A-LXVIII)

Logs of Test Pits (Plate A-LXIX)

Logs of Borings

APPENDIX B

Summary of Laboratory Tests

APPENDIX C

Slope Stability Analysis

APPENDIX D

Recommended Grading Specifications

March 29, 1991

B-3345-L03

**GEOTECHNICAL ENGINEERING REPORT
CITY OF PALMDALE ASSESSMENT DISTRICT 90-1
LAKE ELIZABETH ROAD
30TH STREET WEST TO 90TH STREET WEST
PALMDALE, LOS ANGELES COUNTY, CALIFORNIA**

INTRODUCTION

Presented in the following text is a Geotechnical Engineering Report, prepared, as required by the City of Palmdale, relative to proposed Assessment District 90-1 improvements for Elizabeth Lake Road and the Amargosa Creek from 30th Street West to 90th Street West. The purpose of this report is to provide conclusions and recommendations regarding geologic and geotechnical engineering aspects for the proposed road and creek improvements.

PROPOSED DEVELOPMENT

The proposed improvements includes the realignment and widening of Elizabeth Lake Road, from approximately 30th Street West to 90th Street West. This approximate six mile stretch is planned as a two to four lane major arterial road (Assumed Traffic Index = 10). Based on maps prepared by Keith Engineering, dated February 21, 1991, the majority of the planned roadway will follow the existing road alignment and will be constructed with minimal cut or fill (less than 20 feet). Road embankment cut and/or fill slopes are planned to be finished at 2:1 (horizontal to vertical) slope gradients or flatter. Representative road profiles are shown on Geologic Cross Sections A-A' to R-R' (Plates A-LI to A-LXVIII). The most significant proposed cut is 55 feet high and is located at station number 405 (Plate A-III). The highest proposed fill slope is 50 feet high and is planned at stations 373 to 382 (Plate A-VI). Two potential borrow areas for fill material for the proposed road alignment have been identified (see Plate II of Reference No. 2).

Modification of the existing Amargosa Creek drainage channel is also planned which will include channel improvements, and the construction of

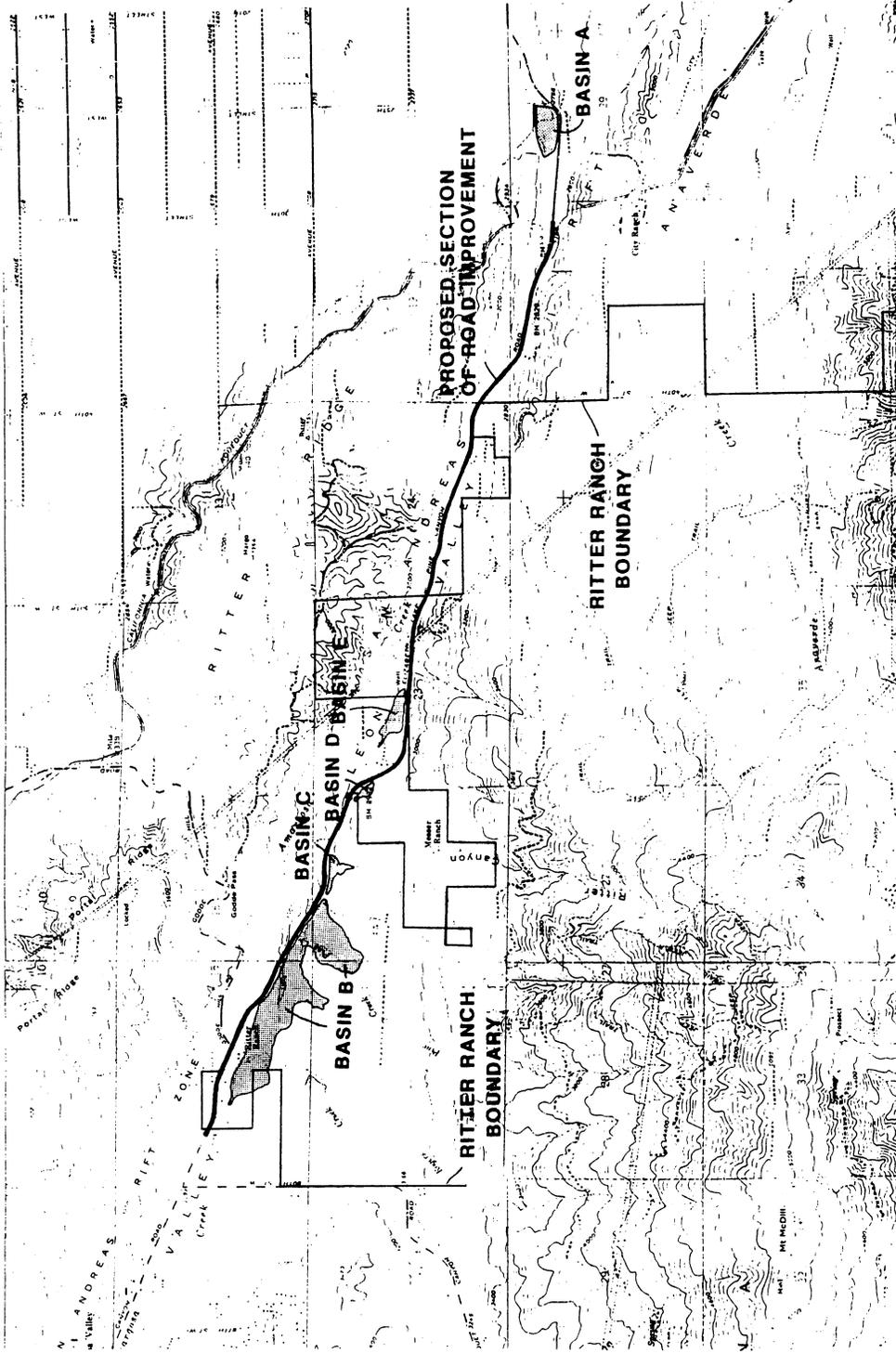
five detention basins (see Location Map, Figure 1, page 3). A proposed embankment (approximately 30 feet high) is planned where Amargosa Creek crosses Elizabeth Lake Road just east of Godde Hill Road (approximately Stations 380 to 407). This embankment is also planned to provide detention of stormwater runoff from the adjacent Ritter Ranch project. Specific geotechnical recommendations for this embankment were provided in separate reports (see References No. 1 and No. 3) prepared by Buena Engineers, Inc. The eastern part of this basin will be modified by grading as shown on Plates A-XXXII to A-XLVI.

Another basin (Basin A) is proposed north of the road realignment at approximately 25th Street West (see Plate A-L). Slopes for this basin are preliminary planned at 3:1 (horizontal to vertical). Three additional basins are located at approximately 65th Street West (Basin C), 60th Street West (Basin D), and 55th Street West (Basin E). The proposed road alignment will form these basins with no additional proposed grading to these basin areas (see Plates A-XLVII, A-XLVIII, and A-IL).

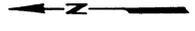
FIELD EXPLORATION

The field exploration for this project was performed between October 1990 and February 1991, and consisted of geologic mapping and subsurface exploration. Preliminary geologic data was plotted on base maps (scale: 1"=100') provided by The Keith Engineering, dated October 30, 1990. Data were subsequently plotted on the final plans (scale: 1"=40'), dated February 21, 1991, as we received them from Keith Engineering (Plates A-I to A-L). A portion of our exploration was performed in June and July 1990, for the proposed embankment east of Godde Hill Road. A separate report was prepared with specific recommendations for this embankment (see Reference No. 1).

A total of 116 exploratory soil borings were drilled to a maximum depth of 80 feet below the existing ground surface with a CME 55 truck-mounted drill rig utilizing six inch diameter continuous flight auger or eight inch diameter, hollow-stem auger in accordance with generally accepted geotechnical exploration procedures (ASTM D1452). Sixty-four of the borings were excavated along the proposed road alignment, 45 borings were excavated in basin areas and seven borings were excavated in the potential borrow areas.



BASE MAP USGS SLEEPY VALLEY 7.5' QUAD, 1958 & RITTER RIDGE 7.5' QUAD, 1958, PHOTOREVISED 1974



DRAFT

FIGURE 1

| | |
|--|--------------------|
| LOCATION MAP | |
| AMARGOSA AREA ASSESSMENT DISTRICT 90-1 | |
| ELIZABETH LAKE ROAD | |
| LOS ANGELES COUNTY, CALIFORNIA | |
| BUENA ENGINEERS, INC. | |
| DATE: | JOB NO: B-3345-L03 |

Bulk disturbed samples of the subsurface soils were obtained from cuttings developed during drilling of the exploratory test borings. These samples were secured for classification and testing purposes and represent a mixture of soils within the noted depths.

Relatively undisturbed soil samples were secured from within the test borings using a three inch O.D. ring sampler (ASTM D3550). The sampler shoe is similar to the type specified in ASTM D1586. The sampler was driven by a 140-pound hammer falling approximately 30 inches (ASTM D1586). The number of blows required to drive the sampler one foot was recorded in six inch increments. Recovered soil samples were sealed in plastic containers and transported to the laboratory for further classification and testing.

The collection of disturbed soil samples from within the test borings was also performed by using a Standard Penetration Test sampler (ASTM D1586). The Standard Penetration Test is a split spoon sampler having a 1-3/8 inch inside diameter. The sampler was driven by a 140 pound hammer falling approximately 30 inches (ASTM D1586). The number of blows required to drive the sampler 18 inches was recorded in six inch increments. The number of blows required to drive the sampler the final 12 inches is presented on the Log of Boring. Recovered soil samples were sealed in plastic containers and transported to the laboratory for further classification and testing.

The Logs of Test Borings, included in Appendix A, represent the interpretation of the field logs prepared for each boring by our engineering staff, along with their interpretation of soil conditions between samples and results of laboratory tests (NOTE: Boring BB-31 was not conducted due to a boring numbering error). While the noted stratification lines represent approximate boundaries between soil types, the transitions may actually be gradual.

Eleven test pits were excavated by a Ford 655 backhoe to obtain data where drill rig access was limited and for the evaluation of possible landslides that could impact the road realignment. All test pits were logged by a geologist from our office (see Test Pit Logs, Plate A-LXIX). Relatively undisturbed soil samples were obtained from the test pits using a three inch ring sampler (ASTM D3550).

Geophysical surveys were conducted to determine the thickness of the overburden alluvial deposits along twelve seismic refraction lines. The seismic refraction evaluation was performed utilizing a Nimbus ES-125, single channel, single enhancement seismograph. Energy input was via a ten pound sledge hammer striking a small metal plate placed on the ground surface. P-wave measurements were obtained to maximum depth of approximately 60 feet below existing grades for eight 200 foot long seismic lines, and 30 feet below existing grade for four 100 foot long seismic lines.

LABORATORY TESTING

After visual and tactile classification in the field, the soil samples were transported to the laboratory. The soil classifications were checked in accordance with the Unified Soil Classification System (USCS) and a testing program was established as follows:

- A. The soil samples and field logs were reviewed to assess which samples would be analyzed further.
- B. In situ moisture content and dry unit weight for soil core samples were developed in accordance with ASTM D2937.
- C. The relative strength characteristics of remolded (compacted) subsurface soils were estimated from the results of direct shear tests (ASTM D3080) conducted on samples remolded to approximately 90% of maximum dry density per ASTM D1557. Some remolded samples were placed in contact with water for at least twenty-four hours before testing and then sheared under normal loads ranging from 0.5 to 2.3 KSF. Other samples were remolded at approximate in-situ moisture contents and then sheared under normal loads ranging from 0.5 to 2.3 KSF to provide strength parameters for non-saturated soils.
- D. The relative strength characteristics of the subsurface soils were also estimated from the results of direct shear tests (ASTM D3080) conducted on relatively undisturbed samples obtained from the ring sampler. The samples were placed in contact with water for at least twenty-four hours before testing and then sheared under normal loads ranging from 0.5 to 2.3 KSF.

**DRAFT REPORT
FOR REVIEW ONLY**

- E. Consolidation tests (ASTM D2435) were conducted on relatively undisturbed samples obtained from the ring sampler. The maximum stress during testing was 9.2 KSF. The samples were saturated at 9.2 KSF to check the hydroconsolidation potential. The samples were unloaded to check the rebound potential.
- F. Soil Classification tests consisted of Particle Size Analysis: Mechanical Method and Hydrometer Method (ASTM D442).
- G. Additional tests consisted of Maximum Density-Optimum Moisture (ASTM D1557), Expansion Index (UBC 29-2), and R-Value (California Method 301).

Refer to Appendix B for test results. Information considered to be pertinent has been presented. References to ASTM or other test standards refer to the standard currently in effect.

GEOLOGIC CONDITIONS

The geology of the Leona Valley is dominated by the San Andreas fault zone. At least two traces of the San Andreas fault extend through Leona Valley in the vicinity of the proposed road alignment. The San Andreas fault zone is characterized by typical fault geomorphology that indicates recent fault activity, such as pressure ridges, off-set drainages and ridges, and linear ridges and valleys. Local lithologic units consist of Cenozoic alluvium and sedimentary rocks overlying pre-Tertiary granitic and metamorphic rocks.

Descriptive Geology

Lithologic units along, or near, the proposed road alignment consist of Pre-Tertiary Pelona and Portal Schist, Tertiary sedimentary rocks, and Quaternary alluvial deposits. Descriptions of the units encountered are as follows:

Pre-Tertiary Pelona Schist (pls): The Pelona Schist is exposed south of Elizabeth Lake Road and is outside the area shown on the Geologic Map (Plate A-I to A-L). This unit is located in the eastern borrow area (see

References No. 2 and No. 4) and is the dominant lithology south of Elizabeth Lake Road. The Pelona Schist consists of a quartz-feldspathic and biotite schist with marble, vein quartz and quartzite. On this site, the schist bedrock varies in color, with black, gray, white, greenish gray, and brown schists. The rock is well foliated and is highly folded and contorted. Foliation attitudes can vary greatly in short distances owing to the intense folding. Surface exposures of the schist are typically moderately to severely weathered and are classified as soft to moderately hard rock. Local marble beds are laminated to thinly interbedded with silicic beds, are locally brecciated and range from 10 to 20 feet thick. Laminated quartzite beds are less common. Another distinctive lithology is greenish gray, porphyritic schist, that probably represents pre-metamorphic dikes or sills. Actinolite, talc and chrysotile deposits are commonly observed adjacent to quartz veins, which appear to occur in the axes of larger folds where shearing is intensified.

Pre-Tertiary Portal Schist (pos): The Portal Schist is similar in lithology to the Pelona Schist, however, it occurs north of the San Andreas fault. The Portal Schist is exposed within the northern slope of eastern Leona Valley (see Plates A-XVI to A-XX). The foliation of the schist in this area generally dips moderately to steeply to the north.

Pre-Tertiary Granitic Rocks (gr): Granitic rocks are not exposed along Elizabeth Lake Road, however they are located south of the road in the western portion of the study area, including south of Basin B (Plate A-XLV) and the western borrow area (see References No. 3 and No. 5). The granitic rocks consist of light tan to white, moderately to completely weathered, fine to medium-grained granodiorite to granite. The granitic rock is typically highly jointed and fractured, especially adjacent to faults. Localized faults within the granitic rock appear as calcified joints or soil infillings. Weathering ranges from completely weathered to moderately weathered.

Tertiary Anaverde Formation: Several members of this Pliocene sedimentary formation occur on the site including the clay shale (Tac), the buff arkose (Tab), and the red arkose (Tar). The red and buff arkose are similar in composition to the gray arkose but are characterized by a light reddish tan and light brown colors, respectively. The clay shale member consists of gray to brown to black shale and siltstone, with

interbedded buff sandstone. The shale varies from thinly bedded fissile shale that is only moderately weathered to very severely weathered shale that appears more as a silty clay and sandy clay soil. Siltstone beds consist of brown fine sandy siltstone with clay. Sandstone beds consist of arkosic sandstone that is moderately to severely weathered. The shale units typically are folded and contorted, whereas the more resistant sandstone beds are more fractured and jointed.

The buff arkose (Tab) and clay shale (Tac) members of the Anaverde Formation will be exposed in the proposed south-facing cut slope shown on Plate A-III, where bedding attitudes are dipping to the north.

Previous experience indicates that material existing within the clay shale of the Anaverde Formation may have a "medium" or higher expansion potential.

Tertiary/Quaternary Ritter Formation (TQr): The Ritter Formation consists of white arkosic sandstone, with interbedded conglomerate and siltstone. It is well-bedded, moderately to highly weathered, and friable. Bedding is generally oriented with an east-west strike and a moderate to steep south to southwestward dip. The Ritter Formation is located south of the San Andreas fault and is exposed along the road alignment in several locations in the western part of the study area. It is the dominant lithology in the proposed western borrow area (see Reference No. 2 and No. 4).

Quaternary Harold Formation (Qh): The Harold Formation on this site consists of clayey silt, silty sand, sandy gravel, and sandy silt with clay. The Harold Formation is characterized by light brown to gray colors with abundant calcium carbonate as clast coatings, fracture infillings, blebs, and cemented fracture zones. Along Elizabeth Lake Road, the Harold Formation has limited exposure near the embankment for Basin B (see Geologic Map, Plate A-VI).

Quaternary Nadeau Gravel (Qn): The Nadeau Gravel consists of gravel ranging from small pebbles to boulders in a variably cemented, reddish brown to brown, clayey sand matrix. Interbeds consist of poorly consolidated, brown to yellowish brown, silty sand, gravelly sand, and sandy gravel. Clast lithology is predominantly schist and quartz. The Nadeau Gravel typically exhibits a "paleo B" soil horizon in the upper two

to three feet. The Nadeau Gravel is usually found on ridge tops within and adjacent to the main San Andreas fault zone and is mapped south of Elizabeth Lake Road on the Geologic Map, Plate A-VII. It is located in the western borrow area, where it caps ridges of underlying Ritter Formation (see Reference No. 2 and No. 4).

Quaternary Older Alluvium (Qoa): The older alluvium consists of a reddish to yellowish brown, clayey sand and silty sand with gravel. This unit is typically poorly bedded to massive, variably cemented, and medium dense to dense. The older alluvium also typically exhibits a "paleo B" horizon soil stratum. Exposures of older alluvium are more common in the western part of the study area.

Based upon the laboratory test results, portions of the older alluvial soil, within the top one to three feet, demonstrate a negligible to high tendency to hydroconsolidate (experience a significant loss in volume upon wetting, with or without additional loading). The older alluvial soil below three feet, within the depths tested, demonstrates a negligible to slight tendency to hydroconsolidate. Refer to Site Preparation and Grading Recommendations for recommended methods to mitigate the potential for hydroconsolidation.

Holocene Younger Alluvium: The younger alluvium consists of unconsolidated fluvial sands, silts, clays, and gravels deposited by relatively recent depositional processes. The younger alluvium is typically moderate yellowish brown, ranging from slightly silty to clayey fine to medium-grained sand, to sandy clays, to sandy silts and gravelly sands. Three younger alluvial soils have been identified as follows:

Undifferentiated younger alluvium (Qal) consists of unconsolidated sediments, composed of sands, silts, clays, and gravel, in the Amargosa Creek drainage and other subsidiary, east-trending drainages.

Quaternary fan deposits (Qf) consists of unconsolidated sediments identified on the basis of geomorphology. The sources of the fan sediments are the canyons and slopes north and south of the Amargosa Creek drainage.

Quaternary terrace deposits (Qt) are also identified based on geomorphology. They are topographically above the younger alluvium and, based on poorly developed pedological profiles, are probably younger than 11,000 years old.

Seismic refraction lines were performed in order to determine the depth of the alluvial materials. Table 1 (below) shows the seismic velocities, depth and the geologic units. The thickness of the alluvial materials in the between stations 300 to 250, appears to range from approximately 20 to greater than 40 feet.

TABLE I

| <u>Seismic Line No.</u> | <u>P-Wave Velocities (ft/sec)</u> | <u>Approx. Depth From Surface (ft)</u> | <u>Material Type</u> |
|-------------------------|-----------------------------------|--|-----------------------|
| S-1* | 1,100 to 1,250 | 0 to 8 | Qf |
| | 1,650 to 2,000 | 8 to 30 | Qal ? |
| | 4,000 | 30 + | Qal (saturated sand?) |
| S-2* | 1,300 | 0 - 50 | Qf/Qal |
| | 5,000 to 6,000 | 50 + | TQr |
| S-3* | 1,200 | 0 - 5 | Qf |
| | 1,600 | 5 - 30 | Qf |
| | 4,800 | 30 + | TQr (?) |
| S-4** | 1,500 | 0 - 8 | Qal |
| | 2,500 | 8 - 45 | Qal |
| | 7,500 | 45 + | TQr |
| S-5** | 1,250 to 1,400 | 0 to 10 | Qf/Qf |
| | 2,100 | 10 to 40 | Qt |
| | 5,400 | 40 + | TQr |
| S-6** | 1,200 to 1,500 | 0 - 4 | Qba |
| | 2,100 to 2,400 | 4 - 30 | Qba |
| | 5,400 to 5,500 | 30 + | Ta? |
| S-7* | 1,300 | 0 to 7 | Qal |
| | 2,500 | 7 to 16 | Qal |
| | 2,600 to 3,200 | 16 + | Qal (saturated sand?) |
| S-8** | 1,100 to 1,200 | 0 - 3 | Qal |
| | 1,300 to 1,500 | 3 - 32 | Qal |
| | 8,000 | 32 + | Tar (?) |

TABLE I (Cont.)

| Seismic Line No. | P-Wave Velocities (ft/sec) | Approx. Depth From Surface (ft) | Material Type |
|---------------------|-------------------------------|------------------------------------|---------------|
| S-9* | 1,100 | 0-7 | Qal |
| | 2,100 | 7-33 | Qt |
| | 7,000 | 33 + | Ta? |
| S-10** | 1,200 | 0-7 | Qal |
| | 1,500 | 7-30 | Qal (?) |
| | 5,800 | 30 + | Ta? |
| S-11** | 1,250 to 1,450 | 0-7 | Qal |
| | 2,300 | 7-21 | Qal |
| | 7,000 | 21 + | TQr |
| S-12** | 1,300 | 0-6 | Qal |
| | 1,700 | 6 to 38 | Qal |
| | 7,800 | 38 + | Ta? |

* denotes 100 foot long seismic line
 ** denotes 200 foot long seismic line

Based upon consolidation test results, portions of the younger alluvial soils, within the top one to eight feet, demonstrate a negligible to high tendency to hydroconsolidate (experience a significant loss in volume upon wetting, with or without additional loading). The younger alluvial soil below seven feet, through the depths tested, demonstrates a negligible to slight tendency to hydroconsolidate. Refer to Site Preparation and Grading Recommendations for recommended methods to mitigate the potential for hydroconsolidation.

Based upon the Expansion Index Tests (UBC 29-2), the younger and older alluvial soil are considered to have a "very low" (0-20) to "low" (21-50) expansion potential. Previous experience indicates that the material encountered within the clay shale of the Anaverde Formation may have a "medium" (51-90) or higher expansion potential

Quaternary Slopewash Deposits (Qsw): Slopewash deposits consist of unconsolidated sand, gravel and silt that mantle most of the slope areas of the site. The slopewash drapes over or intermingles with the alluvial deposits found beyond the base of the hillsides. Based upon geomorphic

evidence, slopewash deposits judged to be greater than three feet in thickness were located on the Geologic Map (Plate A-I to A-L). These deposits occur primarily in swales and may represent accumulations of many episodes of sheet flow deposition, or a single debris flow.

Slopewash deposits with significant pedological development, and judged to be greater than 11,000 years old, were encountered in Test Pit-10 (see Logs of Exploration Test Pits, Plate A-LXIX). These deposits are not located on the Geologic Map, but are shown on Geologic Cross Section B-B', Plate A-LII.

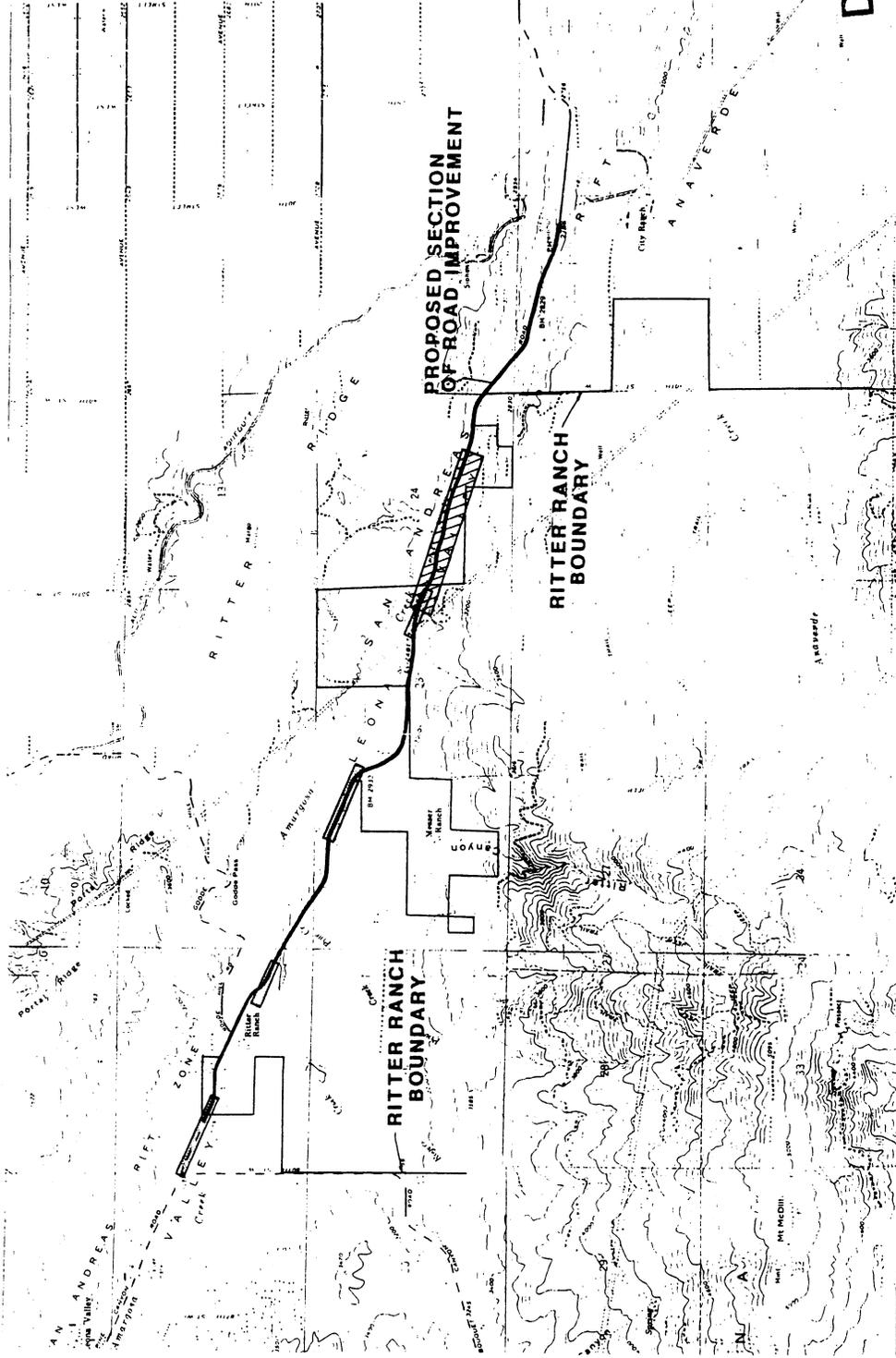
Quaternary Landslide Deposits (Qls): Landslide deposits along the road alignment consist primarily of disturbed bedrock with some slopewash deposit involvement as well. Landslides were mapped by geomorphic evidence obtained from aerial photographs and field observations. Landslides are discussed in greater detail in the slope stability section of this report.

Artificial Fill (af): The fill deposits consist of locally derived sand, silt and gravel used primarily for construction of existing Elizabeth Lake Road. Other roads, drainage berms, and building pads are also anticipated to consist of locally derived fill material.

Faults

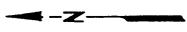
The San Andreas fault crosses, or traverses with, Elizabeth Lake Road in four locations within this evaluation area (see Geologic Hazards Map, Figure 2, page 13). The fault is readily apparent in the study area with numerous fault features, such as aligned ridges and valleys, and offset drainages being exhibited. The San Andreas rift zone contains a number of fault traces, and is up to 2,000 feet wide. The main or more recent fault traces are easily identified on the surface and on aerial photographs by the closed depressions, linear ridges, narrow troughs, and aligned topographic saddles on ridges. Structurally, the fault is a near vertical, right lateral, strike-slip fault. Relative movement within the San Andreas rift zone has resulted in topographic highs, or pressure ridges where deformation of the rock units has taken place.

DRAFT REPORT
FOR REVIEW ONLY



BASE MAP USGS SLEEPY VALLEY 7.5' QUAD, 1958 & RITTER RIDGE 7.5' QUAD, 1958, PHOTO REVISED 1974

-  AREA SUBJECT TO LANDSLIDE HAZARD
-  AREA SUBJECT TO FAULT RUPTURE
- ALONG MAIN TRACE OF SAN ANDREAS FAULT



VERTICAL DATUM: 1929
 HORIZONTAL DATUM: 1983
 SCALE: 1" = 400 FEET
 SOURCE: USGS TOPOGRAPHIC MAPS
 ORIGINAL GEODETIC CONTROL DATUM: 1929

DRAFT

FIGURE 2

| | |
|--|---------------------|
| GEOLOGIC HAZARDS MAP | |
| AMARGOSA AREA ASSESSMENT DISTRICT 90-1 | ELIZABETH LAKE ROAD |
| PALMDALE, LOS ANGELES COUNTY, CALIF. | |
| BUENA ENGINEERS, INC. | |
| DATE: | JOB NO: B-3345-L03 |

North of the western portion of the study area, the San Andreas fault has a prominent north branch. The north branch is located approximately 400 to 700 feet north of the main trace of the San Andreas fault. In the central and eastern portion of the study area, where Leona Valley narrows, the north branch is poorly defined, and is believed to be the buried contact between the Portal Schist and the Anaverde Formation. The north branch is considered to be active due to its obvious geomorphic expression and apparent displacement during the 1857 Fort Tejon earthquake.

The Powerline thrust fault is located south of the central portion of the study area. It is a south-dipping fault that has displaced Pelona Schist over the Ritter Formation. While the Powerline thrust fault is believed to have been active in the Pleistocene, it does not appear to be an active fault as it is displaced by several ancient (>11,000 years) landslides, and no evidence of renewed faulting has been observed.

GROUNDWATER

Groundwater levels in Leona Valley are locally shallow, especially along Amargosa Creek in the western portion of the study area. During our preliminary exploration for the large embankment east of Godde Hill Road and Basin B, we encountered artesian groundwater conditions. In this area the San Andreas fault forms a groundwater barrier (see Reference No. 1).

Along the proposed road alignment, groundwater was encountered in two borings, Boring RB-4 at 14 feet and Boring RB-40 at 35 feet. Boring RB-4 is located west of the latest planned road improvements. Boring RB-40 is located in the area of proposed Basin D, see Geologic Map, Plate A-IX. It is anticipated that groundwater conditions will vary along the road and channel alignments due to the presence of faults in the area, changes in topography and rock types, and seasonal rainfall. It should be noted that our exploration was conducted in a relatively dry period. Normal groundwater levels may be actually be higher than those observed during this evaluation. This is especially true within the main channel of the Amargosa Creek, where ground water levels can be expected to be at, or near the ground surface during wet periods.

GEOLOGIC HAZARDS

Geologic hazards which may affect the proposed road and channel improvements include ground surface fault rupture, intense ground shaking, liquefaction, other earthquake related hazards, slope instability, flooding, and erosion.

Fault Rupture

It is anticipated that ground surface fault rupture will occur in the future along the local section of the San Andreas fault. There are at least four areas where the San Andreas fault crosses, or is adjacent to the Elizabeth Lake Road alignment (see Geologic Hazards Map, Figure 2, page 13). Latest estimates indicate that the recurrence interval for major earthquakes along this portion of the San Andreas fault is approximately 160 years with a 60% probability of an earthquake occurring in this area in the next 30 years.

It is anticipated that for a magnitude 8+ earthquake occurring on the local segment of the San Andreas fault, that right lateral displacement ranging from 10 to 15 feet will occur. It is also anticipated that the displacement will be predominantly right-lateral with true vertical displacements anticipated to be less than five feet.

The zone of faulting along the main trace of the San Andreas fault in the vicinity of the road encompasses a zone approximately 50 feet wide. Based on newspaper reports relating to the 1857 Fort Tejon earthquake, zones along the fault up to 50 feet wide were disturbed on the surface. Therefore, for purposes of planning, it should be assumed that a zone up to approximately 50 feet wide will be affected by faulting along the main trace.

For the adjacent subsidiary faults in the vicinity of the Basin B embankment, it is estimated that future fault rupture for any one earthquake event would be on the order of one to two feet of right lateral displacement. We anticipate that displacements greater than five feet are unlikely as most of the stress will be relieved along the main trace of the fault zone.

Possible fault rupture may occur on the north branch of the San Andreas fault, however, it does not cross the proposed road alignment. The buried projection of the north branch crosses the Leona Siphon of the California Aqueduct, at the east end of the study area.

Ground Shaking

It is anticipated that an 8.3 magnitude earthquake will occur along the Palmdale segment of the San Andreas fault within the next 50 years. Modified Mercalli intensities in the study area for this earthquake are estimated to range from VIII to IX, with isolated cases possibly exceeding X. Intense ground shaking lasting at least 60 seconds is anticipated. Aftershocks with Richter magnitudes up to 7 are expected.

Horizontal peak bedrock acceleration values for an 8.3 magnitude earthquake along this fault are estimated to be greater than 1 g (g= acceleration due to gravity). Estimated horizontal repeatable peak bedrock acceleration values are approximately 0.5 g. Vertical acceleration values are estimated to range from approximately 1/3 to 2/3 of the horizontal acceleration.

Liquefaction

Liquefaction is the loss of soil strength in saturated cohesionless soil, generally due to seismic shaking. Soils most susceptible to liquefaction are loose, saturated (high water table), uniformly graded fine sands. Factors affecting the liquefaction potential include grain size distribution, in-place density, and depth to water. For the effects of liquefaction to be manifested at the surface, liquefaction usually must occur within the upper 30 feet. Therefore, saturated soil conditions must be present within the upper 30 feet.

Unconsolidated younger alluvial soils within the Amargosa Creek drainage vary from locally saturated at the ground surface, in the vicinity of Basin B, to saturation occurring at a depth greater than 30 feet in most of the remaining area of the road alignment.

At the time of our field exploration, groundwater levels were relatively deep due to the drought. However, during normal or relatively wet periods

of precipitation, it is anticipated that groundwater levels will be higher. Areas of potentially high groundwater conditions include the entire main drainage course of Amargosa Creek and low areas adjacent to Basins A, B, C, D, and E (see Figure 1, page 3).

Large stretches of the existing and proposed road alignments are underlain by shallow bedrock or older alluvial materials. Due to the high relative densities of these materials, liquefaction is not considered a hazard in those areas.

In most cases along the road alignment, the younger alluvial soils which might be subject to liquefaction, if saturated, occur in the upper 15 to 20 feet of soil profile. Below these depths, the in-place densities or sampling blowcounts are relatively high, which indicates very low to negligible potentials for liquefaction. Areas where these shallow, relatively low density soils exist include that portion of the road alignment from 90th Street West to Godde Hill Road and from the vicinity of Lazy T Ranch to 25th Street West. Areas between these two zones typically have shallow bedrock or older alluvium at or very near the surface. **The liquefaction potential of the main embankment at Basin B is discussed in Reference No. 1.**

Over most of the road alignment, the new roadway will be constructed of compacted engineered fill. Prior to placement of fill, loose native soils will be removed and recompacted as engineered fill. Compacted engineered fill will not be subject to liquefaction due to high relative densities.

Based on the above discussion, it appears that the native younger alluvial soils between the depths of 5 to 20 feet would be most susceptible to liquefaction. In order for liquefaction to occur, these soils must be saturated at the time of the earthquake. Under current conditions, only the soils near Boring RB-4 have shallow groundwater. However, the soils in the vicinity of the road alignment where Amargosa Creek will cross east of Lazy T Ranch may become saturated during flood stages. The probability of an earthquake occurring during flood stages is remote.

Potential impacts to the road alignment due to liquefaction could include possible settlement and lateral spreading. The two areas of possible liquefaction occur at each end of the road alignment, and are in relatively gently sloping or flat terrain. Lateral spreading in the eastern alignment

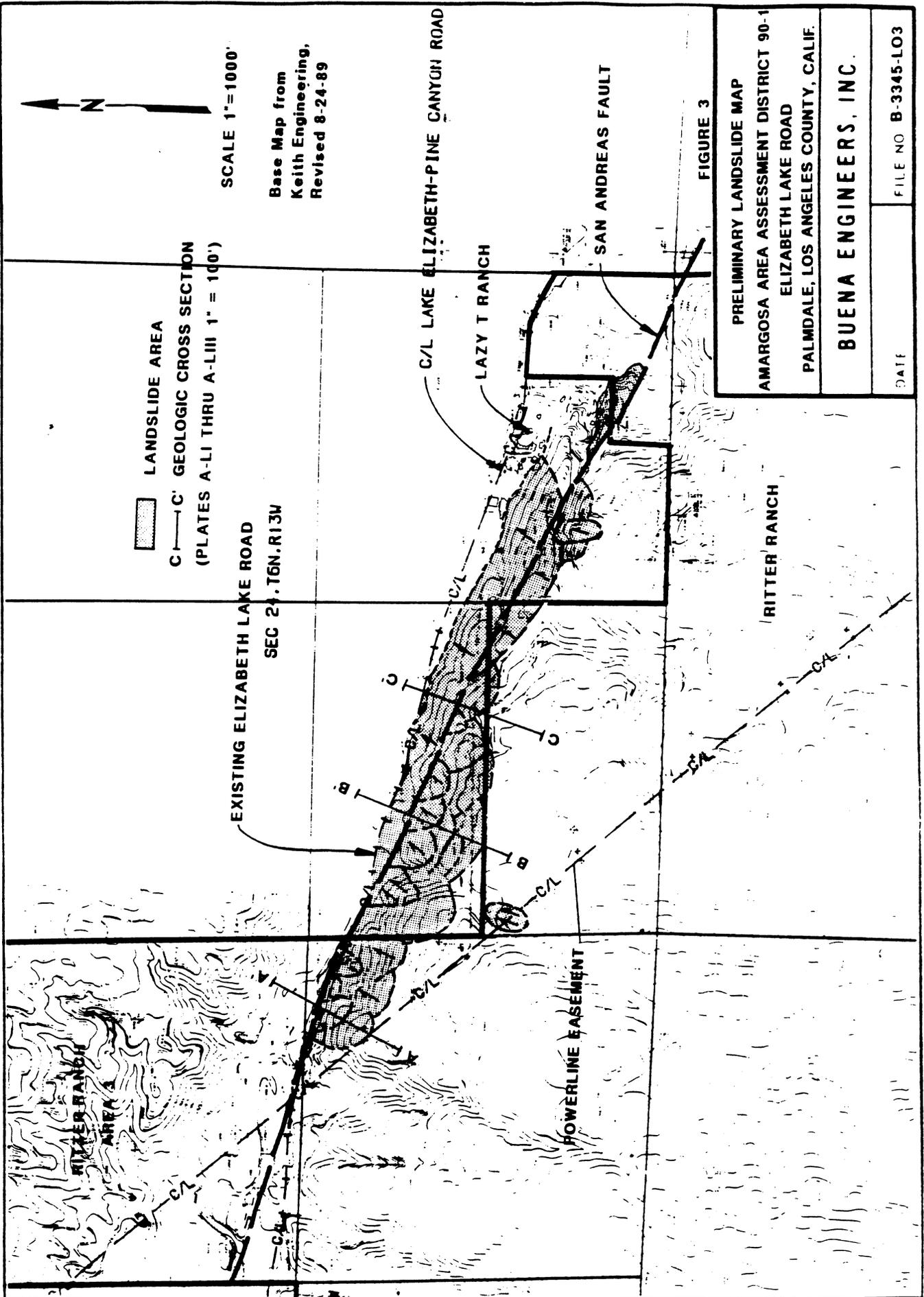
area is unlikely due to the flat topography. Lateral spreading at the western alignment can be considered a secondary hazards as this area is also likely to be damaged due to fault rupture.

Liquefaction-induced settlements are anticipated to be approximately 1% of the soil profile subject to liquefaction, if liquefaction does occur (approximately two inches (2") when considering a fifteen foot (15') profile). It is our opinion that potential liquefaction hazards can be considered to a secondary hazards with respect to the primary damage caused by fault rupture.

Slope Stability

Several landslides are located on the south side of Elizabeth Lake Road in the central portion of the study area, between the power line easement and Lazy T Ranch (see Preliminary Landslide Map, Figure 3, page 19). These landslides are adjacent to or could affect approximately 3,000 lineal feet of Elizabeth Lake Road. The limits of the landslides are based on geomorphic features observed on aerial photographs and in the field. The landslides are composed primarily of displaced Ritter Formation and Pelona Schist. The Powerline thrust fault, which is the contact of the two formations, provides a good marker to identify some of the landslides. Several test pits were excavated in the landslide area, however, only one (Test Pit-6) exposed a slide plane. This test pit was excavated at the toe of a landslide, where Ritter Formation had been displaced over alluvium. Geologic Cross Sections A-A', B-B' and C-C' were drawn through the landslide area (see Plates A-LI to A-LIII). The depth and configuration of the rupture surfaces illustrated on the Geologic Cross Sections are estimated.

Based on the Geologic Cross Sections, laboratory test data, and estimated strength parameters, computerized Modified Bishop Method Slope Stability Analysis was performed (see Appendix C). Our slope stability analyses indicate that the existing landslides adjacent to Elizabeth Lake Road have static safety factors of 1.45 to 2.14. Pseudostatic (seismic) analysis indicates that in the event of a major earthquake along the local San Andreas fault, many of these slides could reactivate, resulting in movement of slide debris onto the existing or proposed road alignment. It is also possible that portions of the existing road may actually be located within the slide mass of some of the existing landslides.



[Shaded Area] LANDSLIDE AREA
 C—C' GEOLGIC CROSS SECTION
 (PLATES A-LI THRU A-LIII 1" = 100')

SCALE 1"=1000'

Base Map from
 Keith Engineering,
 Revised 8-24-89

EXISTING ELIZABETH LAKE ROAD
 SEC 24.16N.R13W

C/L LAKE ELIZABETH-PINE CANYON ROAD

LAZY T RANCH

SAN ANDREAS FAULT

RITTER RANCH

POWERLINE EASEMENT

FIGURE 3

| | |
|--|--------------------|
| PRELIMINARY LANDSLIDE MAP | |
| AMARGOSA AREA ASSESSMENT DISTRICT 90-1 | |
| ELIZABETH LAKE ROAD | |
| PALMDALE, LOS ANGELES COUNTY, CALIF. | |
| BUENA ENGINEERS, INC. | |
| DATE | FILE NO B-3345-LO3 |

Surficial and gross stability analyses of the proposed roadway embankment have been performed. The analyses for fill slopes were performed using averaged saturated shear strength parameters from direct shear tests obtained from this study and the previous study dated December 12, 1990, and using saturated unit weights.

Saturated shear strength data obtained from individual direct shear tests considered representative of the materials encountered was used in the stability analyses conducted for cut slopes and data for in-situ conditions. Saturated unit weights were also used in these analyses.

Proposed cuts are anticipated to expose the clay-shale and buff arkose members of the Anaverde Formation. Shear strength parameters of the clay-shale member are considered to be the weakest, and therefore were utilized in the slope stability analyses for these cut slope conditions.

Current Los Angeles County Department of Building and Safety allows a one-third increase of the shear strength parameters in the pseudostatic (seismic) analyses in lieu of using shear strength parameters obtained from conducting direct shear tests using in-situ moisture contents (nonsaturated) for both cut and fill slopes. A summary of the shear strength parameters utilized in our analyses are presented on Table C-1 in Appendix C.

The surficial slope stability analysis was performed utilizing the methods described in the County of Orange, "Slope Stability Report" by the Slope Stability Committee. This method assumes an infinite slope with slippage parallel to the slope surface, and a minimum four foot deep seepage zone. A minimum acceptable safety factor of 1.5 was utilized for this method. Surficial stability analysis utilizing the Orange County method indicates that engineered fill slopes finished at a 2:1 slope and cut slopes constructed at angles recommended in this report should have a safety factor greater than 1.5 against surficial instability.

Computerized Modified Bishop Method Slope Stability Analysis (PCSTABL5M) was performed to estimate the gross stability of the proposed cut and fill slopes at the slope angles recommended in this report. Bedrock cuts may require construction at angles compatible with the local foliation and other geologic conditions.

Graphic presentation of the surficial and gross stability analyses are presented in Appendix C of this report. Our previous reports contain additional stability analyses pertaining to general cut and fill slopes.

The potential for debris flows and rock falls exists where the road is adjacent to relatively higher natural slopes, such as north of the alignment between stations 359 to 347, and stations 271 to 225, and south of the road between stations 299 to 265. The embankment design of the road will help to mitigate this potential hazard.

Flooding

Presently, portions of Elizabeth Lake Road are subject to flooding. It is anticipated that the proposed project, with associated detention basins and other Amargosa Creek drainage improvements, will mitigate the potential for flooding on Elizabeth Lake Road, as well as areas downstream along Amargosa Creek.

CONCLUSIONS

The following is a summary of our conclusions and professional opinions based on the data collected during this evaluation.

1. The proposed road realignment is crossed by or adjacent to the active San Andreas fault zone in four areas. It must be assumed that the road will be damaged by future fault rupture along the San Andreas fault and related subsidiary faults. Differential movement across the fault of approximately 15 feet should be anticipated, with associated major damage. The occurrence of an earthquake and fault rupture along this fault within the next 50 years is considered high.

If fault rupture occurs on the north branch of the San Andreas, at the eastern end of the proposed road realignment, the Leona Siphon of the California Aqueduct may rupture. This may cause flooding along the Amargosa Creek drainage to the east.

Major disruption of utility services that cross the San Andreas fault zone will occur, however, the extent of this damage is difficult to predict.

2. The proposed road realignment will cross several different lithologic units ranging from sandstone and shale bedrock to poorly consolidated silts, clays, and sands. Removal and recompaction of loose or soft soils to stable subgrades will be required prior to, and during, placement of the road alignment fills. Some areas may require excavation deeper than that recommended in this report to install proposed culverts, subdrains, or other subsurface structures.

Consolidation and density tests indicate that the majority of the native soils underlying the proposed road alignment have relatively low compressibility characteristics. Settlement of underlying road alignment soils due to construction of the proposed embankment is estimated to be approximately one inch. Settlement of the fill is expected to be on the order of 0.2 % to 0.4 % of the fill height. Remedial excavations are required primarily to mitigate the hydroconsolidation potential (soil collapse upon wetting) and low relative density of select native soils. The anticipated settlements should be incorporated into the project design.

3. Elizabeth Lake Road is currently impacted by a landslide complex located on the south side of the road in the area between the power line easement and Lazy T Ranch. It is our opinion that some of these landslides might fail during a major earthquake on the local trace of the San Andreas fault. The proposed Elizabeth Lake Road alignment will be affected by these landslides. As most of the road in this area is to be constructed as fill, which will result in loading of the toe area of the slides, the gross stability of the area will be increased. However, our analysis indicates that static safety factors against sliding will range from 1.1 to 1.3, and that pseudostatic safety factors will range from 0.8 to 0.9.

To achieve a 1.5 safety factor, reconstruction or stabilization of the existing landslides would be required. Accepted methods for increasing the stability of landslides include removal, unloading the upper portion of the slide mass, and/or buttressing the slide mass. However, in this area, portions of the buttress fills or other stabilization measures

would be constructed across the active San Andreas fault. In the event of movement along this fault, buttress stabilization devices would be damaged, limiting or decreasing their effectiveness. The comparative costs of removing the landslide debris following occasional failure versus total stabilization should be evaluated.

There are approximately 3,000 lineal feet of landslide complex along Elizabeth Lake Road. Stabilization measures, if required, would result in grading of native woodland areas and steep hillsides where no grading is currently planned. This remedial grading would also affect the location of present power line towers and associated easements.

The effects of future landslides on Elizabeth Lake Road would include limiting the access to Leona Valley from Palmdale. It is anticipated that most landsliding would result as secondary effects of local seismic activity. It should be noted that if the San Andreas fault were to experience ground surface rupture, Elizabeth Lake Road in its current and proposed configuration would be damaged at several locations between Palmdale and Lake Hughes. Access would be severely restricted along this roadway due to ground surface fault rupture.

Current secondary access routes out of Leona Valley towards the Antelope Valley include Godde Hill Road, Johnson Road, and Munz Ranch Road. Access along these routes will most likely be limited by rock slides during significant seismic events. It is our understanding, that the Ritter Ranch and City Ranch developments will provide alternate access routes from the Leona Valley area to Palmdale that currently do not exist. These include Ritter Ranch Road and extensions of City Ranch Road which will typically lie south of the main San Andreas fault zone.

The proposed development of Ritter Ranch and the realignment of Elizabeth Lake Road will provide secondary access to the Leona Valley area and will have some positive affects on the stability of the landslides. As the existing conditions will be improved, it is our opinion that further mitigation of the landslides along Elizabeth Lake Road may not be necessary dependant upon the risk assessment and government acceptance of maintenance liability.

4. The potential for debris flows and rock falls exists where the road is adjacent to relatively higher slopes, such as north of the road between

stations 359 to 347, and stations 271 to 225, and south of the road between stations 299 to 265. Drainages, such as the one south of the road at station 299+50, have a high debris flow potential. Proposed culverts in these areas should have adequate mitigative measures designed for this potential hazard.

5. Groundwater levels along the road realignment are variable. Within the Amargosa Creek drainage in the western portion of the study area, seasonal water tables are at, or very near, the surface (see Reference No. 1). Over most of the evaluation area, normal groundwater levels may actually be higher than indicated by this study since it was conducted in a relatively dry period. However, the absence of shallow groundwater along the majority of the road realignment, with the exception of the Basin B Embankment (see Reference No. 1), suggests that liquefaction of surficial deposits, in the event of ground shaking at the site during a severe seismic event, is improbable along most of the road alignment. Older alluvial soils and bedrock are in our opinion not susceptible to liquefaction.

The potential for liquefaction along the proposed alignment is dependant upon three factors which include a shallow groundwater condition, susceptible soils, and the earthquake. The eastern portion of the road alignment is generally located adjacent to the Amargosa Creek. Soils along this portion of the road alignment are generally not saturated and will only become saturated during flood conditions. The likelihood that the upper loose soils in this area will be flooded at the same time as the design earthquake is considered remote.

The western end of the road alignment has a shallow watertable condition most of the time. The liquefaction potential in this area is considered moderate to high. However, fault rupture at this location will be the dominant geologic hazard.

6. Based upon seismic refraction data and past experience in the area, the bedrock exposed along the project is generally rippable with conventional heavy grading equipment (Caterpillar D9 or larger). Isolated outcrops of hard or resistant bedrock may occur which may require heavy ripping or light blasting. The Nadeau Gravel, Harold formation, and stream channel deposits may contain large quantities of cobbles or boulders which may require special handling and effort.

7. Engineering characteristics of the soils and bedrock along the proposed road and channel realignments are highly variable. Most of the alluvial soils have acceptable compaction and expansion characteristics. However, oversized material (greater than six inches size) is relatively common in the Nadeau Gravel, Harold Formation, and stream channel deposits.

Localized areas or beds of expansive material may be encountered within fault zones, the Anaverde clay shale, the Harold Formation, and younger alluvial deposits.

8. Pavement support characteristics of the younger and older alluvium range from poor to good and depend upon the amount of fines (material passing the #200 sieve) within the unit. In general, the coarser-grained material has relatively better pavement support characteristics. The Portal and Pelona schist (pos or pls) material is considered to have poor to moderate pavement support characteristics, while the Ritter Formation (TQr) material is considered to have relatively good pavement support characteristics.
9. The proposed 55 foot high cutslope, shown on the Geologic Map, Plate A-III, and Geologic Cross Section D-D', Plate A-LIV, will expose the clay-shale and buff arkose members of the Anaverde Formation. Existing road cuts observed in the area indicate the bedding orientation is favorable for the proposed cut.
10. Slope stability of cut and fill slopes should be stable provided they are designed and constructed in accordance with the recommendations provided in this report and Chapter 70 of the Los Angeles County Building Code. Guidelines for cut slope angles are presented in Section B of the recommendations. These guidelines are provided based upon gross stability analyses results. Certain slopes will need to be reconstructed with recompacted slope faces in order to meet the minimum 1.5 safety factor required for surficial stability.

RECOMMENDATIONS

Based upon the data collected and used to evaluate the project, the following preliminary recommendations are provided for the proposed road embankment and detention facilities.

A. General Site Preparation

1. Prior to site grading, any existing stumps, roots, foundations, pavements, uncompacted fills, trash piles, and abandoned underground utilities should be removed from the proposed grading areas. The top surface should be stripped of all organic growth, nonconforming fill, and other debris. All material generated during the grubbing operation should be removed from the site.

Concrete telephone conduits are currently present under the existing Elizabeth Lake road alignment. The portions of this conduit that are to be abandoned may either be removed if they will be within one foot (1') of the limits of the remedial excavations recommended in this report, or they may be crushed in-place. In-place crushing should be performed with heavy grading equipment (D-9 or larger) and be reviewed by the geotechnical engineers, or their representatives.

Concrete and asphalt material from the existing road alignment and proposed detour roads may be incorporated into the structural fill from a geotechnical viewpoint if less than six inches in maximum dimension and uniformly distributed. This material should be used only in roadway base fills and not in deep fills (greater than ten feet (10')). Concrete or asphalt greater than six inches should be broken down or disposed of offsite. An environmental specialist should be consulted to evaluate to evaluate the potential hazards due to incorporating the asphalt material in the proposed fill.

2. All irrigation wells or water-supply wells located on the property, if not utilized for development, should be appropriately sealed and abandoned in conformance with the requirements of Los Angeles County and the California Department of Water Resources.
3. The exploration trench and test pit backfills are uncompacted and are unsuitable for support of structures. If any structure or other improvements are located over, or immediately adjacent to, the exploration trenches or test pits, it is

recommended that the trench or test pit backfill be excavated and replaced with compacted engineered fill, or the structure be designed to span the trench. Fill soils should be placed in maximum eight inch uncompacted lifts and mechanically compacted to at least 90% of maximum dry density per ASTM D1557.

4. Depressions resulting from removals under items 1. through 3. above should have debris and loose soil removed and be filled with suitable soils placed as recommended in this report. The geotechnical consultant should be consulted for site grading recommendations relative to backfilling large and/or deep depressions. In general, all proposed construction should be supported by a uniform thickness of compacted soils or competent bedrock.
5. The excavated on-site cut soils may be used for structural fill when placed as specified below:
 - a. Rocks may be incorporated into the fill if less than six inches in maximum dimension and uniformly distributed. No rocks greater than two inches should be placed within two feet of finished soil grade.
 - b. Rocks in the range of 12 inches to 36 inches in maximum dimension may be incorporated in the fill of landscape areas only. This material should be placed at least ten feet below finished grade and not be closer than 15 feet from any slope face.
 - c. Rocks greater than 36 inches in maximum dimension should be broken down or disposed of offsite.
 - d. Oversized material should not be placed where structures or deep utilities are proposed. Oversized material should not be "nested", but distributed throughout the fill. Select native fill should be placed and properly compacted around the oversized material.

6. Shrinkage factors due to compaction are expected to be 20 to 25 percent of the affected on-site younger alluvial soils and 15 to 20 percent of the affected on-site older alluvial soils. Less than 5 percent shrinkage, or even possible bulking of the bedrock, is anticipated. Losses due to the stripping operations and clearing and grubbing operations may affect quantity calculations and should be taken into account.
7. The Recommended Grading Specifications included in Appendix D are general guidelines only and should not be included directly into project specifications without first incorporating the site specific recommendations contained in the body of this report. Chapter 70 of the Los Angeles County Building Code contains specific considerations for grading and is considered a part of these recommendations.

B. Slope Stability

Fill Slopes

1. Fill slopes should be constructed at a maximum slope gradient of 2 : 1 (horizontal to vertical). Fill slopes should be constructed with suitable structural fill which has been properly moisture conditioned as recommended in Section D of the Recommendations.

Fill slopes over 20 feet in height should be constructed from material derived from the Pelona Schist or Portal Schist formations compacted to 90% of relative compaction per ASTM D1557, or using Ritter Sandstone formation material that is compacted to at least 95% of maximum dry density per ASTM D1557.

2. Fill slopes should be compacted in-place to at least 90% of maximum dry density per ASTM D1557. Fill slopes should be overfilled and trimmed back to competent material. The final surface of the slopes should be track-walked or grid rolled to improve the erosional resistance.

3. Where fill slopes are to be constructed on natural slopes steeper than 5:1 (horizontal to vertical), the fill should be keyed and benched into firm natural soil or bedrock (see Plate D-I, Appendix D). All proposed keyways should be accurately delineated on the grading plans.
4. Slopes constructed as fill over cut will necessitate specific grading methods to provide bonding of the fill and to help mitigate the possibility of creating a weak plane between fill and cut which could potentially affect slope stability. Refer to Plate D-II of Appendix D for a graphic representation of the recommended fill over cut slope configuration.
5. Fill over cut slopes greater than five feet in height should be well delineated on the final Grading Plans in both plan and cross section views. This is to assure that the recommended grading procedures are brought to the attention of the contractor.
6. Prior to placement of fill in fill over cut slopes greater than five feet in height, cut slopes should be visually observed by the engineering geologist, or his representative, to check for adverse bedding, joint patterns or other geologic features exposed within the slope face. Where necessary, due to geologic considerations, the cut slopes may need to be constructed at a flatter angle than the recommended cut slope angle or reconstructed/butressed. This work should be reviewed by the consultant.
7. Keys for all slope reconstruction greater than five feet in height should be cut into firm natural soil or competent bedrock. The minimum key dimensions are ten feet horizontally from the toe of finished slope and two feet vertically from the lowest adjacent soil grade. Before fill is placed, the key should be observed by the geotechnical engineer, or his representative. All keyways should be accurately delineated on the grading plans.
8. A berm should be constructed and maintained at the top of all fill slopes to divert runoff away from the slope face.

9. It is recommended that the geotechnical engineer, or his representative, be present during the fill construction to observe conformance with the above recommendations.

Cut Slopes

Based upon our understanding of the on-site geologic conditions and proposed site grading, cut slopes in various on site geologic units are estimated to not exceed 55 feet in height. The following table is a summary of permanent cut slope configuration recommendations. Cut slopes in bedrock should be finished at a slope equal to or flatter than the local foliation or bedding at that location as recommended below. Local foliation or bedding may require slopes finished at a shallower gradient, or reconstructed as buttressed slopes, if 2 : 1 finished slopes are required. Bedrock cut slopes should be monitored during construction by the engineering geologist, or his representative, to check for adverse bedding, joint patterns or other geologic features exposed within the cut face.

| <u>Geologic Unit</u> | <u>Slope Angle</u> | <u>Maximum Height</u> |
|----------------------|--------------------|-----------------------|
| Qf | 26.6 (2:1)* | 20' |
| | 18.1 (3:1) | 30' |
| Qal | 18.4 (3:1) | 50' |
| Qoa | 26.6 (2:1)* | 20' |
| Qh | 26.6 (2:1)* | 20' |
| | 18.1 (3:1)* | 30' |
| | 14.0 (4:1) | 40' |
| Qt | 26.6 (2:1)* | 20' |
| Qoa/Qh | 17.1 (3.25:1) | 45' |
| TQr | 26.6 (2:1) | 20' |
| Tac | 26.6 (2:1) | 55' |

***NOTE:**

Slopes indicated with an asterisk will need to be constructed with recompacted slope faces in order to meet the minimum 1.5 safety factor required for surficial stability if these final slope configurations are required. Refer to Plate D-III of Appendix D for a graphic representation of this procedure. Slope configurations required to achieve a minimum 1.5 safety factor for surficial stability are provided in Table C-II of Appendix C.

2. Drainage swales should be provided at the tops of all cut slopes to divert runoff away from the cut face. Swales constructed in alluvial soils should be lined with gunite, concrete, or other suitable non-erosive material.
3. Velocity reducers should be provided at the discharge points of the swales or down drains as deemed necessary by the design engineer.

D. Remedial Excavations

Remedial excavations beneath the proposed road alignment are as recommended in the following table. Unless otherwise specified, the recommended excavations should be performed beneath the entire proposed road embankment, including a distance of at least five feet beyond the edges of the embankment. Site grading should be reviewed by the geotechnical engineers, or their representatives, prior to, and during remedial excavations and placement of fill. Local variations in soil and bedrock conditions may warrant increasing the depth of excavation and recompaction.

| <u>Beginning Station</u> | <u>Ending Station</u> | <u>Depth (feet)*</u> |
|--------------------------|-----------------------|--|
| 432+12 | 426+25 | 3 |
| 426+25 | 417+30 | 4 |
| 417+30 | 411+30 | 3 |
| 411+30 | 407+80 | 1 (North of C/L) 3 (South of C/L) (see note 1) |

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| <u>Beginning Station</u> | <u>Ending Station</u> | <u>Depth (feet)</u> |
|--------------------------|-----------------------|--|
| 407+80 | 379+00 | Recommendations provided in report dated 12-12-9 |
| 379+00 | 373+50 | 7 |
| 373+50 | 368+20 | 1 |
| 368+20 | 363+00 | 2 |
| 363+00 | 359+00 | 4 |
| 359+00 | 355+60 | 5 (North of C/L) 8 (South of C/L) |
| 355+60 | 346+00 | 5 (North of C/L) 4 (South of C/L) |
| 346+00 | 340+50 | 5 |
| 340+50 | 388+50 | 4 (North of C/L) 5 (South of C/L) |
| 388+50 | 336+00 | 4 |
| 336+00 | 334+00 | 1 |
| 334+00 | 328+00 | 2 |
| 328+00 | 322+00 | 4 |
| 322+00 | 312+00 | 5 |
| 312+00 | 309+30 | 4 |
| 309+30 | 307+50 | 1 |
| 307+50 | 305+50 | 5 |

| <u>Beginning Station</u> | <u>Ending Station</u> | <u>Depth (feet)</u> |
|--------------------------|-----------------------|--------------------------------------|
| 305+50 | 301+70 | 2 |
| 301+70 | 298+00 | 2 (see note 2) |
| 298+00 | 296+80 | 2 |
| 296+80 | 286+00 | 5 (North of C/L) 2 (South of C/L) |
| 286+00 | 282+50 | 4 |
| 282+50 | 277+00 | 8 |
| 277+50 | 272+00 | 4 (remove all af) |
| 272+00 | 265+50 | 4 (see note 3) |
| 265+50 | 254+00 | 3 |
| 254+00 | 241+50 | 3 (North of C/L) 4 (South of C/L) |
| 241+50 | 239+00 | 4 |
| 239+00 | 223+00 | 5 |
| 223+00 | 215+00 | 8 (includes existing af) |
| 215+00 | 209+00 | 3 |
| 209+00 | 203+00 | 3 (North of C/L) 1 (South of C/L) |
| 203+00 | 192+00 | 4 (North of C/L) 2 (South of C/L) |
| 192+00 | 187+50 | 2 |
| 187+50 | 179+00 | 3 |

| | | |
|--------|-----------|----------------|
| 179+00 | 177+00 | 5 |
| 177+00 | 174+50 | 3 (see note 4) |
| 174.50 | 172+47.60 | 5 |

*These excavation depths include one foot of scarified, moistened, and recompacted material.

Note 1: Proposed excavations may expose clay-shale of the Anaverde Formation (Tac). Additional remedial excavation (approximately four feet) may be required to mitigate the expansive potential of this material if encountered.

Note 2: Remedial excavation of younger alluvial materials within the existing drainage channel located at approximate station 300+00 is estimated to be five feet (5').

Note 3: Soils beneath the proposed concrete box culvert located in this area should be excavated a minimum of three feet (3') below finished subgrade elevation.

Note 4: Remedial excavations within the California Aqueduct right-of-way should be reviewed by the California Department of Water Resources (DWR). If remedial excavations are not allowed within this area, alternative recommendations for this portion of road alignment will be necessary.

2. All suitable excavated materials should be uniformly mixed, moisture conditioned, and mechanically compacted to at least 90% (93%-94% average) of maximum dry density per ASTM D1557. Fill soils should be placed at, or slightly above, optimum moisture content as determined by ASTM D1557.
3. Proposed embankments should be constructed of compacted engineered fill that is uniformly mixed, moisture conditioned, and mechanically compacted to at least 90% (93%-95% average) of maximum dry density per ASTM D1557. Fill soils should be

placed at, or slightly above, optimum moisture content as determined by ASTM D1557.

Fill slopes over 20 feet in height should be constructed from material derived from the Pelona or Portal Schist formation (pls, pos) that is compacted to 90% of relative compaction per ASTM D1557, or using Ritter Sandstone formation material (TQr) that is compacted to at least 95% of maximum dry density per ASTM D1557.

4. Due to the high silt, clay, and calcium carbonate content of some of the native soils encountered along the proposed alignment, soil moisture conditioning and compaction may be difficult. Moisture sensitive subgrade and fill tends to become unstable or "pump" during compaction when the soil moisture is above optimum moisture content. When the moisture content is below optimum, excessive compactive effort may be required to achieve the recommended relative recompaction. Close monitoring of the soils moisture content and proper choice of compaction equipment should help mitigate unstable or "pumping" soil. **Unstable or "pumping" subgrade or fill, regardless of relative compaction test results, is considered unacceptable.**
5. Final site grades should be designed and constructed so that all water is not allowed to pond on, or near, pavement.
6. Those portions of the roadway embankment where detention of storm water is planned should be protected from erosion by riprap, gunite, landscaping, geotextiles, concrete facing, or a combination of the these methods.
7. Any portion of the embankment where water flow velocities will be in excess of the erosion resistance of the fill, or where surface drainage device capacities will be exceeded by storm water flow, erosion protection be applied to the slopes. Areas of concern include the roadway embankment adjacent to, and around culverts, portions of the roadway embankment where overflow may occur, including the downstream face of the roadway embankment where overflow might occur.

8. Proposed culverts should be constructed monolithic with the proposed embankment. Antiseep collars and/or cut-off walls should be incorporated into the culvert design. Proper culvert and channel inlet and outlet protection (riprap, grouted riprap, concrete, etc.) should be provided to prevent erosion of upstream and downstream drainage channels.

E Excavations

1. All excavations should be made in accordance with applicable regulations. Project safety is the responsibility of the contractor and City of Palmdale. Buena Engineers, Inc. will not be responsible for project safety.
2. Open excavations may be cut vertically to a maximum depth of five feet, and excavations extending between five and twenty feet deep should be shored or sloped back from the base of the excavation to at least a one to one (horizontal to vertical) slope or flatter. If excavations dry out, some sloughing could occur. Locally, where clean, uncemented sands or loose material are encountered, it may be necessary to flatten the excavation slopes. Temporary excavations in competent bedrock (defined as Pelona Schist, Portal Schist, Anaverde Arkose Formation and Ritter Formation) may be cut at a maximum one-half to one (horizontal to vertical) slope.
3. During the time excavations are open, no heavy grading equipment or other surcharge loads should be allowed within a horizontal distance equal to the depth of the excavation (Both distances measured from the top of the excavation slope).
4. Ripping and/or special excavation techniques may be required to penetrate some of the bedrock. The Nadeau Gravel, Harold formation, and stream channel deposits may contain large quantities of cobbles or boulders which may require special effort and handling, especially during trenching.
5. Adequate measures should be taken to protect any structural foundations or existing utilities adjacent to any excavations.

6. Adequate measures should be taken to protect the road and proposed culverts from potential debris flows, such as construction of retaining or diversion devices, or debris removal. The need for debris flow deflection walls should be evaluated on a site specific basis. That portion of the wall where impact from potential debris flows will occur should be designed for an equivalent fluid pressure of 125 pounds per cubic foot. The debris wall should be oriented at least 45 degrees to the direction of impact. That portion of the wall not within the impact zone may be designed as a conventional retaining wall.

F. Utility Trenches

Standard construction techniques should be sufficient for utility trench excavation. Isolated clean sands or cemented hardpan (a compact, cemented, highly consolidated, nonsorted mixture of particles ranging from clay to gravel) may require special considerations. Due to the nature of the subsurface soils, jetting of utility trenches is not recommended. Excavation of utility trenches may require ripping and/or special excavation techniques to penetrate some of the bedrock. Overbreak of utility excavations may be encountered in areas of hard bedrock.

1. Backfill of utilities within road right-of-ways should be placed in strict conformance with the requirements of the governing agency, however a minimum of 90% of relative compaction per ASTM D 1557 is recommended.
2. Utility trench backfill within the project boundary should be governed by the provisions of this report relative to minimum compaction standards. In general, service lines extending inside the site should be backfilled with native soils and uniformly compacted to at least 90% of maximum density per ASTM D1557.
3. Backfill operations should be observed and tested by the geotechnical engineer, or his representative, relative to conformance with these recommendations.

G Preliminary Paving Sections

A Traffic Index of 10.0 has been assumed for the proposed road alignment for this project. As stated in the Descriptive Geology section, the Pavement support characteristics of the geologic units encountered on this project range from poor to good, depending upon the fines (material passing the #200 sieve) content. The coarser-grained material has relatively better pavement support characteristics. The Portal and Pelona Schist (pos or pls) material is considered to have poor to moderate pavement support characteristics, while the Ritter Formation (TQr) material is considered to have relatively good pavement support characteristics. To reduce pavement costs, it is recommended that a minimum two feet of select material be placed beneath the proposed road alignment.

Based upon the R-Value testing conducted for this, and previous reports, the following sections may be used for developing preliminary earth quantities and paving cost estimates based upon the material present within the upper two feet of the proposed road alignment. After grading, additional sample(s) should be collected from exposed subgrade, tested, and evaluated for review or revision of the preliminary sections:

Material derived from younger alluvial soils (Qal):

5" Asphalt Concrete on
12" Crushed Aggregate Base or equivalent

Material derived from younger fan deposits soils (Qf):

5" Asphalt Concrete on
12" Crushed Aggregate Base or equivalent

Material derived from terrace deposit soils (Qt):

5" Asphalt Concrete on
18" Crushed Aggregate Base or equivalent

Material derived from existing artificial fill soils (af):

5" Asphalt Concrete on
14.5" Crushed Aggregate Base or equivalent

Material derived from older alluvial soils (Qoa):

5" Asphalt Concrete on
12" Crushed Aggregate Base or equivalent

Material derived from Pelona Schist (pls) and Portal Schist (pos):

5" Asphalt Concrete on
17" Crushed Aggregate Base or equivalent

Material derived from Ritter Formation (TQr):

5" Asphalt Concrete on
10" Crushed Aggregate Base or equivalent

LIMITATIONS

The preliminary conclusions and recommendations submitted in this report are based, in part, upon the data obtained from the field exploration, site reconnaissance, laboratory tests, review of previous reports, and past experience. It is intended that this report be used in conjunction with our embankment reports (Reference Nos. 1 and 3) and our original geotechnical engineering report (Reference No. 4) prepared for Ritter Ranch. The nature and extent of variations from observed conditions may not become evident until construction. If variations then appear evident, it will be necessary to reevaluate the recommendations of this report.

Field logs of the test pits, and borings were prepared by staff geologists and staff engineers. The logs contain information concerning the interpretation by the geologists or engineers relating to lithologic

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description and stratigraphy. Therefore, the logs contain both factual and interpretive information. It must be emphasized that our conclusions and recommendations are based on the final logs presented with this report which represent our interpretation of the features observed.

The Consultant has prepared this report for the exclusive use of the Client and authorized agents. This report was prepared in accordance with generally accepted geotechnical engineering and geology practices. No other warranties, either expressed or implied, are made as to the professional advice provided under the terms of this agreement, and included in the report.

Any additional work which may be required after submittal of this report, such as additional geotechnical studies or consultation with governing agencies is not included as part of our initial agreement and will be billed at fee schedule rates applicable at the time of the additional work.

We trust this report is sufficient at this time and we appreciate the opportunity to provide professional geotechnical service for this project. If you have questions regarding this information or require additional studies, please contact us.

Respectfully submitted,

BUENA ENGINEERS, INC.

Reviewed by:

Bruce A. Hick
R.C.E. #45784
Expires 12/31/94

Clayton R. Masters
R. G. #4943

Daniel Schneidereit
Project Geologist

Mark S. Spykerman
C.E.G. #1174

cc: 8- Ritter Park Associates (draft copies only)

REFERENCES

1. Buena Engineers, Inc., 1990, Supplement No. 1, Preliminary Feasibility Report, Proposed Roadfill Embankment and Detention Basin, Elizabeth Lake Road, Ritter Ranch, Palmdale, Los Angeles County, California, Job No. B-3345-L03, dated December 12, 1990.
2. Buena Engineers, Inc., 1990, Initial Geotechnical Study Report, Assessment District 90-1 (City of Palmdale), Palmdale, Los Angeles County, California, Job No. B-3345-L03, dated October 16, 1990.
3. Buena Engineers, Inc., 1990, Preliminary Feasibility Report, Proposed Roadfill Embankment and Detention Basin, Elizabeth Lake Road, Ritter Ranch, Palmdale, Los Angeles County, California, Job No. B-3345-L03, dated July 30, 1990.
4. Buena Engineers, Inc., 1989, Preliminary Geotechnical Engineering Report, Ritter Ranch Property, Elizabeth Lake Road, Palmdale, Los Angeles County, California, Job No. B-3345-L01, dated November 1, 1989.
5. Buena Engineers, Inc., 1989, Preliminary Geotechnical Engineering Report, City Ranch Property, Elizabeth Lake Road and 25th Street West,, Palmdale, Los Angeles County, California, Job No. B-2884-L01, dated February 10, 1989.

March 29, 1991

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Aerial Photographs Reviewed:

Flown By: I. K. Curtiss
Date Flown: 6-24-71
Scale: 1:12,000
Flight Number:
Frame #'s: 8185 to 8193

Flown By: American Aerial Surveys, Inc.
Date Flown: 7-14-80
Scale: 1:24,000
Flight Number: 80165
Frame #'s: 144 to 148
Flown By: Pacific Aerial Surveys
Date Flown: 6-9-87
Scale: 1:12,000
Flight Number: K-AV 3095
Frame #'s: 32 to 42

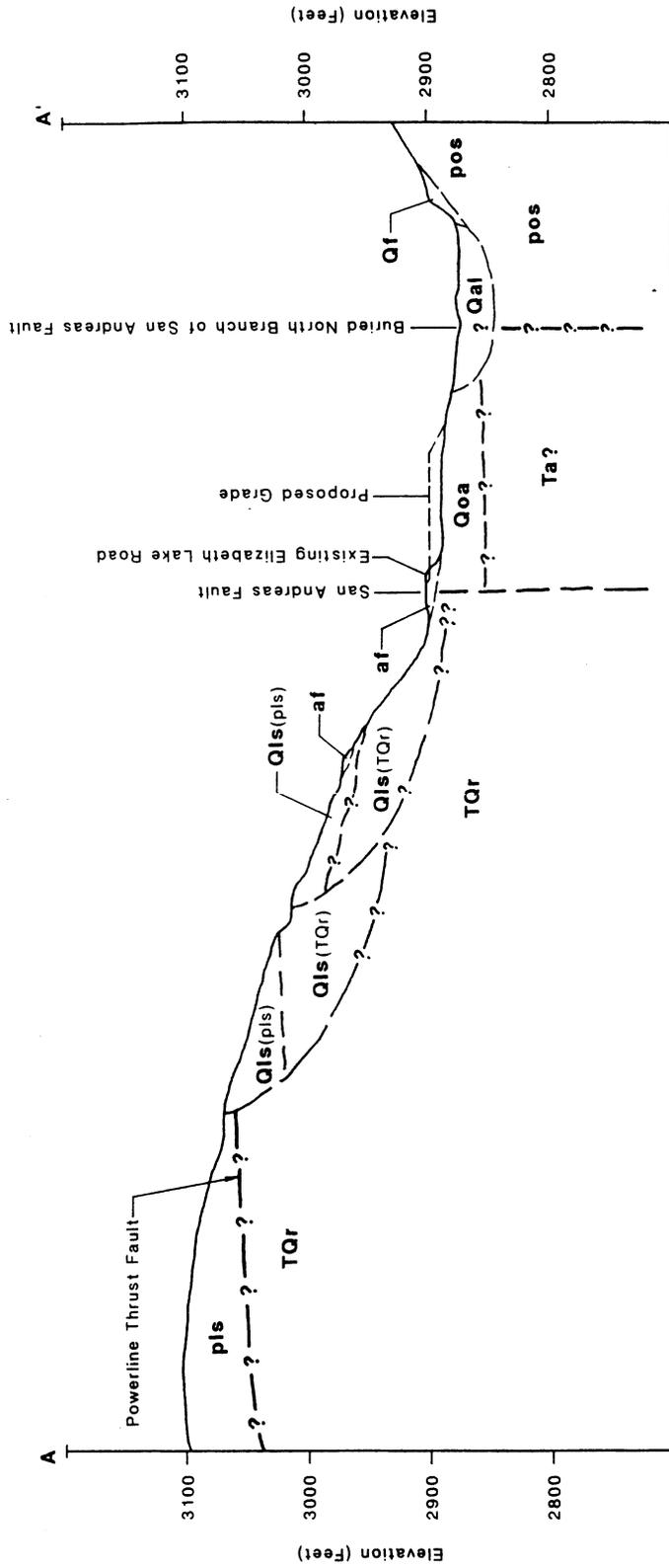
Flown By: Robert J. Lung and Associates
Date Flown: 6-26-89
Scale: 1:4,320
Flight Number: W. O. 29500 153.06
Frame #'s: 5-1 to 5-7, 6-7 to 6-10, and 7-10 to 7-15

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APPENDIX A

Site Plan and Geologic Map (Plates A-I to A-L)
Geologic Cross-Sections A-A' to R-R' (Plates A-LI to A-LXVIII)
Logs of Test Pits (Plate A-LXIX)
Logs of Borings



DRAFT

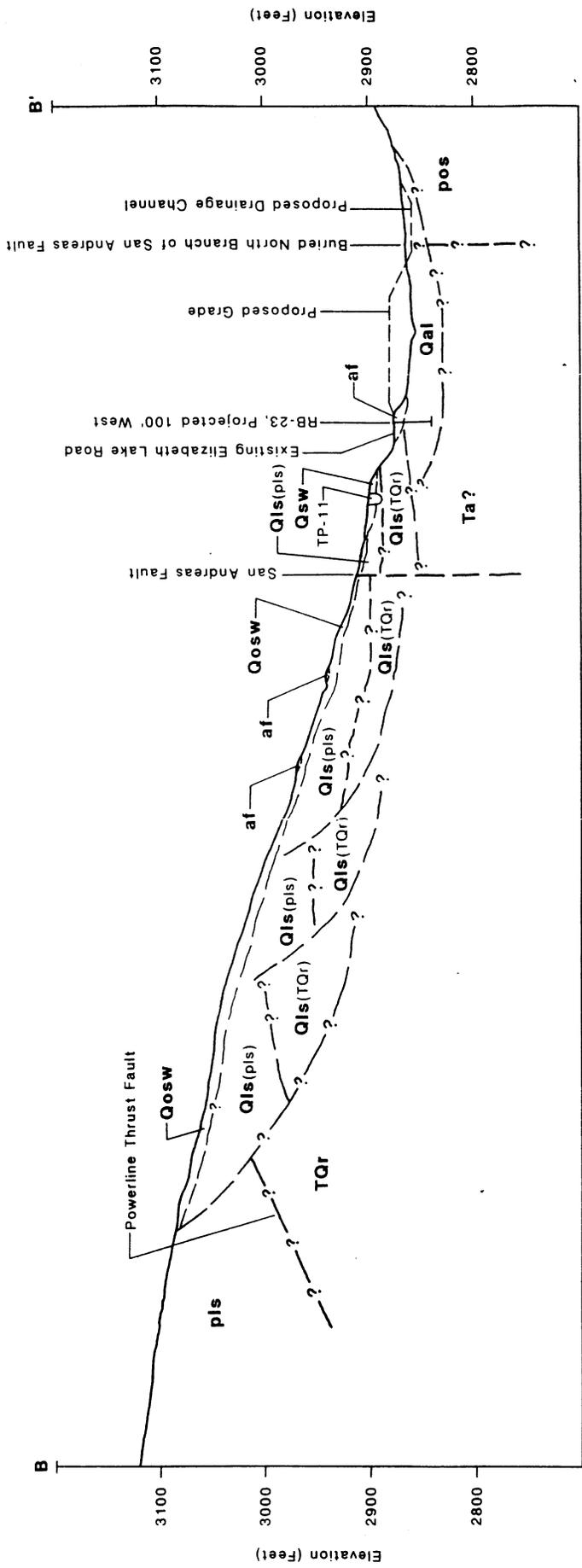
PLATE A-LI

SCALE: 1"=100'

NOTE: FOR LEGEND, SEE GEOLOGIC MAP, PLATE A-I

| | |
|---|--------------------|
| GEOLOGIC CROSS SECTION A-A' | |
| AMARGOSA AREA ASSESSMENT DISTRICT 90-1 ELIZABETH LAKE ROAD PALMDALE, LOS ANGELES COUNTY, CALIFORNIA | |
| BUENA ENGINEERS, INC. | |
| DATE: | JOB NO: B-3345-L03 |

R-4R



DRAFT

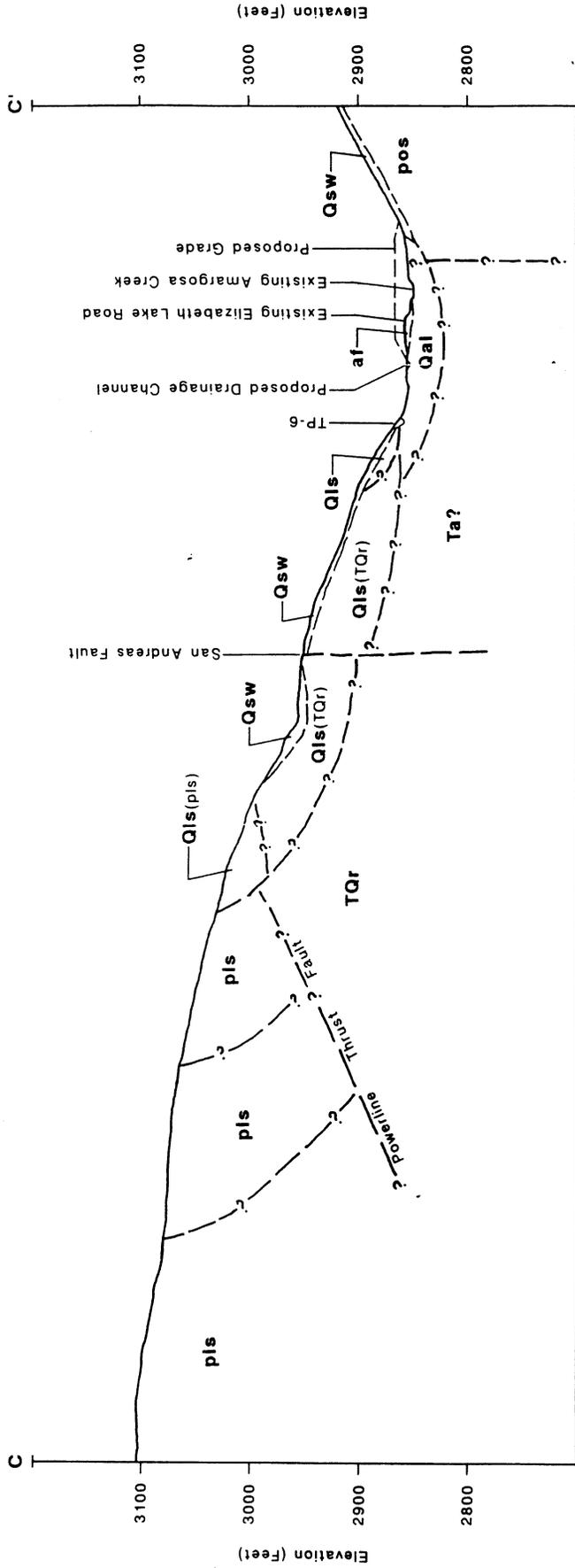
PLATE A-LII

SCALE: 1"=100'

NOTE: FOR LEGEND, SEE GEOLOGIC MAP, PLATE A-I

| | |
|---|--------------------|
| GEOLOGIC CROSS SECTION B-B' | |
| AMARGOSA AREA ASSESSMENT DISTRICT 90-1 ELIZABETH LAKE ROAD PALMDALE, LOS ANGELES COUNTY, CALIFORNIA | |
| BUENA ENGINEERS, INC. | |
| DATE: | JOB NO: B-3345-L03 |

B-49



DRAFT

PLATE A-LIII

SCALE: 1" = 100'

NOTE: FOR LEGEND, SEE GEOLOGIC MAP, PLATE A-1

GEOLOGIC CROSS SECTION C-C'

AMARGOSA AREA ASSESSMENT DISTRICT 90-1
ELIZABETH LAKE ROAD
PALMDALE, LOS ANGELES COUNTY, CALIFORNIA

BUENA ENGINEERS, INC.

DATE: _____ JOB NO: B-3345-L03

B-50

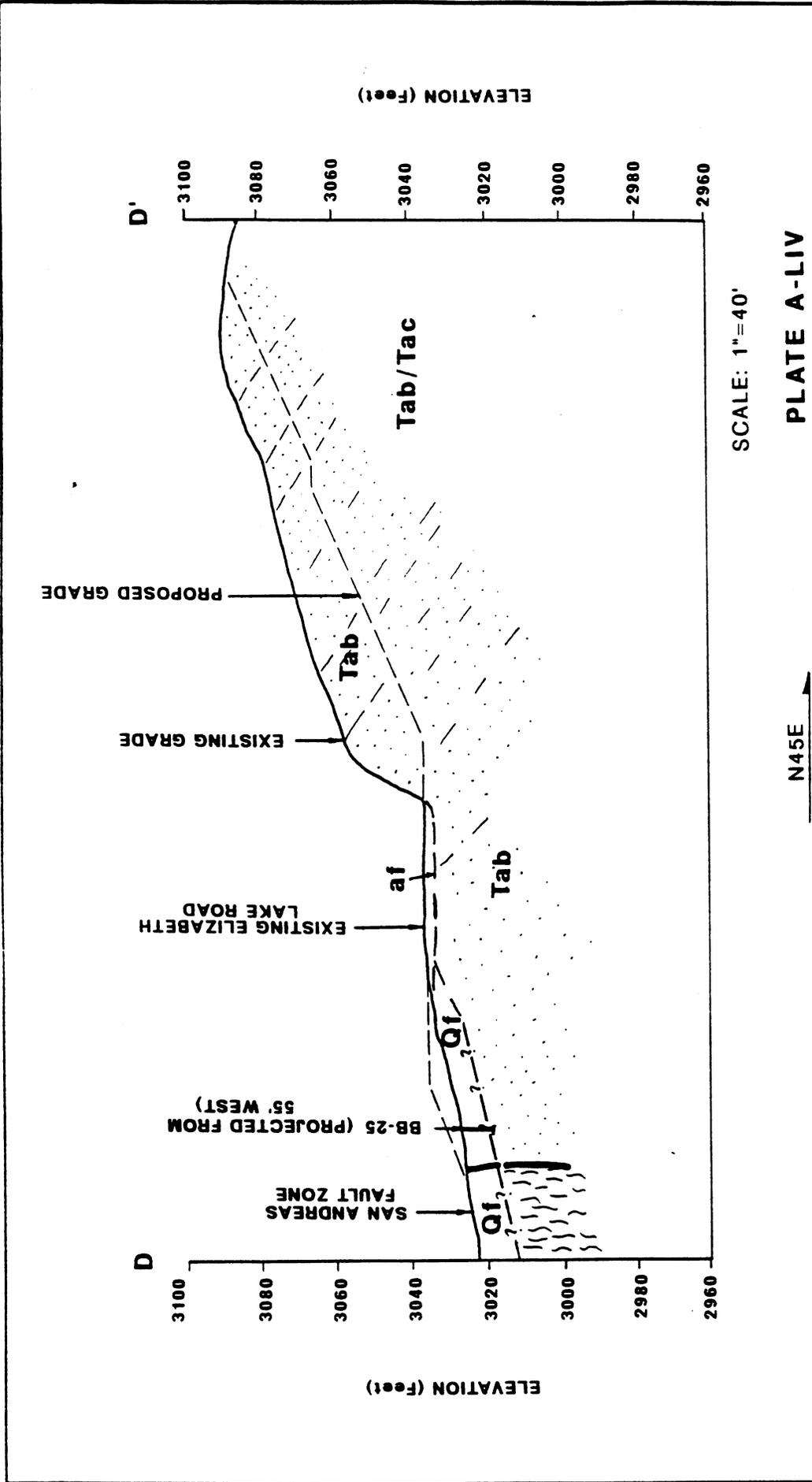


PLATE A-LIV

| | |
|---|--------------------|
| GEOLOGIC CROSS SECTION D-D' AMARGOSA AREA ASSESSMENT DISTRICT 90-1 ELIZABETH LAKE ROAD PALMDALE, LOS ANGELES COUNTY, CALIF. | |
| BUENA ENGINEERS, INC. | |
| DATE | FILE NO B-3345-L03 |

FOR LOCATION OF CROSS SECTION, SEE STATION 407+71 (PLATE A-III)
 NOTE: FOR LEGEND, SEE GEOLOGIC MAP, PLATE A-I

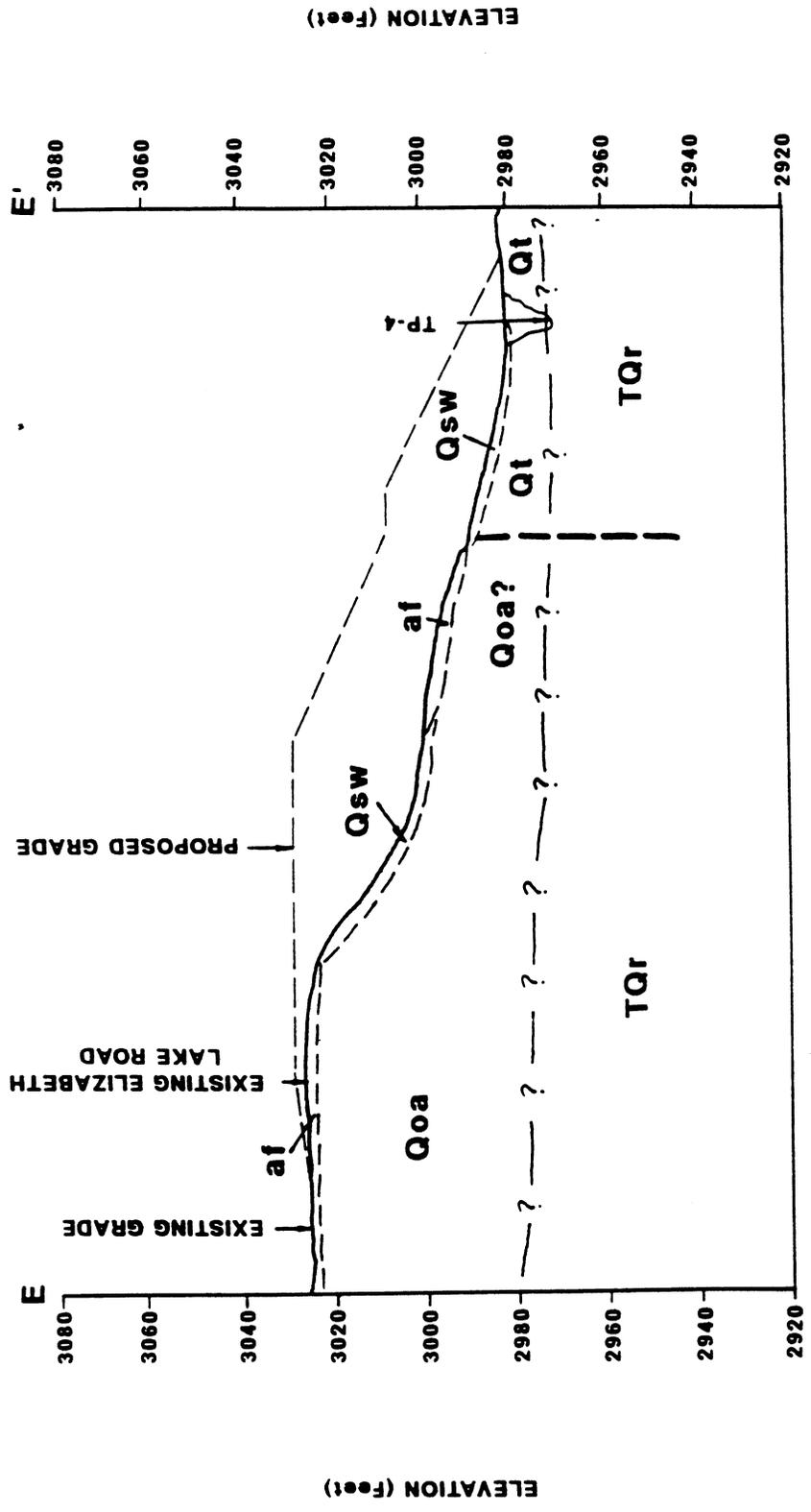


PLATE A-LV

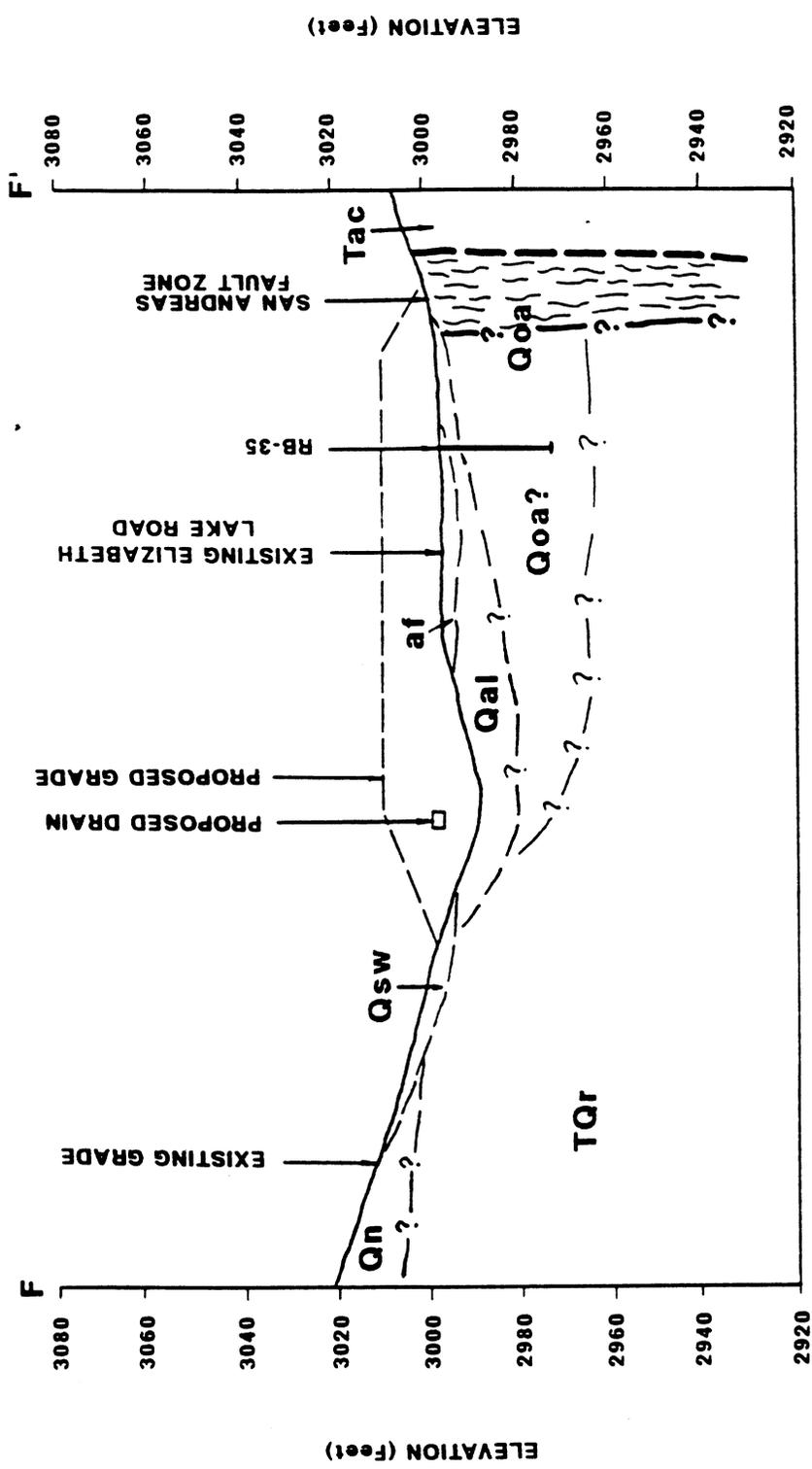
GEOLOGIC CROSS SECTION E-E'
 AMARGOSA AREA ASSESSMENT DISTRICT 90-1
 ELIZABETH LAKE ROAD
 PALMDALE, LOS ANGELES COUNTY, CALIF.

BUENA ENGINEERS, INC.

DATE _____ FILE NO B-3345-L03

FOR LOCATION OF CROSS SECTION, SEE STATION 375+10 (PLATE A-VI)

NOTE: FOR LEGEND, SEE GEOLOGIC MAP, PLATE A-I



SCALE: 1"=40'

N16E

PLATE A-LVI

GEOLOGIC CROSS SECTION F-F'
 AMARGOSA AREA ASSESSMENT DISTRICT 90-1
 ELIZABETH LAKE ROAD
 PALMDALE, LOS ANGELES COUNTY, CALIF.

BUENA ENGINEERS, INC.

| | |
|------|--------------------|
| DATE | FILE NO B-3345-L03 |
|------|--------------------|

FOR LOCATION OF CROSS SECTION, SEE STATION 362+83 (PLATE A-VII)

NOTE: FOR LEGEND, SEE GEOLOGIC MAP, PLATE A-I

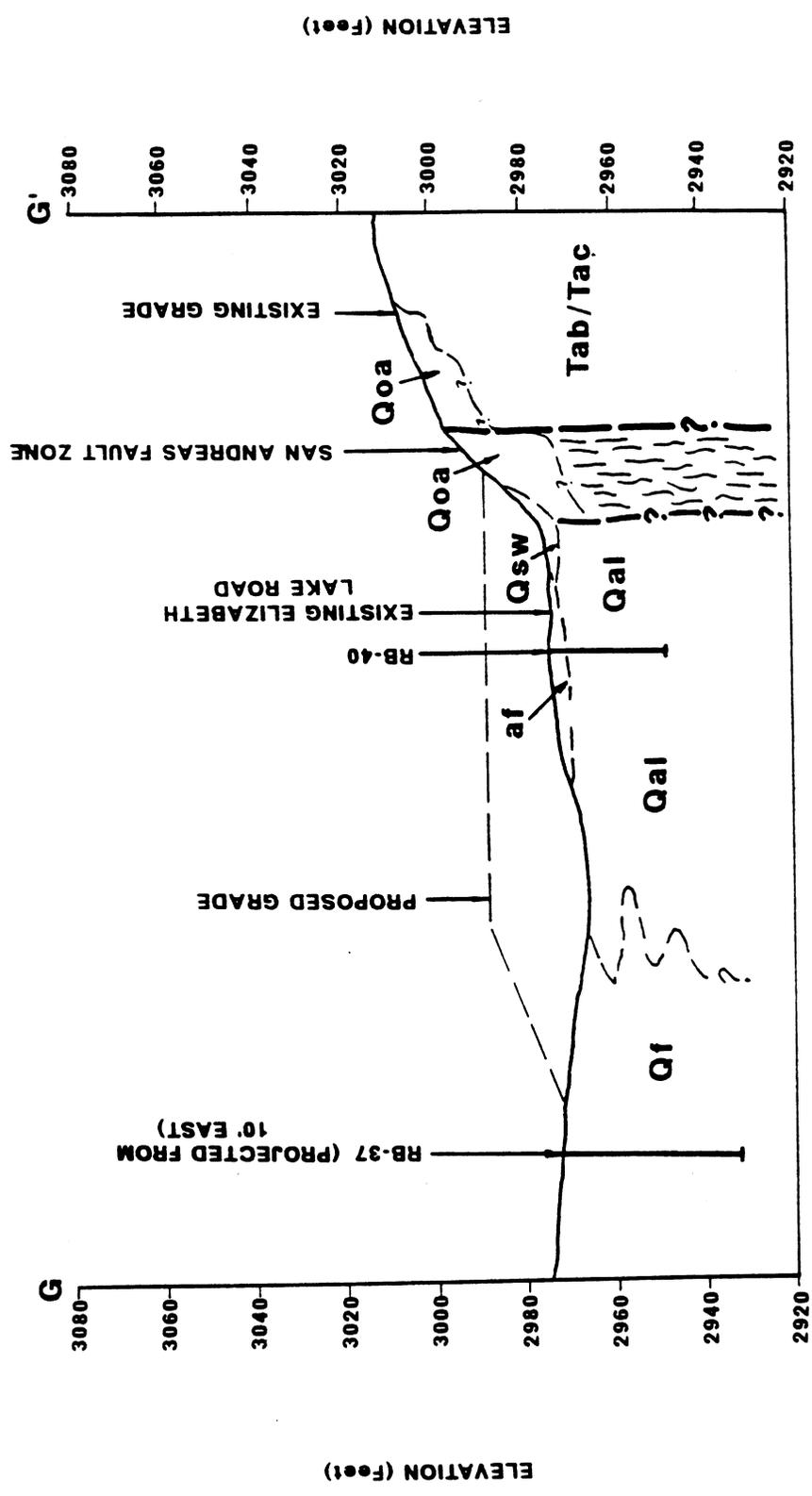


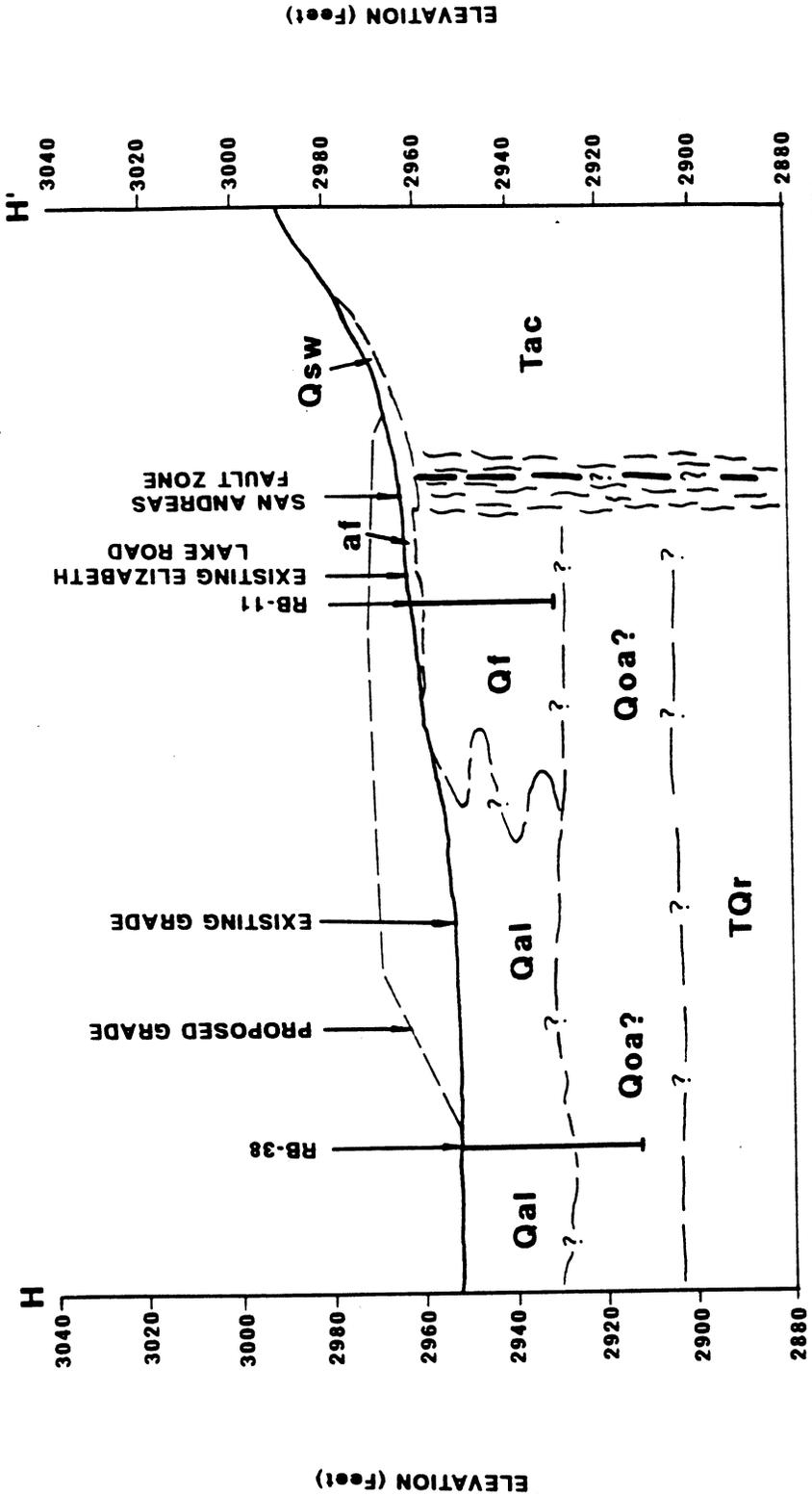
PLATE A-LVII

GEOLOGIC CROSS SECTION G-G'
 AMARGOSA AREA ASSESSMENT DISTRICT 90-1
 ELIZABETH LAKE ROAD
 PALMDALE, LOS ANGELES COUNTY, CALIF.

BUENA ENGINEERS, INC.

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FOR LOCATION OF CROSS SECTION, SEE STATION 366+00 (PLATE A-VIII)
 NOTE: FOR LEGEND, SEE GEOLOGIC MAP, PLATE A-I



SCALE: 1"=40'

N21E

PLATE A-LVIII

GEOLOGIC CROSS SECTION H-H'
 AMARGOSA AREA ASSESSMENT DISTRICT 90-1
 ELIZABETH LAKE ROAD
 PALMDALE, LOS ANGELES COUNTY, CALIF.

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DATE _____ FILE NO B-3345-L03

FOR LOCATION OF CROSS SECTION, SEE STATION 350+68 (PLATE A-VIII)

NOTE: FOR LEGEND, SEE GEOLOGIC MAP, PLATE A-1

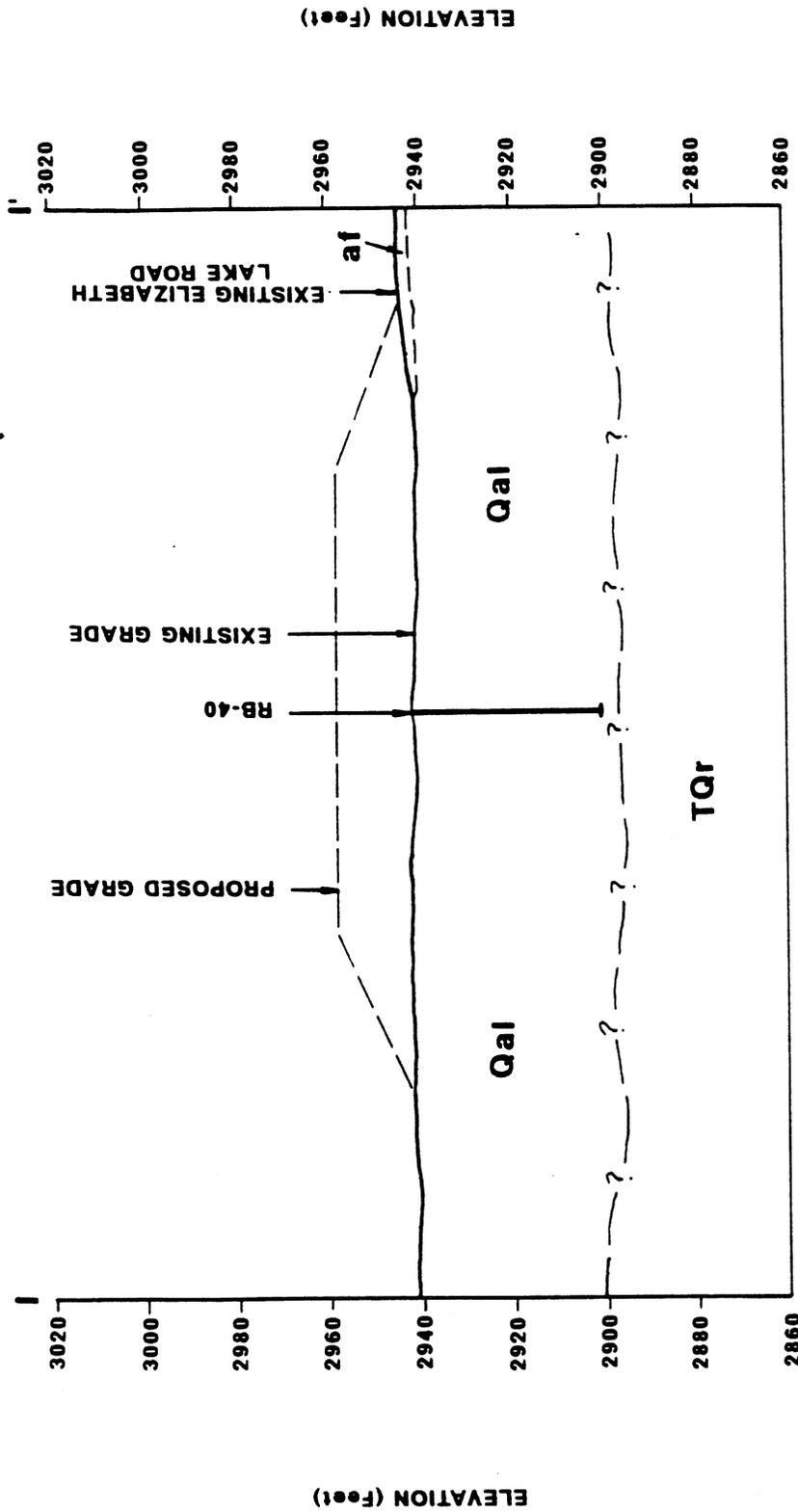


PLATE A-LIX

GEOLOGIC CROSS SECTION I-I'
 AMARGOSA AREA ASSESSMENT DISTRICT 90-1
 ELIZABETH LAKE ROAD
 PALMDALE, LOS ANGELES COUNTY, CALIF.

BUENA ENGINEERS, INC.

| | |
|------|--------------------|
| DATE | FILE NO B-3345-L03 |
|------|--------------------|

FOR LOCATION OF CROSS SECTION, SEE STATION 344+95 (PLATE A-IX)

NOTE: FOR LEGEND, SEE GEOLOGIC MAP, PLATE A-1

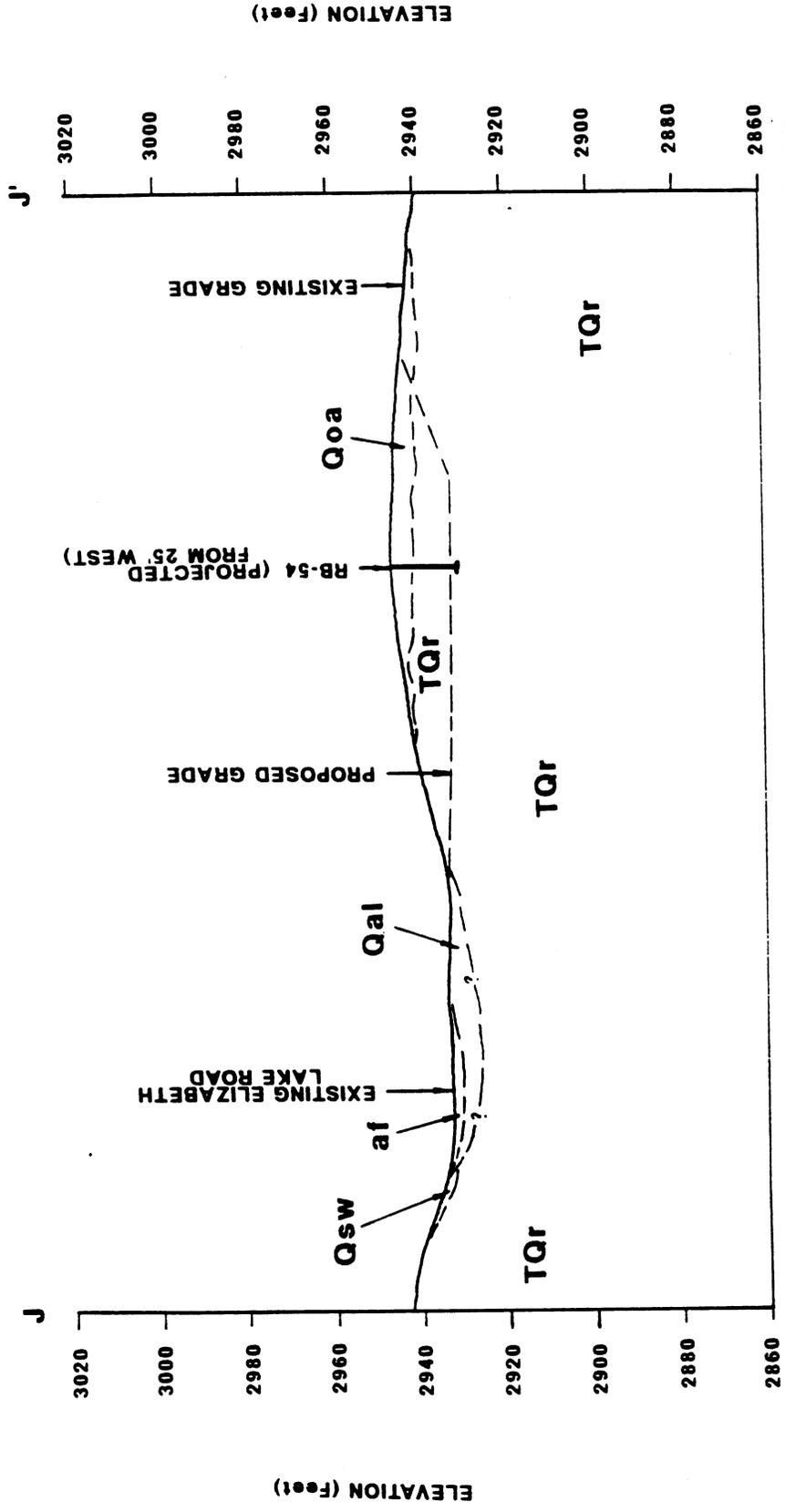


PLATE A-LX

SCALE: 1"=40'

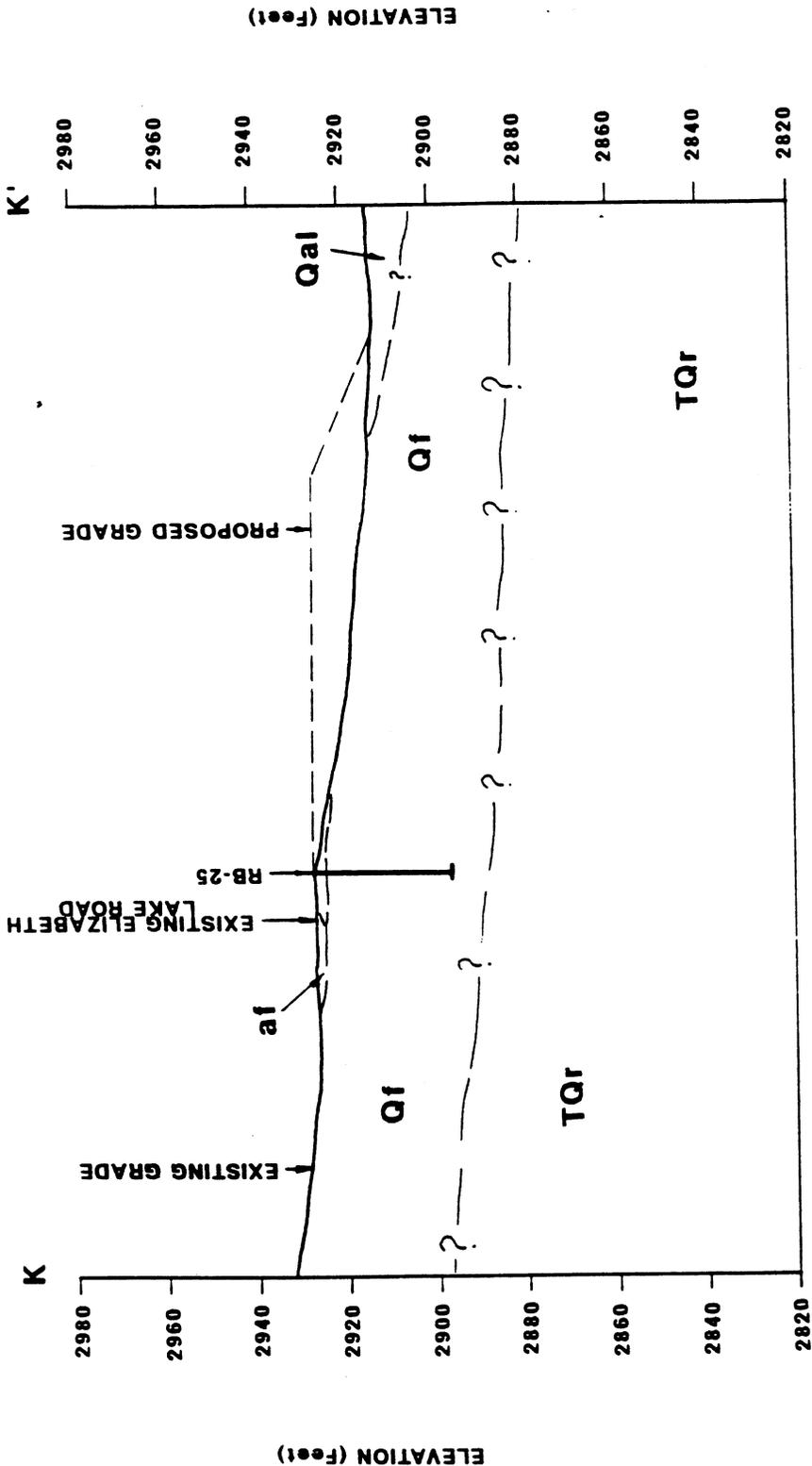
GEOLOGIC CROSS SECTION J-J'
 AMARGOSA AREA ASSESSMENT DISTRICT 90-1
 ELIZABETH LAKE ROAD
 PALMDALE, LOS ANGELES COUNTY, CALIF.

BUENA ENGINEERS, INC.

DATE _____ FILE NO B-3345-L03

FOR LOCATION OF CROSS SECTION, SEE STATION 334+95 (PLATE A-X)

NOTE: FOR LEGEND, SEE GEOLOGIC MAP, PLATE A-I



SCALE: 1"=40'

PLATE A-LXI

GEOLOGIC CROSS SECTION K-K'
 AMARGOSA AREA ASSESSMENT DISTRICT 90-1
 ELIZABETH LAKE ROAD
 PALMDALE, LOS ANGELES COUNTY, CALIF.

BUENA ENGINEERS, INC.

| | |
|------|--------------------|
| DATE | FILE NO B-3345-L03 |
|------|--------------------|

FOR LOCATION OF CROSS SECTION, SEE STATION 313+28 (PLATE A-XII)

NOTE: FOR LEGEND, SEE GEOLOGIC MAP, PLATE A-1

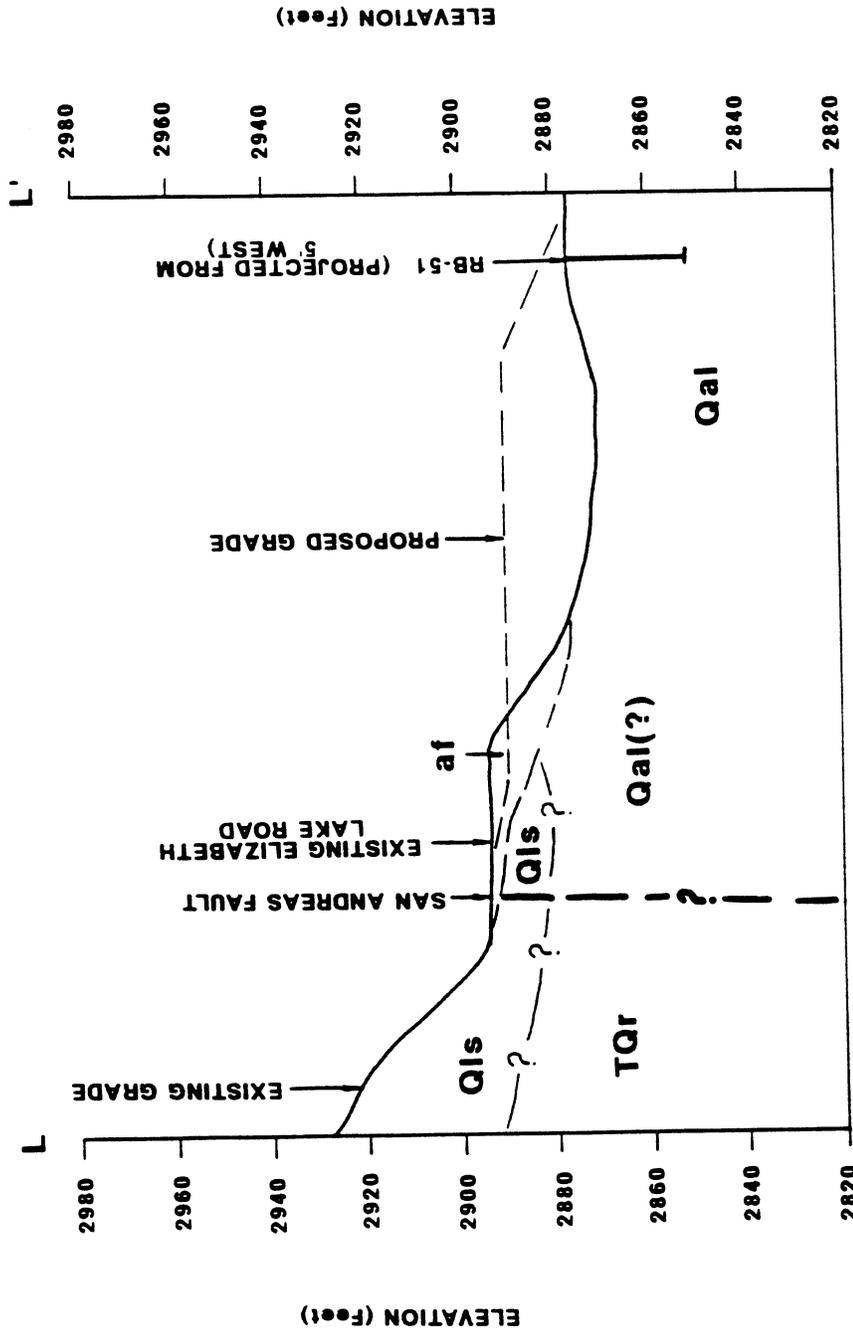


PLATE A-LXII

SCALE: 1"=40'

N22E

| | |
|--|--------------------|
| GEOLOGIC CROSS SECTION L-L' AMARGOSA AREA ASSESSMENT DISTRICT 90-1 ELIZABETH LAKE ROAD PALMDALE, LOS ANGELES COUNTY, CALIF. | |
| BUENA ENGINEERS, INC. | |
| DATE | FILE NO B-3345-L03 |

FOR LOCATION OF CROSS SECTION, SEE STATION 287+78 (PLATE A-XIV)
 NOTE: FOR LEGEND, SEE GEOLOGIC MAP, PLATE A-1

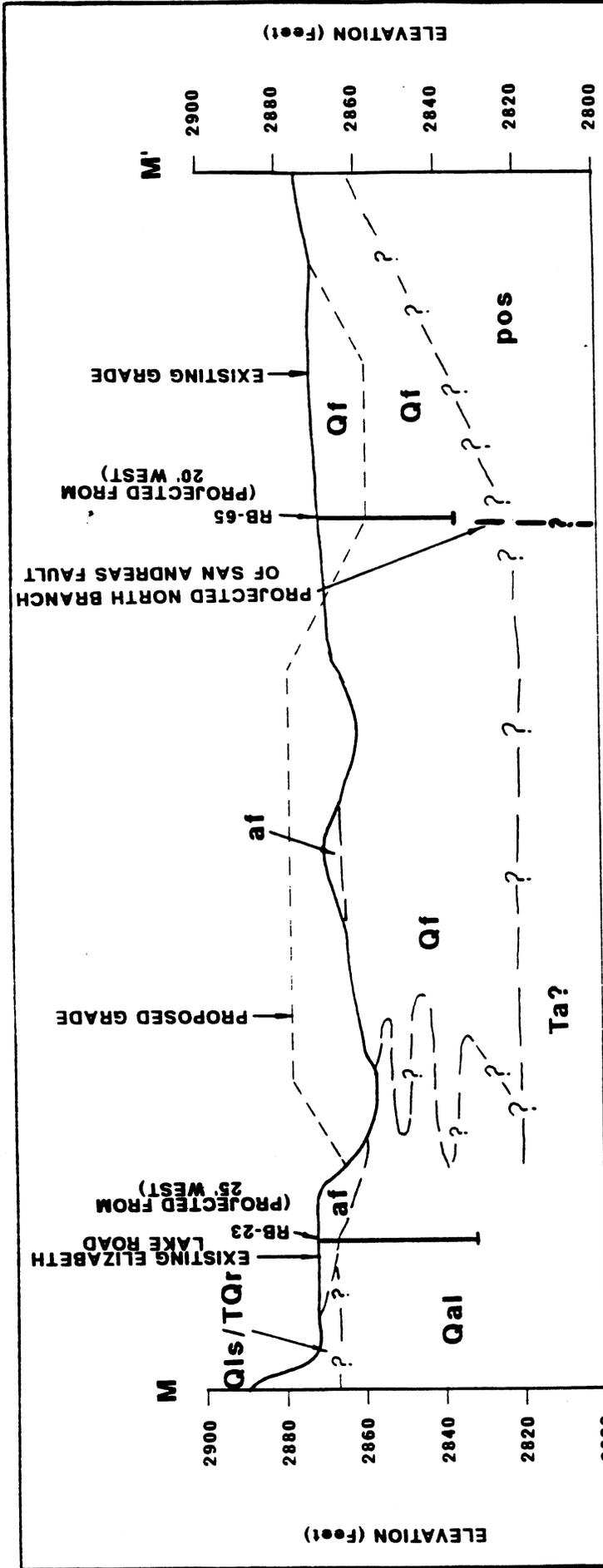


PLATE A-LXIII

GEOLOGIC CROSS SECTION M-M'
AMARGOSA AREA ASSESSMENT DISTRICT 90-1
 ELIZABETH LAKE ROAD
 PALMDALE, LOS ANGELES COUNTY, CALIF.

BUENA ENGINEERS, INC.

DATE

FILE NO B-3345-L03

FOR LOCATION OF CROSS SECTION, SEE STATION 273+50 (PLATE A-XV)

NOTE: FOR LEGEND, SEE GEOLOGIC MAP, PLATE A-1

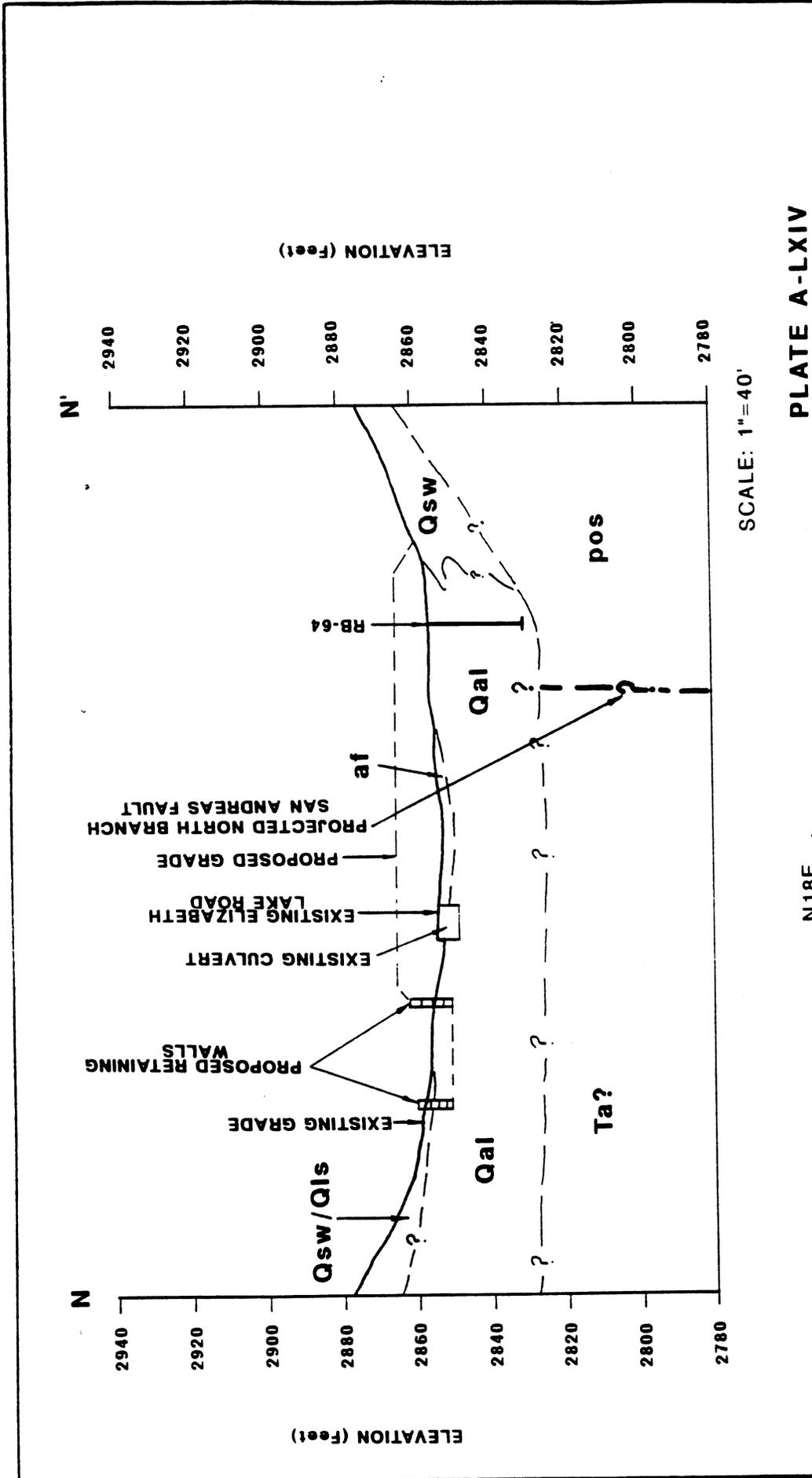


PLATE A-LXIV

GEOLOGIC CROSS SECTION N-N'
 AMARGOSA AREA ASSESSMENT DISTRICT 90-1
 ELIZABETH LAKE ROAD
 PALMDALE, LOS ANGELES COUNTY, CALIF.

BUENA ENGINEERS, INC.

DATE _____ FILE NO B-3345-L03

FOR LOCATION OF CROSS SECTION, SEE STATION 265+28 (PLATE A-XVI)

NOTE: FOR LEGEND, SEE GEOLOGIC MAP, PLATE A-I

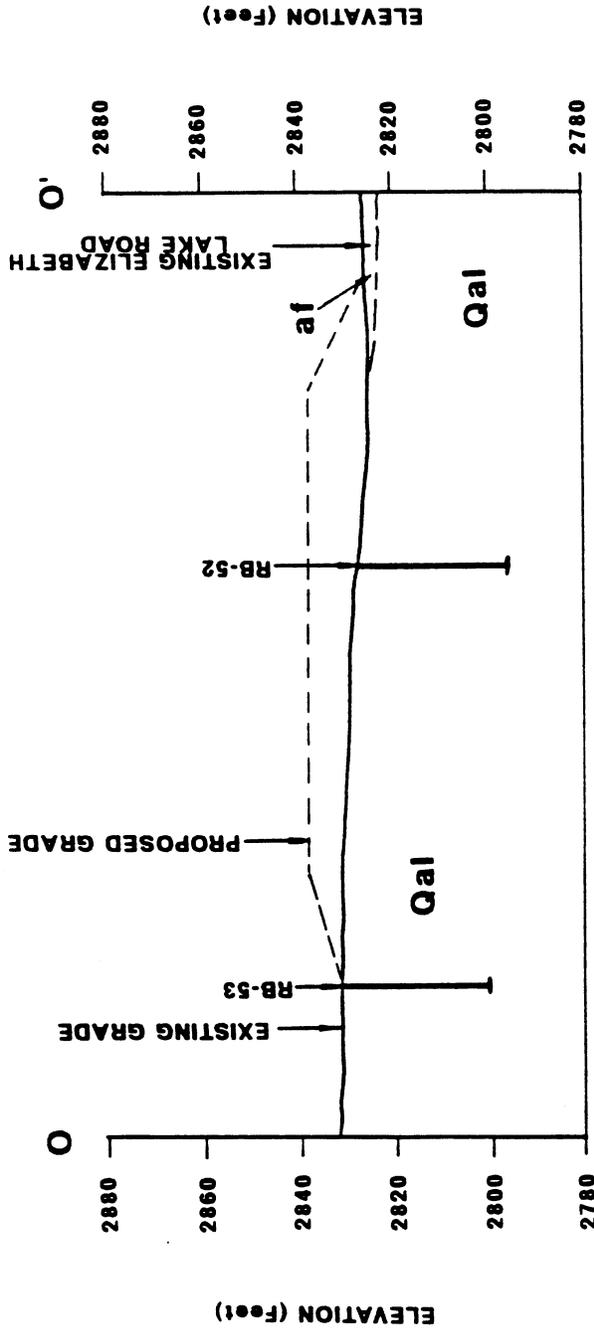


PLATE A-LXV

GEOLOGIC CROSS SECTION O-O'
 AMARGOSA AREA ASSESSMENT DISTRICT 90-1
 ELIZABETH LAKE ROAD
 PALMDALE, LOS ANGELES COUNTY, CALIF.

BUENA ENGINEERS, INC.

DATE FILE NO B-3345-L03

FOR LOCATION OF CROSS SECTION, SEE STATION 236+35 (PLATE A-XIX)

NOTE: FOR LEGEND, SEE GEOLOGIC MAP, PLATE A-I

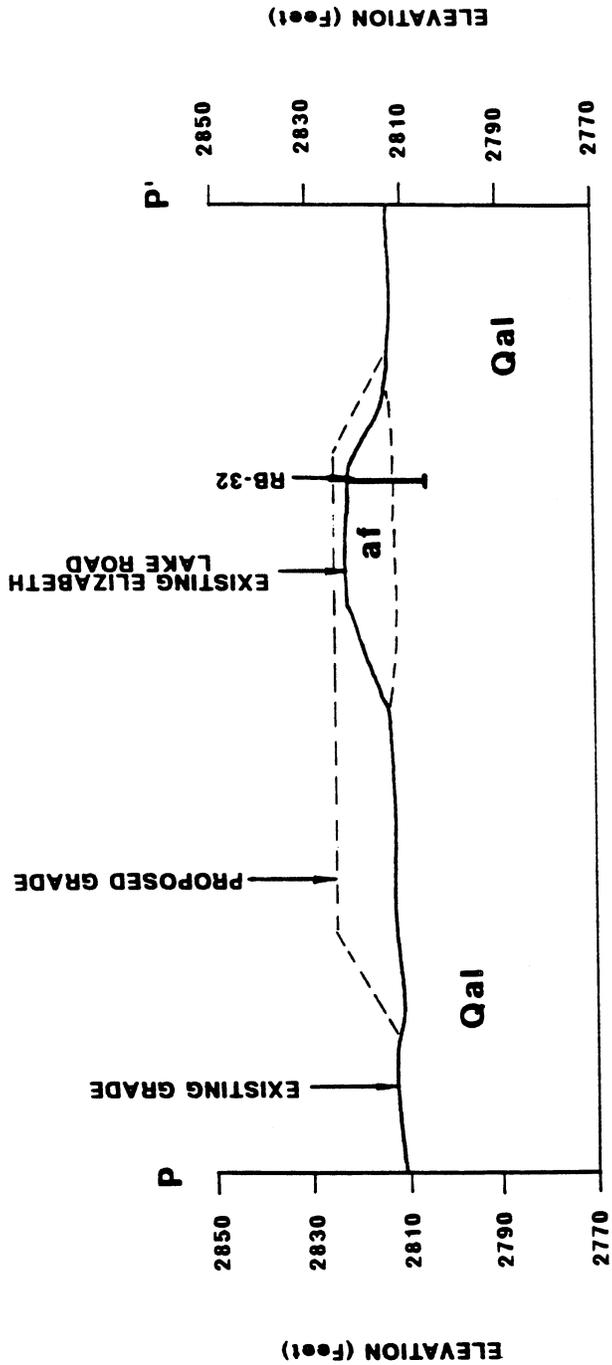


PLATE A-LXVI

GEOLOGIC CROSS SECTION P-P'
 AMARGOSA AREA ASSESSMENT DISTRICT 90-1
 ELIZABETH LAKE ROAD
 PALMDALE, LOS ANGELES COUNTY, CALIF.

BUENA ENGINEERS, INC.

DATE FILE NO B-3345-L03

FOR LOCATION OF CROSS SECTION, SEE STATION 219+38 (PLATE A-XX)

NOTE: FOR LEGEND, SEE GEOLOGIC MAP, PLATE A-I

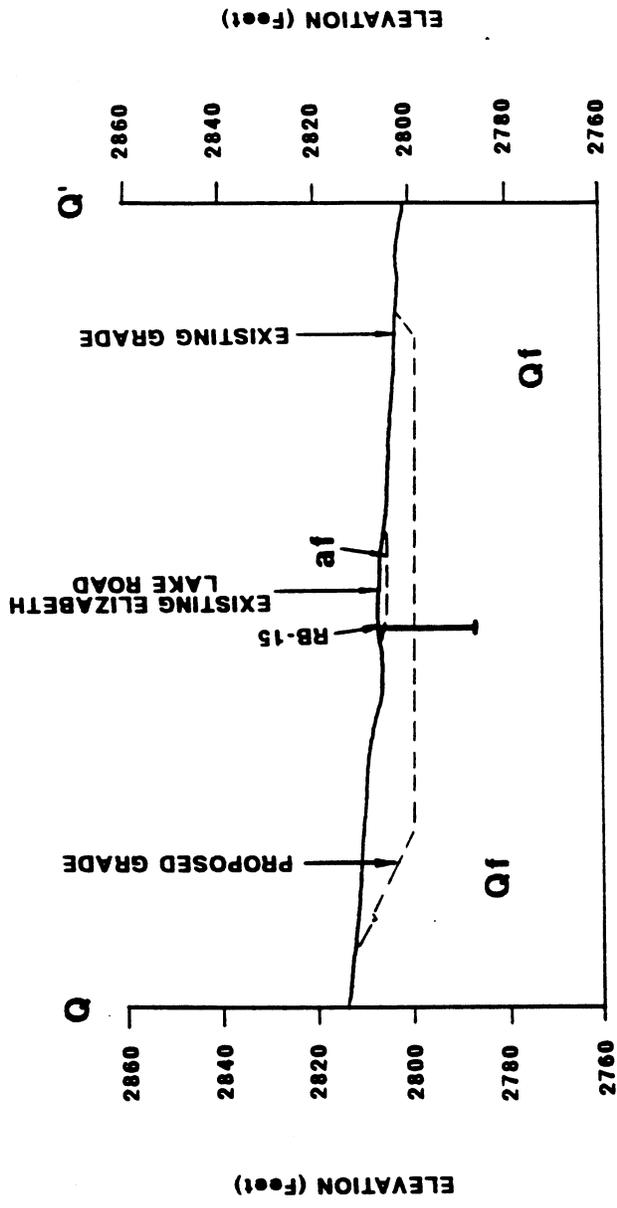
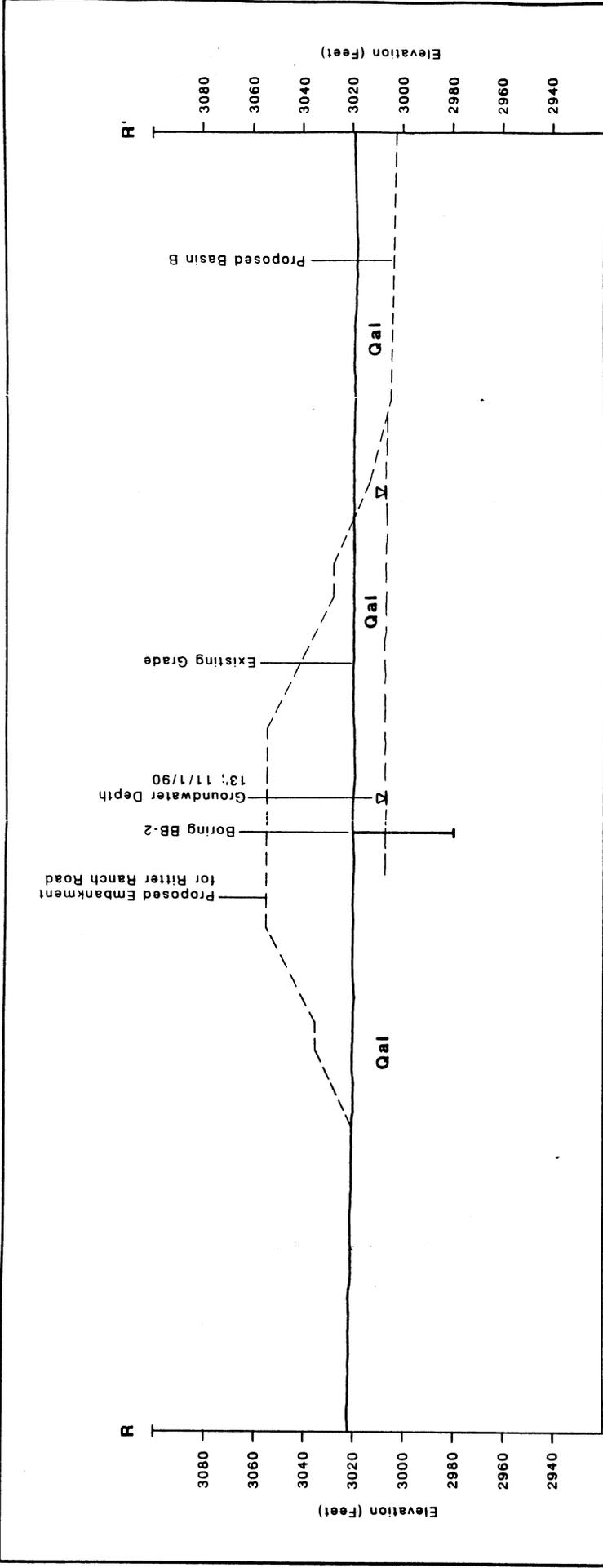


PLATE A-LXVII

| | |
|---|--------------------|
| GEOLOGIC CROSS SECTION Q-Q' AMARGOSA AREA ASSESSMENT DISTRICT 90-1 ELIZABETH LAKE ROAD PALMDALE, LOS ANGELES COUNTY, CALIF. | |
| BUENA ENGINEERS, INC. | |
| DATE | FILE NO B-3345-L03 |

FOR LOCATION OF CROSS SECTION, SEE STATION 190+08 (PLATE A-XXIII)

NOTE: FOR LEGEND, SEE GEOLOGIC MAP, PLATE A-I



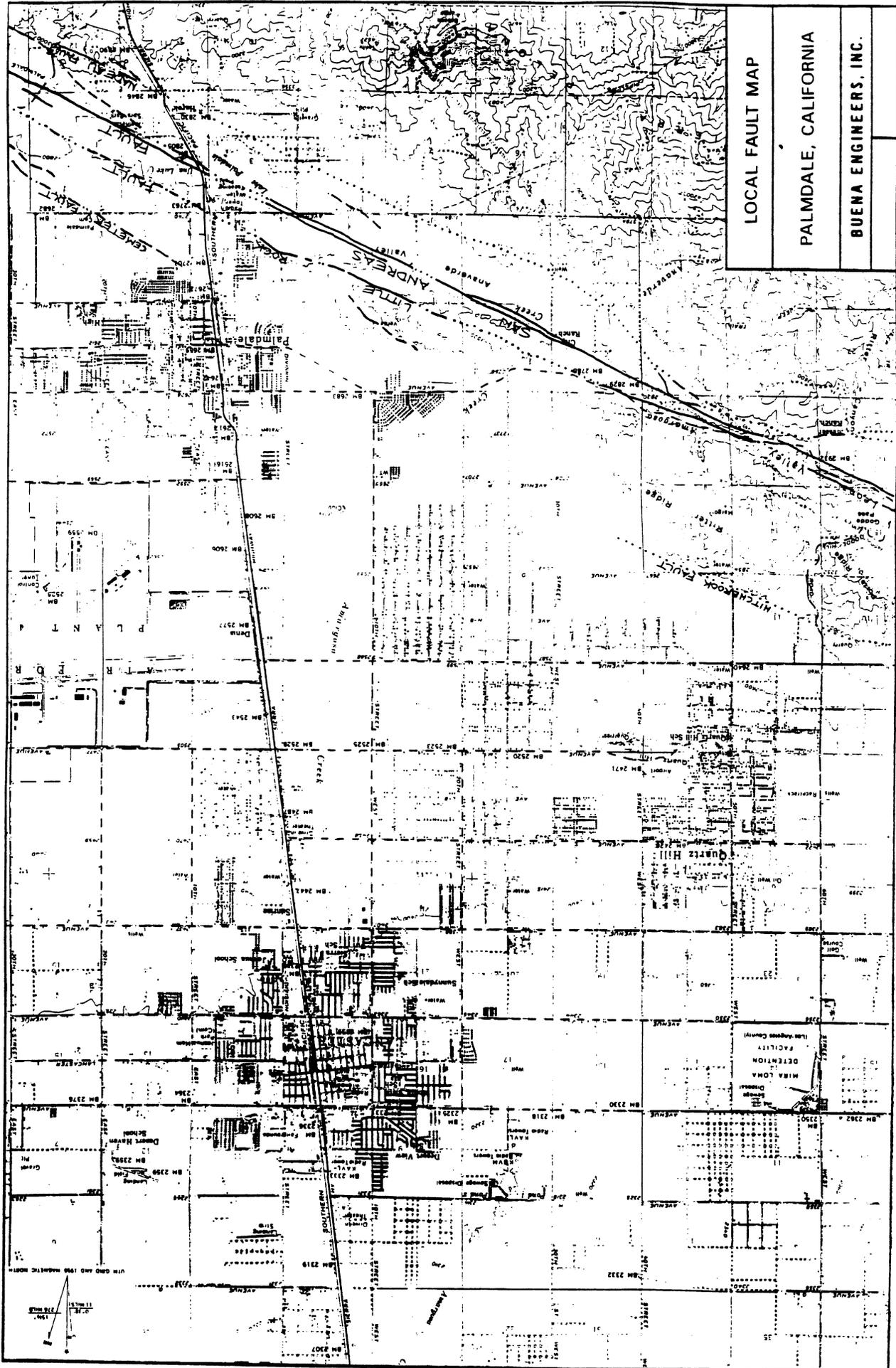
DRAWN

PLATE A-LXVIII

SCALE: 1"=40'

NOTE: FOR LEGEND, SEE GEOLOGIC MAP, PLATE A-1
 FOR LOCATION OF CROSS SECTION SEE PLATE A-XXXII

| | |
|---|--------------------|
| GEOLOGIC CROSS SECTION R-R' | |
| AMARGOSA AREA ASSESSMENT DISTRICT 90-1 ELIZABETH LAKE ROAD PALMDALE, LOS ANGELES COUNTY, CALIFORNIA | |
| BUENA ENGINEERS, INC. | |
| DATE: | JOB NO: B-3345-L03 |



Attachment A

**DETAILED BORING LOGS ARE AVAILABLE FOR REVIEW AT THE CITY
OF PALMDALE PLANNING DEPARTMENT UNDER THE FOLLOWING
TITLE:**

**GEOTECHNICAL ENGINEERING REPORT
CITY OF PALMDALE ASSESSMENT DISTRICT 90-1
ELIZABETH LAKE ROAD
30TH STREET WEST TO 90TH STREET WEST
PALMDALE, LOS ANGELES COUNTY, CALIFORNIA
APPENDIX A**

C. Air Quality Data

Air Quality Assumptions

Fugitive Dust PM10 Calculations

- 175 loaded truck trips per day for 450 days;
- 90 percent of truck trips on paved local road;
- 10 percent of loaded truck trips on unpaved road.

Grading

- Construction period of one and a half years (450 working days);
- 500 acres total grading (including roadfill embankment, channel area, related facilities and allowing for a disturbance area);
- 1.6 million cubic yards cut;
- 200,000 cubic yards fill;
- Construction permitted 6:30 a.m. to 600 p.m., Monday through Saturday;
- Assumes 78 working days per quarter;
- Assumes average of 25 acres of grading per day.

Construction Equipment

- Two tracked loaders for 13.5 hour per day for 450 days;
- Two motor graders for 13.5 hours per day for 20 days;
- Four wheeled dozers for 13.5 hours per day for 450 days;
- 175 hauling trucks at 30 miles per hour using 1995 emission factors vehicles over 6,000 lbs for Los Angeles County in Draft Final CEQA Handbook, Table 9-5-K-3.

Operation Emissions

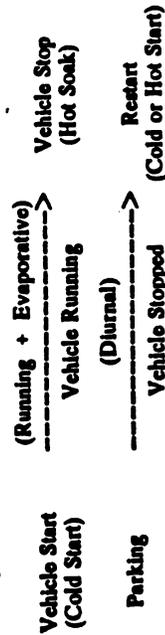
- 1992 VMT fleet mix of 89.6 percent passenger vehicles and 10.4 percent trucks (Table 9-5-G, Los Angeles County, of Draft Final CEQA Air Quality Handbook, SCAQMD);
- 2010 VMT fleet mix of 89.2 percent passenger vehicles and 10.8 percent trucks (Table 9-5-G, Los Angeles County, of Draft Final CEQA Air Quality Handbook, SCAQMD);

- 1992 Emmission Factors based upon Tables 9-5-J-2 and 9-5-J-10, Appendix 9 of Draft Final CEQA Air Quality Handbook.
- 2010 Emmission Factors based upon Tables 9-5-K-2 and 9-5-K-10, Appendix 9 of Draft CEQA Air Quality Handbook.
- Speeds based on Table 9-5-F, Los Angeles County, Appendix 9 of Draft Final CEQA Air Quality Handbook.
 - CO and NOx: Existing - 24.0 miles per hour; 2010 - 21.0 miles per hour
 - ROG: Existing - 34.0 miles per hour; 2010 - 33.0 miles per hour
 - SOx: Existing - 26.0 miles per hour; 2010 - 23.0 miles per hour
 - PM10: Existing - 25.0 miles per hour; 2010 - 25.0 miles per hour;
- VMT for 5.9 mile roadway segment (based on ADT and segment lengths)
 - Existing: 24,930
 - 2010 at Buildout with Project: 127,890
 - 2010 at Buildout without Project: 88,500

Table 9 - 5 - K - 2
EMFAC7EP-SCF EMISSION FACTORS FOR SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
Vehicles with Gross Vehicle Weight from 6,001 Pounds and Up***
Calendar Year 1993

| Vehicle Speed (Miles per Hour) | Running Exhaust and Evaporative (Grams per Mile)* | | | | | | | | | | | |
|-----------------------------------|---|--------|-------|----------------------------|-------|-------|--------------------|-------|-------|------------------------------|--------------------------------|--|
| | Carbon Monoxide | | | Reactive Organic Compounds | | | Oxides of Nitrogen | | | PM10 Exhaust FOR ALL AREA | PM10 Tire Wear FOR ALL AREA | |
| | AREA1 | AREA2 | AREA3 | AREA1 | AREA2 | AREA3 | AREA1 | AREA2 | AREA3 | | | |
| 5 | 108.09 | 108.67 | 99.15 | 10.41 | 10.56 | 11.24 | 9.67 | 9.29 | 11.00 | .94 | 0.19 | |
| 10 | 53.11 | 52.30 | 47.95 | 4.81 | 4.75 | 5.26 | 7.22 | 6.86 | 8.34 | .94 | 0.19 | |
| 15 | 33.85 | 33.05 | 30.40 | 3.07 | 3.00 | 3.43 | 6.31 | 5.97 | 7.21 | .94 | 0.19 | |
| 20 | 24.43 | 23.78 | 21.91 | 2.25 | 2.19 | 2.54 | 5.90 | 5.58 | 6.65 | .94 | 0.19 | |
| 25 | 19.12 | 18.60 | 17.15 | 1.77 | 1.72 | 2.03 | 5.76 | 5.46 | 6.40 | .94 | 0.19 | |
| 30 | 15.97 | 15.55 | 14.33 | 1.47 | 1.43 | 1.69 | 5.79 | 5.49 | 6.35 | .94 | 0.19 | |
| 35 | 14.16 | 13.81 | 12.72 | 1.28 | 1.25 | 1.46 | 5.94 | 5.65 | 6.47 | .94 | 0.19 | |
| 40 | 13.31 | 13.00 | 11.95 | 1.16 | 1.14 | 1.32 | 6.21 | 5.90 | 6.74 | .94 | 0.19 | |
| 45 | 13.29 | 13.02 | 11.93 | 1.11 | 1.09 | 1.25 | 6.58 | 6.26 | 7.16 | .94 | 0.19 | |
| 50 | 14.15 | 13.89 | 12.70 | 1.11 | 1.10 | 1.24 | 7.10 | 6.75 | 7.76 | .94 | 0.19 | |
| 55 | 16.17 | 15.95 | 14.53 | 1.16 | 1.15 | 1.30 | 7.79 | 7.41 | 8.61 | .94 | 0.19 | |
| 60 | 21.16 | 21.07 | 19.13 | 1.27 | 1.27 | 1.42 | 8.71 | 8.29 | 9.77 | .94 | 0.19 | |
| 65 | 33.59 | 33.99 | 30.77 | 1.51 | 1.53 | 1.67 | 9.99 | 9.49 | 11.41 | .94 | 0.19 | |
| COLD START* (Grams/Trip) | 54.88 | 53.22 | 54.21 | 3.25 | 3.15 | 3.19 | 1.39 | 1.37 | 1.34 | | | |
| HOT START* (Grams/Trip) | 6.94 | 6.70 | 6.84 | 1.31 | 1.27 | 1.48 | 0.56 | 0.50 | 0.48 | | | |
| HOT SOAK* (Grams/Trip) | --- | --- | --- | 0.90 | 1.02 | 1.04 | --- | --- | --- | | | |
| DIURNAL** (Grams/Vehicle/Day) | --- | --- | --- | 3.64 | 3.64 | 3.64 | --- | --- | --- | | | |

Example of one daily trip:



* Vehicle Miles Traveled (VMT) or Average Daily Trips (ADT)-weighted emission factors:
 Include VMT or ADT from diesel-fueled vehicles (33.33%), gasoline-fueled vehicles equipped with catalyst (46.02%), and gasoline-fueled vehicles not equipped with catalyst (20.65%).

** Number of Vehicles (NOV)-weighted emission factors:
 Include NOV from diesel-fueled vehicles (33.33%), gasoline-fueled vehicles equipped with catalyst (37.74%), and gasoline-fueled vehicles not equipped with catalyst (28.93%).

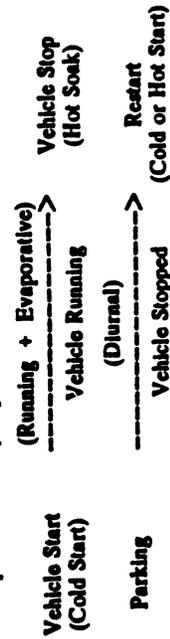
*** Vehicles with gross vehicle weight from 6,001 pounds and up:
 Include ARB's medium-duty and light/heavy-duty, medium/heavy-duty and heavy/heavy-duty vehicles, e.g.: construction and demolition materials hauling trucks.
 (SG10HD13.WK1)

Table 9 - 5 - K - 10

**EMFAC7EP-SCF EMISSION FACTORS FOR SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
Vehicles with Gross Vehicle Weight from 6,001 Pounds and Up***
Calendar Year 2009**

| Vehicle Speed (Miles per Hour) | Running Exhaust and Evaporative (Grams per Mile)* | | | | | | | | | | | | |
|-----------------------------------|---|-------|-------|----------------------------|-------|-------|--------------------|-------|-------|--------------|--------------|----------------|--|
| | Carbon Monoxide | | | Reactive Organic Compounds | | | Oxides of Nitrogen | | | PM10 Exhaust | | PM10 Tire Wear | |
| | AREA1 | AREA2 | AREA3 | AREA1 | AREA2 | AREA3 | AREA1 | AREA2 | AREA3 | FOR ALL AREA | FOR ALL AREA | FOR ALL AREA | |
| 5 | 37.68 | 37.90 | 37.65 | 5.17 | 5.26 | 5.91 | 7.47 | 7.39 | 8.35 | 0.34 | 0.34 | 0.18 | |
| 10 | 19.13 | 18.66 | 19.07 | 2.30 | 2.22 | 2.64 | 5.39 | 5.28 | 6.13 | 0.34 | 0.34 | 0.18 | |
| 15 | 11.94 | 11.45 | 11.90 | 1.51 | 1.42 | 1.74 | 4.59 | 4.52 | 5.24 | 0.34 | 0.34 | 0.18 | |
| 20 | 8.43 | 8.01 | 8.40 | 1.13 | 1.06 | 1.31 | 4.21 | 4.17 | 4.79 | 0.34 | 0.34 | 0.18 | |
| 25 | 6.48 | 6.13 | 6.46 | 0.90 | 0.85 | 1.05 | 4.05 | 4.04 | 4.59 | 0.34 | 0.34 | 0.18 | |
| 30 | 5.35 | 5.06 | 5.33 | 0.77 | 0.72 | 0.89 | 4.04 | 4.04 | 4.55 | 0.34 | 0.34 | 0.18 | |
| 35 | 4.72 | 4.47 | 4.70 | 0.67 | 0.63 | 0.78 | 4.13 | 4.15 | 4.64 | 0.34 | 0.34 | 0.18 | |
| 40 | 4.43 | 4.22 | 4.41 | 0.61 | 0.58 | 0.71 | 4.32 | 4.34 | 4.84 | 0.34 | 0.34 | 0.18 | |
| 45 | 4.45 | 4.26 | 4.41 | 0.58 | 0.55 | 0.67 | 4.60 | 4.62 | 5.15 | 0.34 | 0.34 | 0.18 | |
| 50 | 4.76 | 4.59 | 4.72 | 0.57 | 0.54 | 0.66 | 4.99 | 5.00 | 5.60 | 0.34 | 0.34 | 0.18 | |
| 55 | 5.46 | 5.32 | 5.40 | 0.57 | 0.55 | 0.66 | 5.52 | 5.51 | 6.21 | 0.34 | 0.34 | 0.18 | |
| 60 | 6.71 | 6.61 | 6.63 | 0.58 | 0.57 | 0.68 | 6.24 | 6.19 | 7.06 | 0.34 | 0.34 | 0.18 | |
| 65 | 8.88 | 8.85 | 8.77 | 0.62 | 0.61 | 0.72 | 7.23 | 7.11 | 8.23 | 0.34 | 0.34 | 0.18 | |
| COLD START* (Grams/Trip) | 25.99 | 25.69 | 25.46 | 1.38 | 1.36 | 1.31 | 1.68 | 1.67 | 1.59 | | | | |
| HOT START* (Grams/Trip) | 4.29 | 4.24 | 4.33 | 0.41 | 0.41 | 0.47 | 0.67 | 0.63 | 0.61 | | | | |
| HOT SOAK* (Grams/Trip) | --- | --- | --- | 0.33 | 0.38 | 0.37 | --- | --- | --- | | | | |
| DIURNAL** (Grams/Vehicle/Day) | --- | --- | --- | 1.18 | 1.18 | 1.18 | --- | --- | --- | | | | |

Example of one daily trip:



* Vehicle Miles Traveled (VMT) or Average Daily Trips (ADT)-weighted emission factors:
Includes VMT or ADT from diesel-fueled vehicles (33.33%), gasoline-fueled vehicles equipped with catalyst (46.02%), and gasoline-fueled vehicles not equipped with catalyst (20.65%)

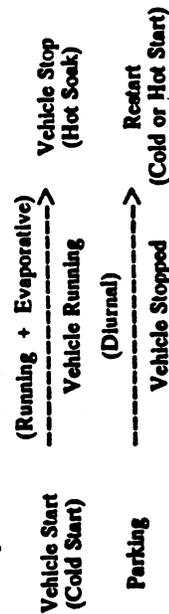
** Number of Vehicles (NOV)-weighted emission factors:
Includes NOV from diesel-fueled vehicles (33.33%), gasoline-fueled vehicles equipped with catalyst (37.74%), and gasoline-fueled vehicles not equipped with catalyst (28.93%).

*** Vehicles with gross vehicle weight from 6,001 pounds and up:
Includes ARB's medium-duty and light/heavy-duty, medium/heavy-duty and heavy/heavy-duty vehicles, e.g.: construction and demolition materials hauling trucks. (SG10HD29, WK1)

Table 9 - 5 - J - 10
EMFAC7EP-SCF EMISSION FACTORS FOR SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
Vehicles with Gross Vehicle Weight up to 6,000 Pounds and less***
Calendar Year 2009

| Vehicle Speed (Miles per Hour) | Running Exhaust and Bvaporative (Grams per Mile)* | | | | | | | | | | | |
|-----------------------------------|---|-------|-------|----------------------------|-------|-------|--------------------|-------|-------|--------------|----------------|--|
| | Carbon Monoxide | | | Reactive Organic Compounds | | | Oxides of Nitrogen | | | PM10 Exhaust | PM10 Tire Wear | |
| | AREA1 | AREA2 | AREA3 | AREA1 | AREA2 | AREA3 | AREA1 | AREA2 | AREA3 | FOR ALL AREA | FOR ALL AREA | |
| 5 | 27.19 | 27.41 | 27.75 | 2.06 | 2.07 | 2.40 | 1.21 | 1.19 | 1.25 | 0.01 | 0.10 | |
| 10 | 8.93 | 9.00 | 9.12 | 0.40 | 0.40 | 0.50 | 0.50 | 0.49 | 0.51 | 0.01 | 0.10 | |
| 15 | 3.91 | 3.94 | 3.99 | 0.14 | 0.15 | 0.20 | 0.31 | 0.31 | 0.33 | 0.01 | 0.10 | |
| 20 | 2.17 | 2.19 | 2.22 | 0.09 | 0.09 | 0.13 | 0.27 | 0.27 | 0.28 | 0.01 | 0.10 | |
| 25 | 1.48 | 1.49 | 1.51 | 0.06 | 0.06 | 0.10 | 0.26 | 0.26 | 0.28 | 0.01 | 0.10 | |
| 30 | 1.19 | 1.20 | 1.22 | 0.06 | 0.06 | 0.09 | 0.29 | 0.29 | 0.30 | 0.01 | 0.10 | |
| 35 | 1.09 | 1.11 | 1.12 | 0.06 | 0.06 | 0.08 | 0.32 | 0.32 | 0.34 | 0.01 | 0.10 | |
| 40 | 1.14 | 1.15 | 1.17 | 0.07 | 0.07 | 0.08 | 0.36 | 0.36 | 0.38 | 0.01 | 0.10 | |
| 45 | 1.30 | 1.31 | 1.34 | 0.07 | 0.07 | 0.08 | 0.41 | 0.40 | 0.43 | 0.01 | 0.10 | |
| 50 | 1.60 | 1.63 | 1.66 | 0.08 | 0.08 | 0.09 | 0.45 | 0.45 | 0.47 | 0.01 | 0.10 | |
| 55 | 2.14 | 2.17 | 2.22 | 0.09 | 0.09 | 0.10 | 0.50 | 0.49 | 0.52 | 0.01 | 0.10 | |
| 60 | 3.07 | 3.12 | 3.19 | 0.10 | 0.10 | 0.12 | 0.53 | 0.53 | 0.55 | 0.01 | 0.10 | |
| 65 | 4.76 | 4.83 | 4.95 | 0.12 | 0.12 | 0.14 | 0.57 | 0.57 | 0.59 | 0.01 | 0.10 | |
| COLD START* (Grams/Trip) | 49.38 | 49.53 | 49.89 | 1.37 | 1.37 | 1.35 | 1.12 | 1.11 | 1.12 | | | |
| HOT START* (Grams/Trip) | 6.18 | 6.26 | 5.40 | 0.28 | 0.28 | 0.26 | 0.50 | 0.49 | 0.31 | | | |
| HOT SOAK* (Grams/Trip) | --- | --- | --- | 0.29 | 0.29 | 0.29 | --- | --- | --- | | | |
| DIURNAL** (Grams/Vehicle/Day) | --- | --- | --- | 0.53 | 0.54 | 0.54 | --- | --- | --- | | | |

Example of one daily trip:



* Vehicle Miles Traveled (VMT)/Average Daily Trips (ADT) -weighted emission factors:
 Includes VMT/ADT from diesel-fueled vehicles (0.03%), gasoline-fueled vehicles equipped with catalyst (99.97%), and gasoline-fueled vehicles not equipped with catalyst (0.0%).

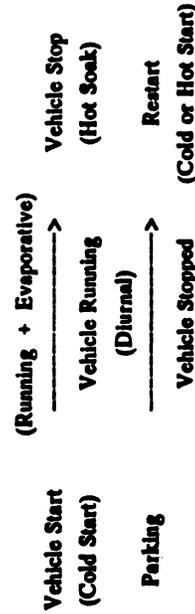
** Number of Vehicles (NOV)-weighted emission factors:
 Includes NOV from diesel-fueled vehicles (0.07%), gasoline-fueled vehicles equipped with catalyst (99.93%), and gasoline-fueled vehicles not equipped with catalyst (0.0%).

*** Vehicles with gross vehicle weight up to 6,000 pounds and less:
 Includes ARB's light automobiles, light-duty trucks, vans, station wagons and 4x4 trucks.

EMFAC7EP-SCF EMISSION FACTORS FOR SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
Vehicles with Gross Vehicle Weight up to 6,000 Pounds and less***
Calendar Year 1993

| Vehicle Speed (Miles per Hour) | Running Exhaust and Evaporative (Grams per Mile)* | | | | | | | | | | | |
|---|---|--------|--------|----------------------------|-------|-------|--------------------|-------|-------|------------------------------|--------------------------------|--|
| | Carbon Monoxide | | | Reactive Organic Compounds | | | Oxides of Nitrogen | | | PM10 Exhaust FOR ALL AREA | PM10 Tire Wear FOR ALL AREA | |
| | AREA1 | AREA2 | AREA3 | AREA1 | AREA2 | AREA3 | AREA1 | AREA2 | AREA3 | | | |
| 5 | 103.46 | 103.63 | 105.49 | 7.32 | 7.33 | 8.74 | 2.95 | 2.85 | 2.89 | 0.02 | 0.10 | |
| 10 | 29.25 | 29.29 | 29.76 | 2.09 | 2.09 | 2.74 | 1.22 | 1.18 | 1.20 | 0.02 | 0.10 | |
| 15 | 13.18 | 13.20 | 13.40 | 1.01 | 1.01 | 1.46 | 0.88 | 0.85 | 0.86 | 0.02 | 0.10 | |
| 20 | 8.12 | 8.13 | 8.26 | 0.67 | 0.67 | 1.03 | 0.85 | 0.82 | 0.83 | 0.02 | 0.10 | |
| 25 | 6.16 | 6.17 | 6.27 | 0.52 | 0.52 | 0.80 | 0.93 | 0.90 | 0.92 | 0.02 | 0.10 | |
| 30 | 5.36 | 5.36 | 5.46 | 0.46 | 0.46 | 0.68 | 1.06 | 1.02 | 1.04 | 0.02 | 0.10 | |
| 35 | 5.09 | 5.10 | 5.20 | 0.42 | 0.42 | 0.59 | 1.20 | 1.15 | 1.12 | 0.02 | 0.10 | |
| 40 | 5.19 | 5.20 | 5.30 | 0.41 | 0.41 | 0.53 | 1.32 | 1.27 | 1.03 | 0.02 | 0.10 | |
| 45 | 5.66 | 5.67 | 5.78 | 0.42 | 0.42 | 0.50 | 1.44 | 1.39 | 1.41 | 0.02 | 0.10 | |
| 50 | 6.71 | 6.72 | 6.85 | 0.48 | 0.48 | 0.55 | 1.53 | 1.48 | 1.51 | 0.02 | 0.10 | |
| 55 | 8.91 | 8.93 | 9.12 | 0.58 | 0.58 | 0.66 | 1.62 | 1.57 | 1.59 | 0.02 | 0.10 | |
| 60 | 14.68 | 14.71 | 15.04 | 0.74 | 0.74 | 0.85 | 1.69 | 1.63 | 1.66 | 0.02 | 0.10 | |
| 65 | 32.31 | 32.39 | 33.22 | 1.06 | 1.06 | 1.21 | 1.73 | 1.67 | 1.70 | 0.02 | 0.10 | |
| COLD START* (Grams/Trip) | 101.23 | 101.22 | 100.80 | 5.19 | 5.19 | 5.31 | 2.00 | 1.98 | 1.95 | | | |
| HOT START* (Grams/Trip) | 17.53 | 17.55 | 14.95 | 1.70 | 1.70 | 1.68 | 0.91 | 0.84 | 0.99 | | | |
| HOT SOAK* (Grams/Trip) | --- | --- | --- | 1.31 | 1.31 | 1.32 | --- | --- | --- | | | |
| DIURNAL** (Grams/Vehicle/Day) | --- | --- | --- | 3.22 | 3.22 | 3.22 | --- | --- | --- | | | |

Example of one daily trip:



- * Vehicle Miles Traveled (VMT)/Average Daily Trips (ADT) --weighted emission factors:
Includes VMT/ADT from diesel-fueled vehicles (1.64%), gasoline-fueled vehicles equipped with catalyst (95.83%), and gasoline-fueled vehicles not equipped with catalyst (2.53%).
- ** Number of Vehicles (NOV)--weighted emission factors:
Includes NOV from diesel-fueled vehicles (2.00%), gasoline-fueled vehicles equipped with catalyst (92.72%), and gasoline-fueled vehicles not equipped with catalyst (5.28%).
- *** Vehicles with gross vehicle weight up to 6,000 pounds and less:
Includes ARB's light automobiles, light-duty trucks, vans, station wagons and 4x4 trucks.

E. Biological Resources Assessment

**PLEASE REFER TO SECTION IV.D, BIOLOGICAL RESOURCES FOR
UPDATED VEGETATION ACREAGE ESTIMATES AND THE
VEGETATION MAP (data in the EIR section is based on more detailed
design plans and was calculated with an electronic digitizer).**

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**BIOLOGICAL ASSESSMENT OF THE EXPECTED IMPACT AREA OF THE
ELIZABETH LAKE ROAD WIDENING AND
AMARGOSA CREEK PHASE II FLOOD CONTROL AND REALIGNMENT PROJECTS
CITY OF PALMDALE SPHERE OF INFLUENCE**

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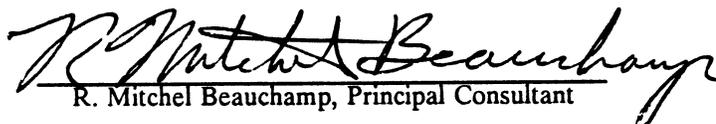

R. Mitchel Beauchamp, Principal Consultant

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Wetlands delineations were made by R. Mitchel Beauchamp during his field examination. On 9 November 1990 Craig H. Reiser mapped the distribution of *Juncus spp.* and *Distichlis spicata* in the upper basin. The contiguous growth of these native wetland indicator plants adjacent to the creek channel was given as the criterion for Corps jurisdiction following a visit to the site by Regulatory Branch staff of the Los Angeles District of the Corps.

The zoological portion of the survey was conducted by Eric R. Lichtwardt on 11 and 12 September and 9 November 1990. Field times were from dusk to 2100 on 11 September, 0530 to 1500 on 12 September and 1630 to 1730 on 9 November 1990.

All habitats were visited during the field examination. Basic field methods involved walking slowly or sitting quietly in areas of habitat and watching for wildlife and listening for bird vocalizations. Wildlife identifications and observations were aided by binoculars (10 x 40) power. Unobserved species were identified through indirect signs, (i.e. scat, tracks, calls, nests and burrows).

The prior biological surveys of the Ritter Ranch and Ritter Ridge sites (PSBS 1990a, 1990b) and surveys by others in the area (Parratt 1987, Tierra Madre 1988) provided information on spring conditions in the region.

Scientific nomenclature used in this report is from the following references: vegetation, Holland (1986); flora, Dedecker (1984) and Munz (1974); birds, American Ornithologists' Union (1983, 1989); reptiles and amphibians, Collins (1990); and mammals, Jameson and Peeters (1988). Wildlife habitat delineations follow that of Mayer and Laudenslayer (1988).

LOCATION

The linear site includes portions of Sections 16, 15, 22, 14, 23, and 24 in Range 13 West, Township 4 North of the San Bernardino Base and Meridian; USGS 7.5 Ritter Ridge and Sleepy Valley Quadrangles (Figure 1). Access to the region is from Avenue S in Palmdale, 60th Street West in Palmdale to Godde Hill Road or Bouquet Canyon Road from Santa Clarita. The California Aqueduct crosses the lower portion of the site as a siphon feature.

SUMMARY

A biological survey of the riparian and wetland habitats along Amargosa Creek from Bouquet Canyon to 25th Street West revealed Mountain Meadow, Cottonwood/Willow Riparian, Freshwater Marsh and Tamarisk Wash vegetation associations along the channel. The upper basin portion of the project area, with a Mountain Meadow habitat, has been heavily grazed by livestock. Large portions of the channel are disturbed by road crossings for adjacent residences. The impact of the project to the wetland and jurisdictional wetland areas along the channel amount to 30.5 acres. Mitigation of the impacts is proposed to be in the form of plant salvage and reuse in selected mitigation areas along the channel. Enhancement of wetlands along otherwise undisturbed portions of the creek is also planned as a mitigation.

INTRODUCTION

A biological survey was performed by Pacific Southwest Biological Services, Inc. of the areas of expected impact from the proposed widening of Elizabeth Lake Road and the development of detention basins to retard storm flows from the upper watershed of Amargosa Creek. The work was done under subcontract to Robert Bein, William Frost & Associates. Numerous discussions were held with engineering staff members of the Palmdale office of The Keith Companies regarding the design of the project. The extent of jurisdiction by the U.S. Army Corps of Engineers was determined by criterion established following a field inspection of the upper basin by Ms. Elizabeth Varnhagen of the Corps' Regulatory Branch, Los Angeles District.

METHODS

The botanical portion of the survey was conducted by R. Mitchel Beauchamp on 11 and 12 September 1990. The on-foot survey covered the entire length of the channel and adjacent slope areas which could possibly be impacted by grading associated with the project. Portions of the channel had been investigated earlier on 16 May 1990 in conjunction with the proposed Ritter Ranch and Ritter Ridge developments which involve portions of the channel. Vegetation and sensitive plant locations were delineated on a 1" = 200' topographic map of the feature.

GENERAL PHYSIOGRAPHY

The site is a rift valley of the San Andreas Fault with an associated parallel drainage which exits to the north at 25th Street west. Elevations range of the site is from 3089 feet at the upper basin to 2756 feet at the 25th Street West end. Soils mapped for the project are Chino loam, Hanford course and Hanford sandy loam, Gaviota rocky sandy loam, Gazos clay loam, and Riverwash (Woodruff 1970). Geology mapped for the area of the creek is largely recent alluvium (Rogers 1973).

For convenience of reference, the project has been divided into four segments of Amargosa Creek. The Western Channel and Upper Basin (Old Basin B) occur on the south side of Elizabeth Lake Road south of the Godde Hill Road intersection. The North Channel is that portion north of the road to the point where it crosses to the south side of the road, west of the horse stables. The South Channel runs from the horse stables to the crossing to the north, under the road. The Eastern Channel is that north of the road at the east end of the project site.

BOTANICAL RESOURCES

VEGETATION

Nine vegetation types were delineated on the proposed project site: Mountain Meadow, Mulefat Scrub, Cotton/Willow Riparian Woodland, Tamarisk Woodland, Great Basin Sage Scrub, Rabbitbush Scrub, Annual Grassland, Orchard/Residential, Juniper/Joshua Tree Woodland.

Mountain Meadow

The upper basin of the channel, located below the intersection of Godde Hill Road and Elizabeth Lake Road, is a broad valley which is dominated by a sward of *Carex*, *Juncus*, *Distichlis* and *Elymus species*. The feature has been heavily grazed and due to the dry conditions during the survey, data from a prior investigation of the site was utilized in determining the floristic composition of the meadow.

The meadow appears to have experienced better ground water conditions in the past. The incised channel which runs through the field has, no doubt, dropped the ground water and diminished the vigor of the grassy growth.

For the information depicted in Figure 1, refer to Exhibit 3.0-2, SITE VICINITY, in the Draft EIR text.

and planting of orchards in the flood plain of the creek. Aside from the intentional plantings, these areas share similar non-native plants as the Annual Grassland habitat mentioned above.

Juniper/Joshua Tree Woodland

The lower end of the channel had a Joshua Tree Woodland which has been severely burned and will be many decades in recovering. The floral diversity of the woodland, as observed in unburned islands, is rather low when compared to those few intact woodlands still surviving in the Palmdale and Lancaster areas.

FLORA

The observed flora of the site (Table 1) is very low due to the dormant time of the survey. The total probably represents about 55% of the possible site flora. The remainder would be mostly annuals whose remains were not identifiable at the time of the survey.

The floristic composition of the site reflects its unique ecotonal or transitional situation between coastal and desert influences. The project site flora is heavily influenced by the riparian association, with largely cismontane elements. The alkaline feature of desert wetlands is not developed on the site.

ZOOLOGICAL RESOURCES

GENERAL WILDLIFE HABITATS

Four primary wildlife habitats were delineated on-site: Scrublands, Desert Riparian Woodland, Juniper/Joshua Tree Woodland and Grasslands.

Scrublands

This habitat type interdigitates with the Desert Riparian Woodland on site, being found mainly in the floodplain of Amargosa Creek. There are also several Joshua Trees present in this habitat along the eastern portion of the site. Rodents and various species of lizards and snakes are common in scrublands. A distinctive avifauna occurs in Southern California scrub communities (see the **Birds** section) and a number of these species were present in this habitat on the site. Mammalian predators, such as Bobcat (*Lynx rufus*) and Coyote (*Canis latrans*), are often common in scrub habitats. This wildlife habitat includes several botanical categories including Mulefat Scrub, Great Basin Sage Scrub and Rabbitbush Scrub.

Mulefat Scrub

A majority of the channel of Amargosa Creek is involved with the growth of Mulefat (*Baccharis salicifolia*) as the dominant entity. Generally this vegetation type is very sparse and resolution of this vegetation category from others is somewhat arbitrary at times.

Cottonwood/Willow Riparian Woodland

The most conspicuous vegetation along Amargosa Creek is the Cottonwood Woodland. Willows are also present but are limited, perhaps be the lack of surface flows in the long term. Understory of the woodland is nil due to the narrow width of his woodland, which is usually the width of a single tree crown.

Tamarisk Woodland

The infestation of the channel by this Asiatic tree is most notable at the bend in the channel east of the horse stables before the creek runs north, under the road. Although cottonwoods also occur in this area, the tamarisk trees dominate here, as well as at a few other locations along the channel.

Great Basin Sage Scrub

This vegetation type occurs about the lowest portion of the channel in the Phase I area at 25th Street West. Also, just upstream of the proposed Ritter Ranch northern crossing, is a stand of vegetation characterized by the presence of *Artemisia tridentata*, the dominant shrub. Without this diagnostic shrub, the vegetation would be called out as Rabbitbush Scrub, which is described below.

Rabbitbush Scrub

The common desert community of Rabbitbush Scrub occurs scattered along the lower end of the channel. *Chrysothamnus nauseosus* is the indicator plant of this plant association in the project area.

Annual Grassland

Disturbed, fallow areas along the project route are dominated by non-native annual grasses, mostly bromes (*Bromus diandrus*, *B. mollis*, *B. tectorum*).

Orchard/Residential

The channel of Amargosa Creek passes through a small residential area just upstream of the powerline crossing. Here residents have disturbed the channel with road crossings, sand excavation, diking of the channel

Reptiles

Due to the season and dry surface conditions prevailing during the survey, diurnal reptile activity was limited. Only two species of lizards were observed on the project area: the Side-blotched Lizard (*Uta stansburiana*) and Western Whiptail (*Cnemidophorus tigris*) (Table 2). Both these species are common and widespread in arid habitats of the western United States.

Other reptile species expected to occur along the drainage of Amargosa Creek in the scrub and open riparian vegetation include Coast Horned Lizard (*Phrynosoma coronatum*), Gilbert's Skink (*Eumeces gilberti*), Coachwhip (*Masticophis flagellum*), Gopher Snake (*Pituophis catenifer*), Common Kingsnake (*Lampropeltis getulus*), and Western Rattlesnake (*Crotalus viridis*).

Birds

Forty-two species of birds were found on the project area (Table 2). The majority of these species was found in riparian vegetation in the upper part of the drainage. Three of the species observed are non-native to North America, having been introduced by humans. These are the Rock Dove (*Columba livia*), European Starling (*Sturnus vulgaris*), and House Sparrow (*Passer domesticus*). These three species are primarily associated with human use areas such as ranch yards and urban developments.

The Warbling Vireo (*Vireo gilvus*), Orange-crowned Warbler (*Vermivora celata*), Wilson's Warbler (*Wilsonia pusilla*), and Black-headed Grosbeak (*Phaeucticus melanocephalus*) are migratory species which spend the winter in Mexico or Central America. Species such as the White-breasted Nuthatch (*Sitta carolinensis*) and Dark-eyed Junco (*Junco hyemalis*) breed in the local mountains and winter in the surrounding lowlands. The American Robin (*Turdus migratorius*) is another migratory species which does not breed on the site. This large thrush was abundant in the riparian woodland during the 9 November 1990, visit to the site. Up to 50 individuals were observed drinking at once around a cattle tank along the creek bed.

Some of the typical species of scrub communities which were observed on the site include: Bewick's Wren (*Thryomanes bewickii*), California Thrasher (*Taxostoma redivivum*), California Towhee (*Pipilo crissalis*), Rufous-sided Towhee (*Pipilo erythrophthalmus*), and Lesser Goldfinch (*Carduelis psaltria*).

Two diurnal raptors, the Red-tailed Hawk (*Buteo jamaicensis*) and Red-shouldered Hawk (*Buteo lineatus*), were observed on the site and several Great Horned Owls (*Bubo virginianus*) were heard calling during

Desert Riparian Woodland

This habitat consists primarily of a sparse assemblage of medium-sized to large cottonwood and willow trees, with a minimum of understory growth. Nevertheless, the San Andreas Fault, which runs along the creek, has allowed an up-welling of water that is substantial enough to support some dense shrubbery and permanent sources of surface water. The importance of these relatively rare desert riparian systems to wildlife populations cannot be overstated. These habitats support more bird species at greater densities than almost any other desert habitat (England *et al.* 1981). The food, cover, and water available in these areas are invaluable to other species of wildlife as well.

Juniper/Joshua Tree Woodland

This open woodland type supports many of the same vertebrate species as scrublands; however species such as the California Cactus Wren (*Campylorhynchus brunneicapillus*) are associated with Joshua Trees in this area and the Scott's Oriole (*Icterus parisorum*) is partial to juniper stands. As noted above, this habitat has burned on the site and currently has low wildlife value.

Grassland

This habitat occurs in scattered locales adjacent to the Desert Riparian Woodland and includes the Mountain Meadow habitat. While this habitat does not support an extremely diverse vertebrate fauna, it is important as raptor foraging habitat and as wintering areas for a variety of sparrows, as well as other ground-foraging birds, such as California Quail (*Callipepla californica*) and Western Meadowlarks (*Sturnella neglecta*). Aerial foragers such as swallows often feed over grasslands. A variety of small mammals and snakes are also quite common in these habitats.

VERTEBRATES GROUPS

Amphibians

No amphibians were found on the site. The lack of observations of these animals is related to the season and lack of surface water on the site. Amphibian activity in arid regions is tied to the rainy season when adequate surface moisture is available. The Pacific Chorus Frog (*Pseudacris regilla*) and Western Toad (*Bufo boreas*) are both expected to occur along the main drainage of Amargosa Creek.

The wetland acreage of the project area involves 143.58 acres, which can be more closely quantified as:

CORPS OF ENGINEERS JURISDICTION

Upper Basin - 66.67 acres

| | |
|----------------------------|-------------|
| Cottonwood/Willow Woodland | 0.9 acre |
| Mountain Meadow | 65.77 acres |

Northern Channel - 38.36 acres

| | |
|------------------------------|-------------|
| Cottonwood/Willow Woodland | 11.35 acres |
| Freshwater Marsh | 2.29 acres |
| Mulefat | 19.62 acres |
| Joshua Tree/Juniper Woodland | 1.0 acre |
| Great Basin Scrub | 2.1 acres |
| Cultivated | 2.0 acres |

South Channel - 15.55 acres

| | |
|----------------------------|------------|
| Cottonwood/Willow Woodland | 3.1 acres |
| Mulefat | 2.91 acres |
| Tamarisk | 9.54 acres |

East Channel - 23.0 acres

| | |
|----------------------------|------------|
| Mulefat | 4.0 acres |
| Cottonwood/Willow Woodland | 19.0 acres |

SENSITIVE PLANTS

The only sensitive plant encountered on the site was a small population of the Great Valley Gumplant (*Grindelia camporum* var. *parviflora*) in the upper basin area. This population was badly mauled by the grazing cattle. The following vignette summarizes information about this low sensitivity plant.

Great Valley Gumplant (*Grindelia camporum* var. *parviflora*)

- LISTING:** CNPS (Smith and Berg 1988) 1-1-3
- DISTRIBUTION:** San Francisco - Marin County region south through the Central Valley to the Elizabeth Lake and Rock Creek areas of Los Angeles County.
- HABITAT:** Seasonally dry meadow and grassland habitats
- STATUS:** Declining due to agricultural clearing and development of fields for recreational purposes.

SENSITIVE PLANTS EXPECTED TO OCCUR BUT NOT FOUND ON-SITE

Prior work in the area indicated that several sensitive plants occur near the project site. These were not observed within the study area but are discussed here due to their potential for occurrence within the project area.

the night or were seen at their daytime roosts in the riparian woodland. Other raptors which are expected to utilize the habitats along the drainage of Amargosa Creek include the American Kestrel (*Falco sparverius*), Prairie Falcon (*Falco mexicanus*), and Golden Eagle (*Aquila chrysaetos*). Three Golden Eagles were observed adjacent to the site in the spring of 1990 (PSBS 1990). The Ferruginous Hawk (*Buteo regalis*) and Sharp-shinned Hawk (*Accipiter striatus*) are also expected during the winter months.

Mammals

Four species of mammals were detected on the site by finding their spoor or remains (Table 2). Desert Cottontail (*Sylvilagus audubonii*) scat was abundant around thickets along the major drainage and the diggings of Botta's Pocket Gopher (*Thomomys bottae*) were found in many areas.

A number of other mammal species are undoubtedly present; however, without a nocturnal trapping survey it is difficult to determine the presence of exact species. Some of the mammals which can be expected include at least one species each of the following rodents: pocket mouse (*Perognathus*), kangaroo rat (*Dipodomys*), white-footed mouse (*Peromyscus*), and woodrat (*Neotoma*). Several other species of rodents are probably found on the site.

Two carnivore species, the Coyote (*Canis latrans*) and Badger (*Taxidea taxus*), utilize the site as indicated by the presence of their scat and mummified remains, respectively. The Gray Fox (*Urocyon cinereoargenteus*) and Bobcat (*Lynx rufus*) are carnivores which, in addition to those listed above, are expected to utilize the site.

Various species of bats are expected to forage in the air space along the drainage and Mule Deer (*Odocoileus hemionus*) occur in the area and undoubtedly utilize the site to some degree (PSBS 1990).

SENSITIVE BIOLOGICAL RESOURCES

SENSITIVE VEGETATION

The wetland habitats on the site represent sensitive vegetation associations due to the limited extent of these features in southern California. The Mountain Meadow, Mulefat Scrub, Tamarisk Woodland and Cottonwood/Willow Riparian are the habitats classified as wetlands.

Castilleja plagiotoma
Syntrichopappus lemmonii
Eriastrum pluriflorum ssp. *sherman-hoytae*

SENSITIVE VERTEBRATES WHICH MAY OCCUR ON-SITE BUT WERE NOT OBSERVED

The following species of sensitive vertebrates are either known from the area in similar habitats and are expected to utilize the site at least occasionally. The probability of their occurring in the project area is considered high; however, some of these species may occur on the site sporadically. None were observed during the present field work.

Golden Eagle (*Aquila chrysaetos*)

- LISTING:** Bald Eagle Act (1940)
 CDFG (1977, 1988, 1989) - Fully Protected
 CITES (1976) - Priority II
 Remsen (1980) - Priority III
- DISTRIBUTION:** Throughout western United States and southern Canada. Uncommon resident throughout most of southern California.
- HABITAT:** Mountains, deserts, open country.
- STATUS:** Population declining in nearly all areas of county; once a common breeding bird.

A juvenile and two adults were seen flying low over an adjacent site (PSBS 1990). While no eagle nests were located on this site, they probably do nest within a few miles of the site, and thus the property is likely within the home-range of at least one pair. Golden Eagles require large areas for foraging and are extremely sensitive to human disturbances. Home-ranges of Golden Eagles in California range from 20 to 60 square miles.

American Badger (*Taxidea taxus*)

- LISTING:** CDFG Species of special concern
 Williams (1986) - Priority III
- DISTRIBUTION:** Widely distributed in North America, central Canada to central Mexico, in open habitats. In California found throughout the state with the exception of the humid coastal forest and other regions with dense forests.
- HABITAT:** Grassland, savannas, open scrub lands and montane meadows, generally uncultivated area with friable soils and abundant foods, such as ground squirrels and gophers.
- STATUS:** Badger populations have greatly declined in California within the last 100 years. They are uncommon or extirpated from large areas of the state where they were formerly common.

A dead specimen was discovered in rabbit-brush scrub near the creek bed. The status of the American Badger on the project site is unclear; however, the dead individual is positive evidence that they at least occurred in the very recent past. Badgers occur in low population densities and therefore would in general be difficult to locate on this long and linear project.

Peirson's Morning-Glory (*Calystegia peirsonii*)

- LISTING:** CNPS (Smith and Berg) 1-1-3, Federal - Category 2
DISTRIBUTION: Limited to the northern foothills of the San Gabriel Mountains.
HABITAT: Open shrublands and Juniper Woodland.
STATUS: Habitat declining due to vegetation clearing for fuel reduction, housing and agriculture.

The Peirson's Morning-Glory occurs in the slopes south of the powerline crossing, outside of the project area. If the plant is found within the project area, it would be in this South Channel or East Channel portion of the project site.

Short-jointed Beaver-tail (*Opuntia basilaris* var. *brachyclada*)

- LISTING:** CNPS 3-1-3, Federal - Category 2
DISTRIBUTION: Desert foothills of the San Bernardino and San Gabriel Mountains in Los Angeles and San Bernardino Counties and in the Providence Mountains in the latter county.
HABITAT: Dry, open desert slopes in shrublands and juniper woodlands.
STATUS: Reported as being depleted by horticultural collection, but also being depleted by residential and commercial development and agricultural clearing for orchards.

This cactus occurs on the Santa Fe Hills project, south of the East Channel area at the Leona Siphon, where the population is about 8 plants, located south of Elizabeth Lakes Road, outside of the project area. Larger populations occur in the Anaverde Valley area (Tierra Madre 1990). If the plant occurs within the project site, it would be on protected areas of slopes along the East Channel. The morphological circumscription of this taxon is rather vague and assignment of this taxon to branched beaver-tail cacti should be done with caution (Benson 1969)

Pringle's Yampah (*Perideridia pringlei*)

- LISTING:** CNPS 1-1-3, Federal - Category 3c
DISTRIBUTION: Southern Sierra Nevada, Tehachapi and South Coast Ranges.
HABITAT: Open clay lenses within shrublands and woodlands.
STATUS: Threat is mostly from overgrazing or off-road vehicle activity.

The plant occurs in the summit area of the Sierra Pelona. The lack of clay lenses largely precludes this plant's presence from the project area.

Other plants known from the area are associated with more desert-like or alkaline conditions which are lacking in the project area. These plants include:

Astragalus preussii var. *laxiflorus*
Chorizanthe spinosa
Calochortus striatus
Cymopterus deserticola
Lupinus peirsonii

Sharp-shinned Hawk (*Accipiter striatus*)

- LISTING:** Remsen (1980) - Priority III
Audubon Blue List (Tate 1986)
- DISTRIBUTION:** Fairly common winter resident in Southern California; possibly breeds in Northern California.
- HABITAT:** Mixed woodlands
- STATUS:** Formerly nested in Southern California mountain ranges. May possibly nest in the San Jacinto Mountains, although summer sightings are rare, and its breeding status is uncertain.

This small accipiter is a winter visitor or migrant in this area. These hawks forage for small birds in a variety of habitats including riparian woodland and open scrub lands. This species is expected to be a fairly common winter visitor.

Cooper's Hawk (*Accipiter cooperii*)

- LISTING:** Audubon Blue List (Tate 1986)
Remsen (1980) - Third priority
- DISTRIBUTION:** Throughout the United States
- HABITAT:** Open woodlands and wood margins
- STATUS:** This hawk has declined throughout California as a breeding species. Remsen (1980) identified habitat destruction in lowland riparian areas as the main threat, as well as direct or indirect human disturbance at nest sites.

This hawk is expected to be primarily a winter visitor or migrant on the site. Suitable nesting habitat does not occur on-site, however, this hawk may nest in oak woodlands in the general region.

Northern Harrier (*Circus cyaneus*)

- LISTING:** Audubon Blue List (Tate 1986)
Everett (1979) - Declining
Remsen (1980) - 2nd Priority
- DISTRIBUTION:** Widespread across North America, but a very localized breeder
- HABITAT:** Coastal Salt Marsh, Freshwater Marsh, grasslands, and agricultural fields
- STATUS:** This raptor has declined as a breeder in Southern California due to loss of habitat.

The Northern Harrier is expected to occur on the site as a migrant or winter visitor. This hawk forages low over open country for small rodents. The open areas along the creek drainage provide good foraging habitat for this species.

Prairie Falcon (*Falco mexicanus*)

- LISTING:** CITES (1976) - Priority II
Remsen (1980) - Priority III
- DISTRIBUTION:** Western United States
- HABITAT:** Open country, deserts, interior valleys
- STATUS:** Uncommon breeder in county; coastal population nearly extirpated.

Mountain Lion (*Felis concolor*)

- LISTING:** Current moratorium on hunting
- DISTRIBUTION:** Widespread ranging from British Columbia south through western United States to southern South America. Isolated populations in the eastern United States.
- HABITAT:** In Southern California, occurs in conifer forests, chaparral and other scrub lands. Generally in large tracts of wildlands, mountains and canyons supporting good populations of Mule Deer, an important prey item. Home ranges in Southern California vary from 100 - 250 square miles.
- STATUS:** Exact status not well known; county estimates of 15-50 animals have been suggested.

Due to the presence of Mule Deer and large undeveloped tracts of land, this large cat is expected to utilize the site occasionally. Tracks of one lion were noted along Amargosa Creek (PSBS 1990). These riparian areas serve as important sources of water, food, and cover for these lions and their prey.

Coast Horned Lizard (*Phrynosoma coronatum*)

- LISTING:** USFWS (1986) - Category II
IUCN (1979) - Depleted
CDFG (1977, 1988, 1989) - Protected Amphibian/Reptile
CITES (1976) - Category III
- DISTRIBUTION:** California and Baja California, Mexico
- HABITAT:** Open scrubland and pine/oak woodland
- STATUS:** Depleted due to pet collection and habitat destruction.

While not seen on the property, suitable habitat for this species does occur on-site in the scrublands adjacent to the creekbed. These lizards occur in low density populations and are frequently hard to find even in good habitat.

Black-shouldered Kite (*Elanus caeruleus*)

- LISTING:** CDFG (1977, 1988, 1989) - Fully Protected
- DISTRIBUTION:** Central Valley and coastal California; extensions north into Oregon and south into northern Baja California, Mexico. Northeastern mainland Mexico populations often extend north into the United States.)
- HABITAT:** Grasslands, agricultural fields, occasionally shrublands of California's coastal valleys and plains. Marshes and grassy bottomlands where large clumps of trees are adjacent to foraging habitat are favored sites for winter roosts,
- STATUS:** The centers of abundance for these raptors in Southern California are the coastal valleys and plains of San Diego, Orange, and western Riverside counties, which are the areas which are currently undergoing large-scale and rapid habitat conversion due to residential development. While historic population fluctuations have made their present status difficult to determine, the numbers of breeding individuals are thought to be declining locally in some areas, and wintering populations may be diminishing as well due to loss of winter foraging habitat and roost sites.

The Black-shouldered Kite is an uncommon resident in the nearby Antelope Valley and may occasionally forage over the open grassy habitats along the creek drainage.

magnitude of 40 hours. This is not expected to be of sufficient duration to jeopardize the health of trees or herbaceous plant material in the basin. Siltation during the settling out event likewise is expected to be limited to a rate with which herbaceous vegetation can keep up, although the lower end of the basin is to have a clean-out area where siltation levels are anticipated to be much higher, i.e., a foot or so per event.

UPPER BASIN IMPACTS (In thousands of square feet)

| | Road Crossing | Golf Course | Drainage Feature | Road Widening |
|---------------------|---------------|-------------|------------------|---------------|
| Mountain Meadow | 90.0 | 478.0 | 140.0 | 22.0 |
| Cottonwood/Riparian | 5.0 | 10.0 | 0.0 | 0.0 |
| Mulefat | 0.0 | 5.0 | 0.0 | 1.0 |

NORTH CHANNEL IMPACT (Upstream of Powerline Crossing)

| | | | Drainage Feature | Road Widening |
|---------------------|--|--|------------------|---------------|
| Mulefat | | | 0.0 | 130 + 4 = 134 |
| Cottonwood/Riparian | | | 0.0 | 86 + 42 = 128 |

SOUTH CHANNEL IMPACTS

| | | | | Road Widening |
|---------------------|--|--|--|---------------|
| Mulefat | | | | 49 |
| Cottonwood/Riparian | | | | 82 |
| Tamarisk | | | | 22 |

EASTERN CHANNEL IMPACTS

| | | | | Road Widening |
|---------|--|--|--|---------------|
| Mulefat | | | | 18 |

TOTAL IMPACTS

| | Square Feet | Acres | | |
|------------------------------|-------------|------------|--|--|
| Mulefat | 207,000 | 8.0 acres | | |
| Cottonwood/Riparian | 225,000 | 5.0 acres | | |
| Mountain Meadow | 730,000 | 17.0 acres | | |
| Tamarisk | 22,000 | 0.5 acre | | |
| TOTAL WETLAND IMPACTS | | 30.5 acres | | |

SIGNIFICANCE ASSESSMENT

The impact to 30.5 acres of wetland habitat is a significant biological impact due to the limited extent of riparian woodland and other wetland habitats. The mitigation measures proposed below are intended to result in the replacement and enhancement of a functional equivalent acreage of wetland habitat remaining following implementation of the project, to persist for the life of the project.

Prairie Falcons are uncommon residents of the area, however, local numbers increase during the winter months with an influx of migrating individuals. This large falcon is expected to occasionally utilize the open habitats of the site for foraging.

Long-Eared Owl (*Asio otus wilsonianus*)

LISTING: Remsen (1980) - Priority II
DISTRIBUTION: Throughout the United States, except along the Gulf coast.
HABITAT: Coastal lowland; riparian woodland
STATUS: Seriously declining due to loss of lowland riparian woodland habitat.

Long-Eared Owls have been observed recently within eight miles of the proposed project area. (Eric R. Lichtwardt and Larry La Pre personal observations). This uncommon owl probably is occasional on the site during the winter months in willow thickets and cottonwood groves. Historically this owl was a much more common resident in the area and there is a possibility that this species could nest on the site in the same habitats noted above.

EXPECTED BIOLOGICAL IMPACTS

The proposed project involves the widening and realignment of Elizabeth Lakes Road. A parallel project is the placement of storm flow detention basins and channelization to protect properties downstream of the project in the cities of Palmdale and Lancaster.

Development of the Ritter Ranch site will also involve placement of a golf course in portions of the Upper Basin and West Channel area. Because of the overlap of impacts from these two projects to the basin and portions of the channel, the impacts of both projects are discussed here, although the culpable project with regard to impacts is the flood control and road widening project.

The expected impacts to the various habitats and by the various projects have been determined by overlaying the habitat boundaries on the development plans which are at a scale of 1" = 100'. The impacts were determined using the limits of cut and fill and an additional 25 foot wide construction where appropriate and necessary. No tree counts were made, just an acreage calculation. Based upon aerial photography, an assessment of mature cottonwood trees could be made if such a number were needed.

A major concern of the impact analysis was the role of the detention basin in terms of wetland habitat availability. The engineering input indicated that water retention times at a 25 year storm volume is in the

gorge-like area of the channel is secluded and enhancement at this site will benefit more sensitive wildlife. It will be necessary to obtain conservation easements over this portion of the channel in addition to portions of the channel where project-oriented construction will occur. Several of the gabbions can be constructed in association with driveway crossings of the creek by residents along the channel.

TAMARISK REMOVAL

A serious infestation of tamarisk occurs downstream of the horse stables, but such trees are scattered along the stream. Removal of these trees will eliminate a seed source which contaminates down stream portions of the creek. Tamarisk is a serious pest in desert wetlands since it is very competitive with native vegetation for limited water availability.

SPECIES DIVERSITY ENHANCEMENT

The replanting of construction-disturbed portions of the channel will involve several additional native plant species which will benefit wildlife. Species considered include Desert Elderberry (*Sambucus mexicana*), Desert Olive (*Forestiera neomexicana*), False Indigo (*Amorpha fruticosa*), California Rose (*Rosa californica*) and Western Blackberry (*Rubus ursinus*).

OPEN SPACE EASEMENT DEDICATION

The restoration and enhancement of the channel would be rather meaningless if there were not some sort of control of the use of the channel. Current land use practices along the Northern Channel indicate the level of disruption of wetland habitat that can be expected without severe government control on a daily basis. The restrictions of wetland regulations are generally an after-the-fact response to habitat damage, unless development processing is involved. The conservation easement would be given to one of several agencies including the City of Palmdale, California Department of Fish and Game or a local conservation conservancy. Easements granted to flood control districts are not adequate due to conflicting land use mandates.

GOLF COURSE MANAGEMENT RESTRICTIONS

The inclusion of several links of the golf course within the Upper Basin and in close proximity to proposed enhancement areas requires constraint in the use of pesticides, fertilizers and vertebrate pest abatement procedures. The killing of wetland-associated birds would not be an allowed practice at the golf course. The use of fertilizers and pesticides would have to be limited to slow release fertilizers and contact herbicides. No

The level of accuracy of the 30.5 acres is to be considered in light of the tentative nature golf course design. Grading of the basin for detention purposes is considered independent of golf course impacts which will not involve much grading but will impact mountain meadow vegetation. Impact changes are not expected to deviate more than 10 percent from the 30.5 acre figures, however.

RECOMMENDATIONS TO REDUCE BIOLOGICAL IMPACTS

Early interaction with the engineering design of the project has permitted the inclusion of several features which have reduced the extent of the biological impacts to the level addressed above. Despite these reductions in the level of wetland impacts, the level of the impact is significantly adverse and the following measures are proposed to mitigate the impact to levels less than significant.

PLANT SALVAGE

Most of the wetland areas to be impacted by construction have plant materials which can be relocated to non-impacted portions of upland areas graded down to the level of the channel where they can continue to serve as wildlife habitat. Of particular importance are the large cottonwood trees which are so characteristic of the channel. Removal of plants of this large size is best done during the dormant season, but, with care, the trees can be moved when actively growing.

Cuttings of willows and cottonwoods can also be made and planted in the channel or in containers at an on-site nursery holding site for later reuse in construction-disturbed portions of the channel.

The grassy sward in the detention basin can be salvaged as sod blocks and replaced once selective grading to increase the capacity of the basin has been done. The storage time for this sort of plant material is in the period of several months if irrigated carefully.

GABBION CONSTRUCTION

The retardation of low flow water within the channel will benefit wetland vegetation and associated wildlife by the reduction of scouring. Also the limited flooding and siltation behind rock gabbion structures will increase the extent of wetland habitat. Initially Freshwater Marsh will be the established plant community, then siltation will result in riparian tree growth. Gabbions are proposed for the northern channel where the narrow,

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fungicides or broad spectrum insecticides would be allowed. The suppression of mosquito population will require the use of bacterial insecticides or light oils rather than chemical agents.

WILDLIFE CORRIDOR PROVISIONS

Movement of wildlife along the channel as well as down to the water source from adjacent uplands will be accommodated by placement of large culverts of sufficient size for the passage of medium sized mammals, i.e. mountain lions and smaller. Deer movement is largely expected from the south and provisions in the Ritter Ranch design are expected to accommodate this movement vector.

MITIGATION MONITORING PLAN

The details of the implementation, maintenance and monitoring of the above discussed measures will be presented in a Mitigation Monitoring Plan which will be prepared as a Condition of Approval of the project. Also, such a plan will be required for acquisition of a U.S. Army Corps of Engineers 404 Permit and a Department of Fish and Game 1601 Streambed Alteration Agreement. Most of the mitigation measures presented above are expected to meet the requirements of these discretionary actions. Mitigation plantings will occur on-site and involve the following acreages.

| | Upper Basin | North Channel | South Channel | Eastern Channel | Mitigation Type Total |
|--------------------------------|--------------|---------------|---------------|-----------------|-----------------------|
| Enhancement | 7.0 | 2.5 | 1.5 | 3.0 | 14.0 acres |
| Relocation of trees | 0.0 | 5.0 | 0.0 | 0.0 | 5.0 acres |
| Restoration after grading down | 15.0 | 0.0 | 0.0 | 0.0 | 15.0 acres |
| Gabbion | 0.0 | 3.0 | 0.0 | 0.0 | 3.0 acres |
| Tamarisk Removal | 0.0 | 1.0 | 2.0 | 1.0 | 4.0 acres |
| Totals By Site | 22.0 acres | 11.5 acres | 3.5 acres | 4.0 acres | 41.0 acres |
| Total Compensation Area | 41.0 acres | | | | |
| Total Impact to Wetland | 30.5 acres | | | | |
| Total Project Wetland Habitat | 143.58 acres | | | | |

TABLE 1. FLORAL CHECKLIST OF THE AMARGOSA CREEK FLOOD PROTECTION II AND WIDENING OF ELIZABETH LAKE ROAD

| HABITAT | A = Annual Grassland | M = Mountain Meadow |
|---|--|----------------------------------|
| | T = Tamarisk Woodland | J = Juniper/Joshua Tree Woodland |
| | R = Rabbit-brush Scrub/Great Basin Sage Scrub | |
| | W = Cottonwood/Willow Riparian, Mulefat Scrub | |
| | X = Disturbed Residential, Orchard | |
| | | <u>HABITAT</u> |
| GYMNOSPERMS | | |
| Cupressaceae | | |
| | <i>Juniperus californica</i> Carr. Juniper | J |
| DICOTYLEDONS | | |
| Adoxaceae - Adoxus Family | | |
| | <i>Sambucus mexicana</i> Presl ex D.C. Desert Elderberry | W |
| Anacardiaceae - Sumac Family | | |
| | <i>Rhus trilobata</i> Nutt. | J |
| Asclepiadaceae - Milkweed Family | | |
| | <i>Asclepias fascicularis</i> Dcne. in A. D.C. Narrow-Leaf Milkweed | A,W |
| Asteraceae - Sunflower Family | | |
| | <i>Ambrosia acanthicarpa</i> Hook. Annual Bur-Weed | W |
| | <i>Ambrosia psilostachya</i> var. <i>californica</i> (Rydb.)Blake. Ragweed | W |
| | <i>Artemisia douglasiana</i> Bess. in Hook. Mugwort | W |
| | <i>Artemisia dracunculus</i> L. Dragon Sagewort | W |
| | <i>Artemisia tridentata</i> Nutt. ssp. <i>tridentata</i> Great Basin Sagebrush | R |
| | <i>Baccharis salicifolia</i> (R.P.)Pers. Mule-fat | W |
| | * <i>Centaurea melitensis</i> L. Tocalote | A,X |
| | <i>Chrysopsis villosa</i> (Pursh)Nutt. Golden-Aster | M |
| | <i>Chrysothamnus naseosus</i> (Pall.)Britton | R |
| | <i>Cirsium californicum</i> Gray. California Thistle | M,J,W |
| | * <i>Cirsium vulgare</i> (Savi)Ten. Bull Thistle | W |
| | <i>Corethrogyne filaginifolia</i> var. <i>peirsonii</i> Canby. peirson's Cudweed-Aster | D,M |
| | <i>Gnaphalium californicum</i> D.C. California Everlasting | D |
| | <i>Grindelia camporum</i> Greene var. <i>parviflora</i> Steyermark (tentative I.D.) | M |
| | <i>Gutierrezia sarothrae</i> (Pursh)Britt. & Rusby. San Joaquin Matchweed | A,R,M |
| | * <i>Helianthus annuus</i> ssp. <i>lenticularis</i> (Dougl.)Ckll. Western Sunflower | A,M |
| | <i>Hymenoclea salsola</i> T. & G. var. <i>salsola</i> | W |
| | <i>Iva axillaris</i> ssp. <i>robustior</i> (Hook.)Bassett. | A,W,M |
| | * <i>Lactuca serriola</i> L. Prickly Lettuce | W |
| | <i>Lagophylla ramosissima</i> Nutt. | M |
| | <i>Layia glandulosa</i> (Hook.)Hook. & Arn. White Layia | M |
| | <i>Lepidospartum squamatum</i> (Gray)Gray. Scale-Broom | M,W |
| | * <i>Matricaria matricarioides</i> (Less.)Porter. Pineapple Weed | W |

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TABLE 1. FLORAL CHECKLIST OF THE AMARGOSA CREEK FLOOD PROTECTION II AND WIDENING OF ELIZABETH LAKE ROAD (CONTINUED)

| | <u>HABITAT</u> |
|---|----------------|
| Asteraceae - Sunflower Family (continued) | |
| <i>Senecio douglasii</i> var. <i>monoensis</i> (Greene) Jeps. Sand-Wash Butterweed | M,W |
| * <i>Taxxacum officinale</i> Weber in Wiggers. | A,W |
| Boraginaceae - Borage Family | |
| <i>Heliotropium curvassavicum</i> var. <i>oculatum</i> (Heller) Jtn. Salt Heliotrope | W |
| <i>Plagiobothrys californicus</i> (Gray) Greene var. <i>californicus</i> California Popcornflower | D,J |
| Brassicaceae - Mustard Family | |
| * <i>Brassica geniculata</i> (Desf.) J. Ball | A |
| <i>Caulanthus lasiophyllum</i> (H. & A.) Pays. California Mustard | A,X |
| <i>Descurainia pinnata</i> ssp. <i>halictorum</i> (Ckll.) Detl. | A,J |
| <i>Lepidium perfoliatum</i> L. Shield-grass | A,M,W |
| * <i>Rorippa nasturtium-aquaticum</i> (L.) Schinz & Thell. | M,W |
| * <i>Sisymbrium altissimum</i> L. Tumble-Mustard | A,R,X |
| * <i>Sisymbrium irio</i> L. London Rocket | A,M,X |
| Caryophyllaceae - Pink Family | |
| <i>Cerastium glomeratum</i> Thuill. Mouse-Ear Chickweed | A |
| Chenopodiaceae - Goosefoot Family | |
| <i>Atriplex canescens</i> (Pursh) Nutt. ssp. <i>canescens</i> Four-wing Saltbush | A |
| <i>Atriplex patula</i> ssp. <i>hastata</i> (L.) Hall. & Clem. Halberd-Leaf Saltbush | W |
| * <i>Atriplex semibaccata</i> R. Br. Australian Saltbush | A,X |
| <i>Bassia hyssopifolia</i> (Pall.) Kuntz. | A,W |
| <i>Chenopodium berlandieri</i> var. <i>sinuatum</i> (J. Murr.) Wahl. | W |
| <i>Chenopodium californicum</i> (Wats.) Wats. California Goosefoot | M |
| * <i>Chenopodium murale</i> L. Nettle-Leaf Goosefoot | A,X |
| * <i>Salsola australis</i> R. Br. Russian-thistle | A,X |
| Cucurbitaceae - Gourd Family | |
| <i>Cucurbita foetidissima</i> HBK. Calabazilla | A |
| Euphorbiaceae - Spurge Family | |
| <i>Chamaesyce albomarginata</i> (T. & G.) Small. Rattlesnake Spurge | A |
| <i>Eremocarpus setigerus</i> (Hook.) Benth. Doveweed | A |
| Fabaceae - Pea Family | |
| <i>Astragalus douglasii</i> (T. & G.) Gray var. <i>douglasii</i> Douglas' Mild-vetch | M |
| * <i>Lotus corniculatus</i> L. | W,X |
| <i>Lupinus bicolor</i> ssp. <i>microphyllus</i> (Wats.) D. Dunn. Lupine | M |
| <i>Lupinus sparsiflorus</i> Benth. ssp. <i>inopinatus</i> (C.P. Small) Dizek. & Dunn | M |
| * <i>Melilotus indicus</i> (L.) All. Indian Sweet Clover | A,W,X |
| Geraniaceae - Geranium Family | |
| * <i>Erodium cicutarium</i> (L.) L'Her. Red-stem Filaree | A,M,X |

TABLE 1. FLORAL CHECKLIST OF THE AMARGOSA CREEK FLOOD PROTECTION II AND WIDENING OF ELIZABETH LAKE ROAD (CONTINUED)

| | <u>HABITAT</u> |
|---|----------------|
| Lamiaceae - Mint Family | |
| * <i>Marrubium vulgare</i> L. Horehound | X |
| <i>Salvia columbariae</i> Benth. Chia | M |
| <i>Trichostema lanceolatum</i> Benth. Vinegarweed | A,M |
| Lythraceae - Loosestrife Family | |
| * <i>Lythrum hyssopifolia</i> L. Grass Poly | W |
| Malvaceae - Mallow Family | |
| <i>Malvella leprosa</i> (Ort.)Krapov. Alkali Mallow | M,W |
| Oleaceae - Olive Family | |
| <i>Forestiera neomexicana</i> Gray | M,W |
| Onagraceae - Evening-Primrose Family | |
| <i>Clarkia purpurea</i> (Curt.)Nels. & MacBr. ssp. <i>viminea</i> (Dougl. in Lindl)Lewis & Lewis. Large Clarkia | A,M |
| Polygonaceae - Buckwheat Family | |
| <i>Eriogonum fasciculatum</i> ssp. <i>foliolosum</i> (Nutt.)S. Stokes. Interior Flat-top Buckwheat | M |
| <i>Polygonum arenastrum</i> Bor. | A |
| <i>Rumex crispus</i> L. Curly Dock | W |
| <i>Rumex hymenosepalus</i> Torr. Wild-Rhubarb | J,W |
| Primulaceae - Primrose Family | |
| * <i>Anagallis arvensis</i> L. Scarlet Pimpernel | W |
| Rubiaceae - Madder Family | |
| * <i>Galium aparine</i> L. Common Bedstraw | M |
| Salicaceae - Willow Family | |
| <i>Populus fremontii</i> Wats. Western Cottonwood | W |
| <i>Salix gooddingii</i> Ball. Southwestern Willow | W |
| <i>Salix lasiandra</i> var. <i>lancifolia</i> (Anderss.)Bebb. Lance-leaf Willow | W |
| <i>Salix laevigata</i> Bebb. | W |
| <i>Salix lasiolepis</i> Benth. var. <i>lasiolepis</i> . Arroyo Willow | W |
| Saururaceae - Lizard-tail Family | |
| <i>Anemopsis californica</i> Hook. Yerba Mansa | M,W |
| Scrophulariaceae - Figwort Family | |
| <i>Mimulus guttatus</i> Fisch. ex D.C. Common Monkey Flower | M,W |
| <i>Orthocarpus purpurascens</i> Benth. var. <i>purpurascens</i> Red Owl's-Clover | M |
| <i>Veronica americana</i> (Raf.)Schw. Brooklime | W |
| Solanaceae - Nightshade Family | |
| <i>Datura discolor</i> Bernh. Jimsonweed | M |
| <i>Datura wrightii</i> Regel. Western Jimsonweed | A,M |
| <i>Nicotiana bigelovii</i> (Torr.)Wats. var. <i>wallacei</i> Gray | X |

TABLE 1. FLORAL CHECKLIST OF THE AMARGOSA CREEK FLOOD PROTECTION II AND WIDENING OF ELIZABETH LAKE ROAD (CONTINUED)

| | <u>HABITAT</u> |
|--|----------------|
| Tamaricaceae - Tamarisk Family | |
| * <i>Tamarix parviflora</i> DC. | T |
| Urticaceae - Nettle Family | |
| <i>Urtica dioica</i> ssp. <i>holosericea</i> (Nutt.) Thorne. Hoary Nettle | M,W |
| Verbenaceae - Verbena Family | |
| <i>Verbena menthaefolia</i> Benth. Mint-leaf Vervain | M,W |
| Viscaceae - Mistletoe Family | |
| <i>Phoradendron villosum</i> (Nutt. in T.& G.) Nutt. Oak Mistletoe | W |
| MONOCOTYLEDONS | |
| Agavaceae - Agave Family | |
| <i>Yucca brevifolia</i> Engelm. in Wats. var. <i>brevifolia</i> Joshua Tree | J |
| Cyperaceae - Sedge Family | |
| <i>Carex alma</i> Bailey | W |
| <i>Carex praegracilis</i> W. Boot. | A,W |
| <i>Carex senta</i> Boott. | A,W |
| <i>Cyperus odoratus</i> L. | W |
| <i>Eleocharis macrostachya</i> Britt. in Small. Pale Spike-Sedge | W |
| <i>Eleocharis montevidensis</i> Kunth. Dombey's Spike-Sedge | W |
| <i>Scirpus acutus</i> Muhl ex Bigel. Viscid Bulrush | W |
| <i>Scirpus robustus</i> Pursh. Prairie Bulrush | W |
| Juncaceae - Rush Family | |
| <i>Juncus mexicanus</i> Willd. Mexican Rush | W |
| <i>Juncus textilis</i> Buchen. Basket Rush | W |
| Poaceae - Grass Family | |
| * <i>Avena barbata</i> L. Slender Oat | A,M |
| * <i>Bromus diandrus</i> Roth. Rippgut Grass | A,M |
| * <i>Bromus mollis</i> L. Soft Chess | A,M |
| * <i>Bromus rubens</i> L. Red Brome | A,M |
| * <i>Bromus tectorum</i> L. Cheat-Grass Brome | A,M |
| * <i>Cynodon dactylon</i> (L.) Pers. Bermuda Grass | M,X |
| <i>Distichlis spicata</i> (Greene) var. <i>stricta</i> (Torr.) Beetle Salt Grass | A,M,W |
| <i>Elymus glaucus</i> Buckl. ssp. <i>glaucus</i> | A |
| <i>Elymus triticoides</i> Buckl. Beardless Wild Ryegrass | W |
| * <i>Hordeum murinum</i> ssp. <i>leporinum</i> (Link) Arcang. Hare Barley | X |
| * <i>Lamarckia aurea</i> (L.) Moench. Goldentop | A,X |
| * <i>Poa pratensis</i> L. Kentucky Bluegrass | W,X |
| <i>Poa scabrella</i> (Thurb.) Benth. ex Vasey | A |
| * <i>Polypogon monspeliensis</i> (L.) Desf. Annual Beardgrass | W |
| * <i>Schismus barbatus</i> (L.) Thell. Mediterranean Schismus | X |
| * <i>Vulpia myuros</i> (L.) K.C. Gmelin. Foxtail Fescue | A,X |

TABLE 1. FLORAL CHECKLIST OF THE AMARGOSA CREEK FLOOD PROTECTION II AND WIDENING OF ELIZABETH LAKE ROAD (CONTINUED)

| | <u>HABITAT</u> |
|--|----------------|
| Poaceae - Grass Family (continued) | |
| <i>Vulpia microstachys</i> Gray | A,X |
| Typhaceae - Cat-Tail Family | |
| <i>Typha domingensis</i> Pers. Tule Cat-tail | W |
| <i>Typha latifolia</i> L. Soft Flag | W |

* - Denotes non-native plant taxa

TABLE 2. ANIMALS OBSERVED OR DETECTED ON THE AMARGOSA CREEK SITE.

| HABITAT | | | |
|---|--------------------------------|---------------------------|---------------------|
| A | = Annual Grassland | F | = Flying |
| R | = Desert Riparian Woodland | S | = Rabbitbrush Scrub |
| COMMON NAME | SCIENTIFIC NAME | NUMBER/MEANS OF DETECTION | HABITAT |
| REPTILES | | | |
| Phrynosomatidae | | | |
| Side-blotched Lizard | <i>Uta stansburiana</i> | 7 | S |
| Teiidae (Whiptails and Relatives) | | | |
| Western Whiptail | <i>Cnemidophorus tigris</i> | 1 | S |
| BIRDS | | | |
| Accipitridae (Hawks, Old World Vultures, and Harriers) | | | |
| Red-shouldered Hawk | <i>Buteo lineatus</i> | 1 | R |
| Red-tailed Hawk | <i>Buteo jamaicensis</i> | 1 | F |
| Phasianidae (Quails, Pheasants, and Relatives) | | | |
| California Quail | <i>Callipepla californica</i> | Calling | S |
| Charadriidae (Plovers and Relatives) | | | |
| Killdeer | <i>Charadrius vociferus</i> | 1 | A |
| Columbidae (Pigeons and Doves) | | | |
| Rock Dove | <i>Columba livia</i> | 4 | F |
| Mourning Dove | <i>Zenaida macroura</i> | 1 | A,R |
| Cuculidae (Typical Cuckoos) | | | |
| Greater Roadrunner | <i>Geococcyx californianus</i> | 1 | S |
| Strigidae (Typical Owls) | | | |
| Great Horned Owl | <i>Bubo virginianus</i> | 2 | R |
| Trochilidae (Hummingbirds) | | | |
| Anna's Hummingbird | <i>Calypte anna</i> | 5 | R |
| Picidae (Woodpeckers and Wrynecks) | | | |
| Nuttall's Woodpecker | <i>Picoides nuttallii</i> | 5 | S |
| Tyrannidae (Tyrant Flycatchers) | | | |
| Black Phoebe | <i>Sayornis nigricans</i> | 3 | R |
| Corvidae (Jays, Magpies, and Crows) | | | |
| Scrub Jay | <i>Aphelocoma coerulescens</i> | 1 | R |
| Common Raven | <i>Corvus corax</i> | 5 | F |

TABLE 2. ANIMALS OBSERVED OR DETECTED ON THE AMARGOSA CREEK SITE (CONTINUED).

| COMMON NAME | SCIENTIFIC NAME | NUMBER/MEANS OF DETECTION | HABITAT |
|---|--|---------------------------|---------|
| Paridae (Titmice) | | | |
| Plain Titmouse | <i>Parus inornatus</i> | 4 | R |
| Aegithalidae (Bushtit) | | | |
| Bushtit | <i>Psaltriparus minimus</i> | 1 Flock | S |
| Sittidae (Nuthatches) | | | |
| White-breasted Nuthatch | <i>Sitta carolinensis</i> | 1 | R |
| Troglodytidae (Wrens) | | | |
| Cactus Wren | <i>Campylorhynchus brunneicapillus</i> | 1 | S |
| Bewick's Wren | <i>Thryomanes bewickii</i> | 3 | R,S |
| House Wren | <i>Troglodytes aedon</i> | 1 | R |
| Muscicapidae (Old World Warblers, Gnatcatchers, Kinglets, Thrushes, Bluebirds, and Wrenit) | | | |
| Western Bluebird | <i>Sialia mexicana</i> | 4 | A,R |
| Mimidae (Mockingbirds and Thrashers) | | | |
| California Thrasher | <i>Toxostoma redivivum</i> | 2 | S |
| Ptilonotidae (Silky Flycatchers) | | | |
| Phainopepla | <i>Phainopepla nitens</i> | 11 | R,S |
| Laniidae (Shrikes) | | | |
| Loggerhead Shrike | <i>Lanius ludovicianus</i> | 3 | A,R,S |
| Sturnidae (Starlings) | | | |
| European Starling | <i>Sturnus vulgaris</i> | >20 | A,R |
| Vireonidae (Typical Vireos) | | | |
| Warbling Vireo | <i>Vireo gilvus</i> | 1 | R |
| Emberizidae (Warblers, Sparrows, Blackbirds and Relatives) | | | |
| Orange-crowned Warbler | <i>Vermivora celata</i> | 5 | R |
| Nashville Warbler | <i>Vermivora ruficapilla</i> | 3 | R |
| Yellow Warbler | <i>Dendroica petechia</i> | 2 | R |
| Wilson's Warbler | <i>Wilsonia pusilla</i> | 8 | R |
| Black-headed Grosbeak | <i>Pheucticus melanocephalus</i> | 1 | R |
| California Towhee | <i>Pipilo crissalis</i> | 5 | R,S |
| Rufous-sided Towhee | <i>Pipilo erythrophthalmus</i> | 4 | R,S |
| Brewer's Sparrow | <i>Spizella breweri</i> | 1 | S |
| Lark Sparrow | <i>Chondestes grammacus</i> | >25 | R,S |
| Song Sparrow | <i>Melospiza melodia</i> | 5 | R |

TABLE 2. ANIMALS OBSERVED OR DETECTED ON THE AMARGOSA CREEK SITE (CONTINUED).

| COMMON NAME | SCIENTIFIC NAME | NUMBER/MEANS OF DETECTION | HABITAT |
|---|-------------------------------|---------------------------|---------|
| Emberizidae (Warblers, Sparrows, Blackbirds and Relatives) (continued) | | | |
| Dark-eyed Junco | <i>Junco hyemalis</i> | 1 | R |
| Western Meadowlark | <i>Sturnella neglecta</i> | 1 | A |
| Brewer's Blackbird | <i>Euphagus cyanocephalus</i> | >20 | A |
| Fringillidae (Finches) | | | |
| House Finch | <i>Carpodacus mexicanus</i> | 61 | R,S |
| Lesser Goldfinch | <i>Carduelis psaltria</i> | 8 | R |
| Passeridae (Weaver Finches) | | | |
| House Sparrow | <i>Passer domesticus</i> | 1 | A |
| MAMMALS | | | |
| Leporidae (Rabbits and Hares) | | | |
| Desert Cottontail | <i>Sylvilagus audubonii</i> | Scat | S |
| Geomyidae (Pocket Gophers) | | | |
| Botta's Pocket Gopher | <i>Thomomys bottae</i> | Diggings | A,R,S |
| Canidae (Foxes, Wolves, and Relatives) | | | |
| Coyote | <i>Canis latrans</i> | Scat | R,S |
| Mustelidae (Weasels, Badgers, and Relatives) | | | |
| Badger | <i>Taxidea taxus</i> | Remains | S |

F. Noise Data

NOISE ASSUMPTIONS

EXISTING CONDITIONS

| <u>Road Segment</u> | <u>ROW</u> | <u>Lanes</u> | <u>MPH</u> | <u>Average Daily Trips</u> |
|---|------------|--------------|------------|----------------------------|
| ELIZABETH LAKE ROAD | | | | |
| ● Bouquet Canyon Rd. to Godde Hill Rd. | 24 | 2 | 55 | 3,100 |
| ● Godde Hill Rd. to 30th St. West | 24 | 2 | 55 | 4,600 |
| ● 30th St. West to Foxholm Drive | 24 | 2 | 55 | 2,900 |

BUILDOUT CONDITIONS

| | | | | |
|---|-----|-----|----|--------|
| ELIZABETH LAKE ROAD | | | | |
| ● Bouquet Canyon Rd. to Godde Hill Rd. | 100 | 4D* | 45 | 28,900 |
| ● Godde Hill Rd. to Bridge Rd. | 100 | 4D* | 45 | 18,000 |
| ● Bridge Rd. to 25th St. West | 110 | 6D | 45 | 53,000 |
| ● 25th St. West to Foxholm Drive | 126 | 8D* | 45 | 50,000 |

* D = Divided, Assumed 14 Foot Median

G. Cultural Resources Assessment

Cultural Resources Reconnaissance of
Amargosa Area Assessment District 90-1, Elizabeth
Lake Road Improvements, Palmdale
Los Angeles County, California

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26 December 1990

MANAGEMENT SUMMARY

Eighteen archaeological sites are known to exist in areas that may be impacted by street and drainage improvements in Amargosa Area Assessment District 90-1. Several additional sites are located in areas that may be used as borrow sites for the project.

The known sites range from small single bedrock grinding features to complex habitation areas. One of the known sites is a cemetery from which 11 burials have already been removed. However, the boundaries of this site have not been established and the site is quite near the proposed improvements. The site requires study to determine its true boundary in order to fully assess the impact of the project on the deposit. Strategy and methodology for the excavation should be developed by the project archaeologist, the City of Palmdale and the Native American Community before work is undertaken.

Some of the sites that may be impacted are in the process of being tested by Padon and Van Horn. Project work near these sites will require coordination with the indicated archaeologists to insure that all required mitigation effort at the impacted sites has been completed.

The balance of the sites subject to impact by the proposed project should be test excavated to determine their significance. Sites determined to be significant should be preserved if at all possible. If any site cannot be preserved it should be subjected to data recovery excavation and controlled destruction prior to grading.

The study area is archaeologically most sensitive. The more sensitive areas, as outlined in the body of the report, as well as the Borrow Area, the Potential Borrow Areas and the basins should all be monitored on a full time basis by an archaeologist during ground disturbing activity. All other areas should be periodically inspected by an archaeologist during ground disturbing activity.

All work should be described in professional reports that

receive reasonable distribution. All material collected during the project should be curated at a local facility.

Archaeological site locations are confidential. This report contains such locations and is to be released only to client or agency personnel who have a clear project related need for the information.

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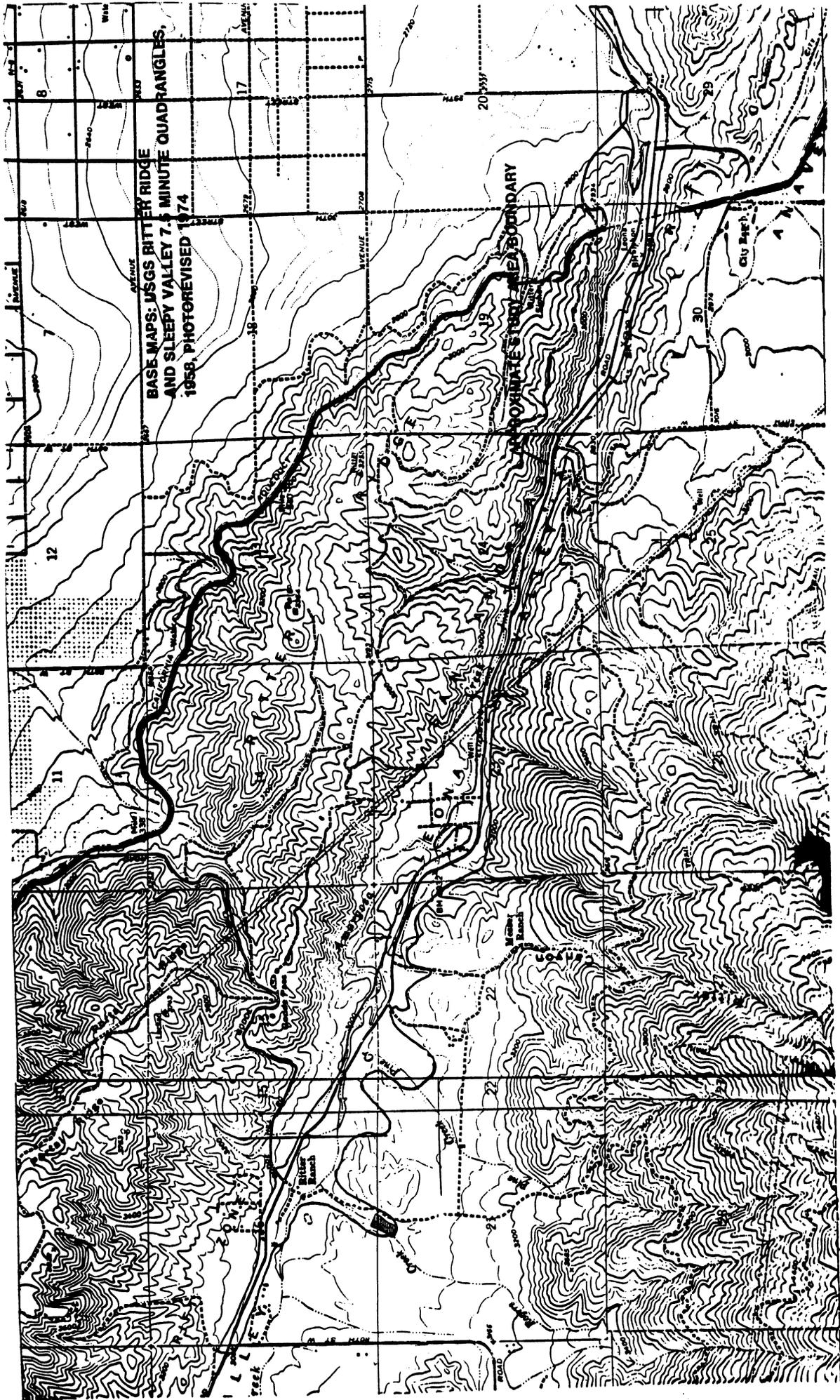
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INTRODUCTION

The Amargosa Creek Assessment District 90-1 is a narrow strip of land bordering and including Elizabeth Lake Road in the City of Palmdale, Los Angeles County, California. The latest United States Geological Survey (USGS) maps of the area also identify the street as Pine Canyon Road. The project area extends from Bouquet Canyon Road (80th Street West) on the west to 30th Street West on the east. The proposed project includes widening and other improvements to Elizabeth Lake Road as well as improvements in the Amargosa Creek drainage. Accordingly, the study area includes both the area for the new street alignment and for the drainage improvements. The approximate boundary of the study area is shown on the Index Map on page 2 of this report.

The study area is contained within Leona Valley, the local expression of the San Andreas Rift Zone, the major geological feature of the vicinity. The eastern extreme of the study area is within the edge of the Antelope Valley. Ritter Ridge lies to the north of the study area, and separates it from the Antelope Valley. To the south are the Sierra Pelona Mountains. Riparian growth is found along Amargosa Creek throughout much of the study area. Typical desert sage scrub growth is found in those areas away from the drainage. The higher elevations to the north and south of the study area contain chaparral and large tracts of introduced species. The introduced plants are associated with ranching, the major economic activity in the area during the last several decades.

Leona Valley was quite attractive to prehistoric populations. Amargosa Creek provided water during at least a portion of the year. The water supported many desirable plants and would also have attracted game animals to the area. The



BASE MAPS: USGS RITTER RIDGE
AND SLEEPY VALLEY 7.5 MINUTE QUADRANGLES,
1958, PHOTOREVISED 1974

PROGNATITE STUDY AREA BOUNDARY

valley itself offered a relatively easy route of travel to and from the Antelope Valley and to areas to the northwest.

CULTURAL AND HISTORIC BACKGROUND

The distribution of people in the study area vicinity at the time of arrival of the Spanish is anything but clear. The Smithsonian volume on the California Indians (individual papers will be cited below) is the latest major ethnographic work to appear. This volume shows the study area as occupied by a group known as the Tataviam (King and Blackburn 1978). The Tataviam apparently spoke a Takic language dialect differing markedly from that of other Takic speakers to the northeast, east and south. Very little is known of Tataviam culture, society or environmental adaptations. Apparently, they were quite similar to groups to the northeast, east and south.

The Kitanemuk were located to the north and east of the Tataviam (Blackburn and Bean 1978). Both groups subsisted through hunting of small game and collecting of seeds and other vegetable products. Local yucca appears to have been a dietary staple.

The Gabrielino were located to the south of the Tataviam (Bean and Smith 1978). The Gabrielino had a much greater population than the Tataviam and were able to take advantage of marine resources. Their languages had the same apparent roots.

To the west of the Tataviam were the Chumash (Grant 1978). The Chumash were highly advanced and spoke a language derived from Hokan stock of the Yuman language family, representing an origin quite different from that of the Tataviam.

Sutton (1980) assigned cemeteries located apart from villages to the Tataviam. One of the deposits he discusses is CA-LAN-767, located within the study area.

LSA Associates (1989) presents a lengthy discussion of desert prehistoric sequences, implying that much of the material has local application. However, many of the LSA interpretations are based on research from sites a great distance from the

current study area. There is very little justification for applying the distant conclusions to the local archaeology. Moratto (1984) flatly states that, "In the western Mojave Desert south of Owens Valley, no local cultural sequence has been established."

Moratto does describe the little local information that has been developed. Based on work from the western Antelope Valley a "Rhyolite Tradition" has been identified. The name, of course, derives from the predominate material found in collections from the period, which roughly spans the years 4000 to 2000 B.C. Knives, choppers, scrapers and cores are the primary constituents of Rhyolite Tradition collections, but grinding implements are also known.

The Late Prehistoric Period, defined from work in the western Antelope Valley (including at least two sites near the study area), covers the period from about 250 B.C. to A.D. 1650. Sutton (1980), who has written a great deal about the local archaeology, describes the Late sites as:

Large permanent (or semi-permanent) villages with a variety of smaller special purpose sites occupied on a seasonal basis (Robinson 1977). The presence of large villages (which include cemeteries) and the number and complexity of other sites would suggest that the Antelope Valley supported a large population during the late prehistoric period, and was not a "fringe" area as suggested by the ethnographic data.

The period between the Rhyolite Tradition and the Late Prehistoric Period may be a real hiatus of occupation, or may merely represent a lack of data. Certainly, the determination of which is true is one of the major research questions pertinent to the local area.

The Late Prehistoric Period sites contain quantities of material that is not locally available. Obsidian, Pacific Ocean shell and Channel Island steatite are examples. The presence of this material in local sites has led some researchers to the conclusion that trade was a major reason why people were present

in the study area during Late times. Analysis of such trade is another important research objective for future local study effort.

The Spanish made no use of the Ritter Ranch study area. The same is true of the period when the area was under Mexican rule. Only a few scattered ranches, none of which were within the present study area, were operational during the Spanish/Mexican era. Certainly, the Leona Valley would have been used for travel during the early historic period.

In 1876 the railroad appeared in Palmdale, providing the stimulus for some development. The lack of reliable water resources, however, kept growth at a very slow pace until World War II. Muroc Army Airfield was activated as a pilot training facility in 1942 and was reactivated as Edwards Air Force Base with the outbreak of the Korean War. The facility now serves as the United States Air Force Flight Test Center. Many aerospace companies have located manufacturing facilities in the area to be close to the Air Force facility. The result is a recent, dramatic increase in population.

LSA Associates (1989) contains an excellent summary of the little that is known of local area history. Development appears to be confined to the 20th Century. Ranches were operational in some of the local valleys, while grains, grapes, almonds and pears were grown as cash crops. The Ritter family arrived from Germany, apparently in the 1880s and established themselves on a 160 acre homestead in Leona Valley, just south of the study area. The Ritter family made other land acquisitions over the subsequent decades, finally becoming the major area land owners. Ranching and agriculture were the major activities. The Ritter family operated a hunting club on the property, but the date of construction is uncertain. The hunting club, adjacent to the current study area, is identified as the Ritter Ranch on current maps. The original ranch was about one mile to the east in Ritter Canyon.

PRIOR CULTURAL RESOURCES RESEARCH

Ten reconnaissance projects have been completed that cover portions of Amargosa Area Assessment District 90-1. Each of these surveys is briefly discussed below:

1. King (1968) completed a route study that crosses Elizabeth Lake Road from the northwest to the southeast near the eastern end of the study area. Cultural resources were noted during this study, but none are near Amargosa Area Assessment District 90-1.

2. Robinson (1979) completed a survey of a parcel in the southeastern corner of Section 15, Township 6 North, Range 13 West. An isolated rhyolite core was found during this project.

3. Robinson (1980) completed a survey of a parcel in the northeastern corner of Section 17, Township 6 North, Range 13 West. No cultural resources were found during this study.

4. Wirth Environmental Services (1987) researched the route of a power line that now crosses the central part of the study area. Some prehistoric material was found during the Wirth project, but none is close to the current study area.

5. Bissell (1989) completed a reconnaissance of the eastern portion of Ritter Ridge, including a small area south of Elizabeth Lake Road. Numerous sites were identified during this project, but none are close enough to the current study area to be of concern. However, a previously known site, CA-LAN-767, is located immediately south of Elizabeth Lake Road. This site will be discussed in detail in a following section of this report.

6. Van Horn (1989) studied the City Ranch property, located south of Elizabeth Lake Road at the eastern end of the study area. Numerous archaeological sites were located during the Van Horn project. Some of these are near enough to the present study area to be of concern and will be discussed in detail in a following section of this report.

7. LSA Associates (1989) completed a study that examined major portions of the Ritter Ranch both south and north of

Elizabeth Lake Road. Three archaeological sites close enough to the present study area to be of concern were recorded during the LSA project. These will be discussed in detail in a following section of this report.

8. Bissell (1990) explored approximately 1,200 acres north of Elizabeth Lake Road at the western end of the study area. One archaeological site and several isolated finds close enough to the current project area to be of concern were discovered during the survey. In addition, a previously known site was evaluated.

9. Blogett (1988) studied an area to the north of Elizabeth Lake Road at the eastern end of the study area. No cultural resources were located during this project.

10. White (1988) studied a property to the north of Elizabeth Lake Road immediately east of the California Aqueduct. Again, no cultural resources were detected.

Several sites have been recorded by a local resident. These sites will be individually discussed in the following report section.

KNOWN SITE DESCRIPTIONS

Following are brief descriptions of the known archaeological and historic deposits within and near Amargosa Area Assessment District 90-1. Each description contains a statement of what is known regarding the significance of the site and recommends appropriate future action. The significance and recommendation data will be summarized in a table appearing later in the report.

CA-LAn-767: This site is a cemetery located immediately south of Elizabeth Lake Road in the east central part of the study area. Eleven human burials were removed from this site by the Antelope Valley College in 1975. The burials were removed from a block excavation, so it is highly probable that other burials exist at the site. Robinson (1990) stated that 11 represents the minimum number of individuals that can be

contained in the existing collection. Survey data is available at Antelope Valley College, so it will be possible to reconstruct the locations of the 1975 excavations. The burials were at two depths, separated by a layer of stream cobbles. Apparently, the stream cobbles represented one episode of flood deposition. The four burials below the cobble layer were essentially intact, while those above the cobbles were heavily disturbed by water action. A great variety of grave goods was recovered during the excavation.

LSA visited the site area in 1989, but could see no surface material. The same was true of the Bissell (1989) project and of our visit during the current project.

CA-LAn-767 is a significant site. It has yielded burials representing at least 11 individuals. It is likely that the site contains more burials, since Robinson's exploration was confined to a block. It must be stressed that the boundaries of the deposit have not been established.

The proposed improvements to Elizabeth Lake Road and Amargosa Creek will impact CA-LAn-767. However, the level of impact cannot be evaluated, since the site boundaries have not been established. The site should be subjected to additional excavation designed to determine the site boundaries. Since the site is clearly a cemetery, the excavation should be accomplished in a manner that will cause the least amount of disturbance. Once the boundaries are established, every effort should be made to preserve the site in situ. The site should be disturbed only if there are valid engineering or technical reasons preventing avoidance of the site. If excavation and removal of burials is necessary, plans for reinterment agreeable to the Native American Community should be developed far in advance of any such removal. An archaeologist should monitor all ground disturbing activity in the vicinity of CA-LAn-767.

CA-LAn-948: This site is located about 300 meters south of Elizabeth Lake Road and about 600 meters southeast of CA-LAn-767, discussed above. The site was recorded on 17 May

1977 by Jay Tremblay. The site was described as some 50 by 50 meters in extent, containing a lithic scatter of obsidian and silicates. A steatite pendant, a concave based projectile point and a rim fragment of a small bowl were collected from the site surface and are curated at Antelope Valley College. Burned bone was also noted in the site area. Site depth is not known.

CA-LAN-948 has been somewhat damaged by local ranching activity, but appears to be largely intact. The significance of the deposit is not known, since no exploratory excavation has been accomplished.

The proposed street improvements will not impact CA-LAN-948, due to its distance from the projected grading. However, it is stressed that the true size of the site is not known. It is recommended that grading in the vicinity of the site be monitored by an archaeologist. See also the discussion for CA-LAN-950, below.

CA-LAN-949: This site is located a short distance to the south of Elizabeth Lake Road near the eastern end of the study area. The site was recorded by Jay Tremblay in 1977. The site was originally described as about 30 by 30 meters in size and containing a thin lithic scatter of silicates and rhyolites.

Van Horn examined CA-LAN-949 in 1989 and found the site to be larger than indicated by the original recorder. Van Horn estimated the size as 50 by 50 meters. Manos, mano fragments, metate fragments, a pestle fragment, cores hammerstones, flakes and a cottonwood triangular projectile point fragment were seen in the site area. No midden deposit was seen, but Van Horn felt that a subsurface deposit may be present.

Van Horn (1990) has recently completed test excavation work at CA-LAN-949. This work established that a subsurface deposit including two small midden areas exist at the site and that the deposit is slightly to the south of the originally plotted location. The site has been determined to be significant and Van Horn recommends that the site be preserved or that a thorough mitigative program be completed if preservation is not

possible. Van Horn's analysis of the site is not complete, so the interpretations given above must be regarded as preliminary.

CA-LAn-949 should not be impacted by the proposed road improvements, however, it is quite near the area of possible impact. It is recommended that coordination with Van Horn be accomplished prior to the beginning of road construction to insure that all required mitigative action has been accomplished. It is further recommended that grading in this portion of the project area be monitored by an archaeologist since a significant site is known to be near the area of impact.

CA-LAn-950: This site is located immediately adjacent to Elizabeth Lake Road about 500 meters southeast of CA-LAn-767, the cemetery site discussed above. The site was recorded on 17 May 1977 by Jay Tremblay. The site is described as a lithic scatter containing silicates and obsidian some 40 by 40 meters in extent. A silicate cottonwood triangular projectile point and an olivella wall disc bead were collected from the site and are curated at Antelope Valley College. Burned bone and a single bedrock mortar were also seen in the site area. No assessment of the depth was made, but Tremblay felt that a subsurface deposit is present.

A ranching operation including small buildings, corrals and an access road have impacted the surface portion of CA-LAn-950. However, it appears that any subsurface deposit associated with the site is not disturbed.

The significance of CA-LAn-950 is not known, since no exploratory excavation has been accomplished. The site will be impacted by the proposed construction along Elizabeth Lake Road. It is recommended that CA-LAn-950 be subjected to test excavation to determine its significance. The level of work required beyond the test excavation will be determined by the results of the test project. Should the site prove to be significant, it should be preserved in place or subjected to a data recovery excavation if engineering parameters will not allow preservation.

CA-LAn-951: This site, located north of Elizabeth Lake Road in the central portion of the study area, was recorded by Jay Tremblay who described a thin lithic scatter some 100 by 100 meters in size. Rhyolite projectile points, burned bone, schist and steatite pendant blanks were noted in the site area. Some of this material was collected and is currently curated at Antelope Valley College.

Archaeological site CA-LAn-951 has been destroyed. A large custom made home is currently being completed on the site location and a new horse stable is nearby. Grading for roads and the buildings has eliminated all traces of the deposit. Not a single artifact could be seen in the site area during the Bissell (1990) project or during the current project.

The significance of CA-LAn-951 is unknown, since no excavation work was ever accomplished. However, a partial surface collection does exist at Antelope Valley College. The current project will not further impact CA-LAn-951. Therefore, no additional action is required.

CA-LAn-952: This site is located south of Elizabeth Lake Road in the east central part of the study area. It is a short distance northwest of the cemetery site, CA-LAn-767, discussed above. The site was recorded on 17 May 1977 by Jay Tremblay, who described it as a dark midden deposit some 30 by 30 meters in extent. No depth assessment was made, but olivella beads and one stone bead were collected and are curated at Antelope Valley College. The site has been damaged by illegal collecting activity and by ranching activity.

The significance of CA-LAn-952 is unknown, since no test excavation has been accomplished. The site has been heavily damaged in recent decades by ranching activity.

CA-LAn-952 may not be impacted by the proposed street and creek improvements, but a haul road entering a possible borrow area to the south will pass very near the site area. It is recommended that the site be subjected to test excavation to determine its degree of significance and preservation. The test

excavation data will determine appropriate future management recommendations for the site.

CA-LAn-953: This site is located south of Elizabeth Lake Road in the east central part of the study area. It is a short distance northwest of the cemetery site, CA-LAn-767, discussed above. The site was recorded in May 1977 by Jay Tremblay, who described it as a lithic scatter some 40 by 40 meters in size. No assessment of the depth was made. Many steatite objects were seen in the site area. The site record states that a silicate projectile point was collected by a pot hunter (illegal collector), but does not indicate how this information was obtained. Chert, quartz and rhyolite flakes were seen in the area by LSA, as was an incised sandstone fragment and a shaped schist slab with a single cupule. The site has been damaged by a dirt road and by illegal collecting activity (pothunting).

Padon (1990) has completed test excavations at CA-LAn-953. The project consisted of a surface collection and excavation of five one by one meter units. The site was determined to be significant.

CA-LAn-953 is near the proposed street and creek improvements and may be impacted by them. It is recommended that coordination with Padon be accomplished prior to any ground disturbing activity in the area to insure that all required mitigative actions have been accomplished at the site. It is further recommended that all grading in the site vicinity be monitored by an archaeologist.

CA-LAn-954: This site is also located just south of Elizabeth Lake Road in the east central portion of the study area and was recorded by Jay Tremblay on 17 May 1977. The site is described as a dark midden deposit some 40 by 40 meters in extent. Steatite ornament fragments, a blade and a single pottery sherd were collected and are curated at Antelope Valley College. Bone, charcoal and a bedrock mortar were also seen in the site area.

The significance of CA-LAn-954 is unknown, since no test

excavation has been accomplished. The site has been heavily damaged in recent decades by ranching activity.

CA-LAn-954 may not be impacted by the proposed street and creek improvements, but a haul road entering a possible borrow area to the south is routed very near the site area. It is recommended that the site be subjected to test excavation to determine its degree of significance and preservation. The test excavation data will determine appropriate future management recommendations for the site.

CA-LAn-955: This site is located south of Elizabeth Lake Road in the vicinity of the cemetery site, CA-LAn-767, described above. The site was recorded on 17 May 1977 by Jay Tremblay and consists of a single bedrock mortar.

The significance of this site is unknown. A bedrock mortar is the only known site element, but a subsurface deposit may well be hidden by stream deposits. The site will be impacted by the proposed street and creek improvements. It is recommended that a test excavation be accomplished at the site to determine if a subsurface deposit is present and, if so, its significance. Future management decisions will be based on the results of the test work.

CA-LAn-959: This site is located south of Elizabeth Lake Road a short distance northwest of the cemetery site, CA-LAn-767. The site, recorded in April 1978 by Jay Tremblay is described as an occupation area with obvious midden. A surface collection has been made at the site, with the collected material being curated at Antelope Valley College. Shell beads, steatite pendants, a shaft straightener and many chipped stone remains are in the collection. One cupule boulder (number of cupules not specified) and a bedrock mortar are also found at the site. LSA examined the site area in 1989 and found that it had been damaged by recent backhoe work.

Padon (1990) completed test excavations at the site. The field work consisted of a surface collection and excavation of two one by one meter units. The site was found to have a rather

substantial subsurface deposit and was determined to be significant.

CA-LAN-959 is near the proposed street and creek improvements and may be impacted by them. It is recommended that coordination with Padon be accomplished prior to any ground disturbing activity in the area to insure that all required mitigative actions have been accomplished at the site. It is further recommended that all grading in the site vicinity be monitored by an archaeologist.

CA-LAN-1644H: This site is a historic trash dump with surface materials dating from the 1920s to the 1940s. The site is located a short distance to the north of Elizabeth Lake Road in the central portion of the study area.

Padon (1990) completed a test excavation of the site and determined that it is not significant. No further work at CA-LAN-1644H is recommended.

CA-LAN-1645: Recorded by Padon in 1989, this site was described as a scatter of obsidian, chert, rhyolite and quartz flakes located about 200 meters to the north of Elizabeth Lake Road in the central part of the study area.

Padon (1990) returned to the site to accomplish test excavation work only to find that the site had been destroyed by secondary road construction. However, a similar deposit was found nearby, was tested and found to be not significant. The new deposit is identified by the temporary number RR-45, since it has not yet been recorded with the Archaeological Survey.

No additional work is recommended at these deposits.

CA-LAN-1646H: This site is the Ritter hunting club, located south of Elizabeth Lake Road near the western end of the study area. The site was recorded in 1989 by Padon, who determined that the site is not of sufficient age to be of historic interest. No further research is required or recommended.

CA-LAN-1746: This site is located south of Elizabeth Lake Road near the eastern end of the study area. The site was recorded by Van Horn in 1989. The site is some 50 by 20 meters

in extent and included chert and quartz flakes, chert and quartz scrapers, a jasper core fragment and a quartz hammerstone. No midden was seen and no assessment of the depth of the deposit was made.

In 1990 Van Horn completed test excavations at CA-LAn-1746. The test project established that the site is slightly smaller than originally recorded and that no subsurface material is present. Van Horn concluded that the site was a surface lithic scatter only, probably representing an activity area associated with juniper forest exploitation. Van Horn feels that the test excavation amounts to total mitigation of the site. Van Horn has not completed his analysis of the site material, so the conclusions presented above must be considered as tentative.

CA-LAn-1746 will not be impacted by the proposed road construction. However, it is recommended that coordination with Van Horn be accomplished prior to ground disturbing activity in the vicinity, just to insure that all appropriate mitigative actions have been completed.

CA-LAn-1747: This site is located south of Elizabeth Lake Road near the eastern end of the study area. The site was recorded by Van Horn in 1989. The site is some 80 by 30 meters in size. Artifacts included chert and quartzite scrapers, quartzite flakes and a leaf shaped projectile point fragment. The site was heavily damaged by historic activity. No midden was seen and no assessment of the depth of the deposit was made.

In 1990 Van Horn completed test excavations at CA-LAn-1747. The test project established that the site is somewhat smaller than originally recorded. No subsurface material was detected during the test work. Van Horn concluded that the site was a surface lithic scatter only, probably representing a limited activity area associated with juniper forest exploitation. Van Horn feels that the test excavation amounts to total mitigation of the site. Van Horn has not completed his analysis of the site material, so the conclusions presented above must be considered as tentative.

CA-LAn-1747 will not be impacted by the proposed road construction. However, it is recommended that coordination with Van Horn be accomplished prior to ground disturbing activity in the vicinity, in order to insure that all appropriate mitigative actions have been completed.

CA-LAn-1748: This site was recorded in 1989 by Van Horn. It is located south of Elizabeth Lake Road near the eastern end of the study area. The site was described as a low density lithic scatter. The site measures about 150 by 30 meters and was seen to contain chert, quartz and quartzite flakes; a granite mano; a quartzite hammerstone; a quartzite scraper and a quartzite core. No midden was observed and the depth of the deposit was not assessed.

In 1990 Van Horn completed test excavations at CA-LAn-1748. The test project established that the site is somewhat smaller than originally recorded. No subsurface material was detected during the test work. Van Horn concluded that the site was a surface lithic scatter only, probably representing a limited activity area associated with juniper forest exploitation. Van Horn feels that the test excavation amounts to total mitigation of the site. Van Horn has not completed his analysis of the site material, so the conclusions presented above must be considered as tentative.

CA-LAn-1748 will not be impacted by the proposed road construction. However, it is recommended that coordination with Van Horn be accomplished prior to ground disturbing activity in the vicinity, in order to insure that all appropriate mitigative actions have been completed.

CA-LAn-1837: One obsidian flake, six rhyolite flakes, one quartz flake, one rhyolite spent core, one granite portable mortar, one granite bifacial mano fragment, one metate made of a dark aphanitic material were seen in an area some 60 by 20 meters in size. Artifacts exposed in a drainage channel indicate a depth of 30-40 centimeters. No midden is apparent at the site. The site was recorded during the Bissell (1990)

project.

The significance of the CA-LAN-1837 is not known. The site will not be impacted by the proposed street improvements, but it is stressed that the actual boundary of the site is not known. It is therefore recommended that an archaeologist monitor all ground disturbing activity in the general area of the site.

Isolates: During the Bissell (1990) project a series of isolated tools was found in the area north of Elizabeth Lake Road in Section 22 and the western half of Section 23. Several flakes of various materials, a granite portable mortar and a granite mano were seen. None of these tools are significant, but their presence, along with the known sites in the area, indicates intensive prehistoric use of the local vicinity. It is recommended that all ground disturbing activity in this area be monitored by an archaeologist.

ARCHAEOLOGICAL SENSITIVITY

Less than a decade ago the prevailing opinion was that the Antelope Valley and surrounding areas had seen very little prehistoric use. Recent rather extensive survey work and limited excavation in the area has established that such a picture of the study area vicinity is incorrect.

No less than 17 archaeological sites are known that could be impacted by the proposed improvements involved in Amargosa Assessment District 90-1. This does not include the sites within the Borrow Area and the two Potential Borrow Areas. A great many other sites are known in the immediately surrounding area. Only a few of the local sites have been test excavated and none have been subjected to data recovery excavation and complete analysis. Nevertheless, sufficient data is available to make clear that a full range of site types exist in the area, including habitation sites, specialized use stations and at least one cemetery. A rather large population is indicated, at least for the Late Period.

It should be noted that nearly all of the known sites are in

areas subject to some erosion. It is this erosion that keeps the sites visible at the surface. On the other hand, few sites are known in the areas that are currently receiving natural fill. Sites probably occur within such alluvial areas as frequently as they do in areas subject to erosion, but the fill renders them invisible from the surface. The fill covered sites may prove to be even more important than the sites that are currently known. Such buried sites are probably in far better condition than sites that have been subjected to erosion.

The study area can only be described as very sensitive from an archaeological standpoint. Site density and distribution is such that deposits may be encountered anywhere within the study area.

CULTURAL RESOURCES MANAGEMENT

Cultural resources are, of course, non renewable. Once they are damaged or destroyed the data they contained can never be recovered. Accordingly, various state and local regulations have been implemented to insure the proper management of such resources. Basically, these regulations require that projects be undertaken to locate all cultural resources on the subject property, determine their significance, develop an acceptable plan for their management and carry the approved plan to full implementation.

The critical step in this process is the determination of the significance of the deposit under study. The significance of an archaeological deposit rests on whether or not that deposit contains information which will increase our knowledge of the past. A site with such data is significant, while a site with no such data is not significant.

The nature of the impact a given project will have on an archaeological deposit must be known before proper management decisions can be made. Events that have an adverse impact on cultural resource deposits can be broadly grouped into four categories; natural, primary, secondary and combination.

Natural impacts are those caused by nature. Erosion is the most typical example. Mass wastage in the form of landslides can also pose threats to cultural resources.

Natural impacts also occur due to decay of cultural resource remains. Bone and plant material, often found in late sites, is subject to natural decay and will degrade over time. Evidence of natural decay is seen whenever older sites are excavated and only lithic material is recovered. Organic material would have been present in most of these older sites, but has been so degraded by natural decay that it can no longer be recognized or recovered using current excavation techniques.

Primary impacts are caused by the direct activity of man. Grazing animals can easily break fragile exposed artifacts or displace them from their original location. Plowing and discing disturbs the upper portions of deposits, causing breakage and dislocation. Within the study area primary impacts have not been pronounced, but such impacts are rapidly increasing. At least two archaeological deposits near the study area have recently been destroyed by human activity. A surface collection was made at one of the destroyed sites, but nothing was accomplished at the other. Any insights these two sites might have contained are forever lost.

There is another kind of primary impact meriting some discussion. Illegal collecting of artifactual material, commonly referred to as "pot hunting," is quite common and is known to have seriously degraded many sites, including some within the current study area. The opportunity for pot hunting will increase in proportion to the increasing local population.

Secondary impacts are closely related to primary impacts. The residential construction currently in progress in the vicinity of the study area will greatly increase the local population which, in turn, will subject the area to greatly increased foot, off road vehicle and equestrian traffic. The increased traffic will result in greater risk to the cultural deposits since they will be more subject to vandalism,

inadvertent damage and illegal collecting. It is safe to say that all of the cultural deposits within and near the current study area are now subject to serious secondary impacts and that the threat will continue to grow as area development continues.

Combination impacts are often subtle and difficult to quantify. A typical example of combination impacts is increased erosion of a deposit due to increased water run off resulting from increased population in the area. The relationship between the primary impact of construction and the secondary impact of mobile, increased population has already been discussed.

Actions that can be taken to mitigate the negative impacts to a cultural resources deposit are of three varieties; preservation, excavation and combination.

Preservation can take a wide variety of forms, ranging from no action to the construction of elaborate devices. In general, preservation action is not a one time activity. Periodic inspection must be made to insure that protective actions and devices are still applicable, in place and functional.

The range of possible preservation actions is quite large. The following list is not exhaustive, but will serve to demonstrate the kinds of action possible:

1. No action: This measure is appropriate if a site is under no threat. No action may also be appropriate if a site has been determined to be non significant and is under a low order of threat. Of course, the measure is appropriate if a deposit has already been destroyed or damaged to the point where significance is lost.

2. Fencing: Fencing is appropriate in some cases, usually as a short term measure to preclude inadvertent damage while nearby construction projects are in progress. Fencing usually does not succeed on a long term basis, however. A fence around an otherwise barely visible archaeological deposit often only attracts unwanted attention to the deposit.

3. Burial: It is possible to preserve cultural resources by placing them under sterile fill, provided soil engineering

parameters are such that the fill can be placed with no scarification, removal or undue compaction of the site soil. The thickness of the fill should be sufficient so that excavation for construction atop the fill will not reach the cultural deposit.

4. Altering Development Plans: Frequently, a deposit can be preserved, at least in part, by altering development plans so that no construction takes place in the site vicinity.

5. Planting: Protection for a site can be gained by planting of native growth dense enough to discourage entry to the site. If planting is chosen as a preservation measure it must be understood that the growing plants will probably cause some degradation to the deposit.

6. Erosion control devices: These are actions taken to reduce the natural or secondary erosional impacts to a site. Rip-rap, protective planting, subdrains and concrete channels to direct the water away from the deposit are examples.

The next alternative for mitigating the impacts to a cultural resources deposit is excavation. Whenever a site, significant or non significant, cannot be preserved and must be destroyed, it should be subjected to a data recovery excavation. A data recovery excavation implies that a statistically valid sample of site material is collected using acceptable archaeological methodology. The excavation must be followed by appropriate laboratory analysis and preparation of professional reports that receive sufficient distribution to insure their availability to future researchers. Provisions must also be made for permanent curation of the material collected during the excavation. It should be pointed out that excavation is also a means of preserving an archaeological site, assuming that an adequate sample is taken under carefully controlled conditions.

Occasionally, a situation will be encountered where it is possible to protect a portion of a deposit while the balance will be damaged or destroyed. In this instance the portion of the site to be destroyed should be subjected to a data recovery

excavation as described above.

Preservation is the preferred method of impact mitigation. Archaeological deposits will yield more data if they are excavated at some future time. This is because archaeological techniques are always advancing. Local archaeologists currently use screening mesh with smaller openings than was in use only a decade ago. The result is a dramatic increase in data recovery rates. Another reason for preserving sites for future excavation is that the research questions being asked will evolve. It is a practical impossibility to study all facets presented by a complex deposit. Archaeologists therefore focus on the important questions of the day. Future researchers will be interested in different topics and will be unable to study them if all sites have been excavated. It was pointed out above that only a short while ago it was felt that very little archaeological use had been made of the Antelope Valley area, but that recent work has shown the opposite. Researchers are now in a position of having to ask the most basic of research questions of the local sites. As data accumulates the research questions will become more complex and specific. These future research topics cannot be studied if all of the sites have been destroyed or excavated.

PROPOSED BORROW AREA SITES

The project maps for Amargosa Creek Assessment Area 90-1 indicates one parcel as a Borrow Area and two other parcels as Potential Borrow Areas. The locations are shown on the Project Map on page 8 of this report.

The parcel indicated as Borrow Area is located in the northeast portion of Section 25. This area lies about 300 meters to the south of the area proposed for street and creek improvement. The currently available plans indicate a haul road running from Elizabeth Lake Road to the Borrow Area along an S shaped route some 500 meters in length. This haul road will pass quite near several of the archaeological sites discussed

above. The impact of the proposed project on the sites depends on two important unknowns, that is, the true size of the sites and their significance. The sites that will likely be impacted by the haul road are CA-LAn-952, CA-LAn-953, CA-LAn-954 and CA-LAn-959 (see descriptions in preceding section). Two of these sites, CA-LAn-954 and CA-LAn-959 have recently been tested and found to be significant. The significance of the balance of the sites is unknown. The exact limits of the Borrow Area are not known, but sites CA-LAn-947, CA-LAn-1335, CA-LAn-1637 and CA-LAn-1643 may be impacted. All of these sites are to be tested by Padon in the near future as part of the Ritter Ranch project. No ground disturbing activity should take place in the Borrow Area or the associated haul road until Padon's test work is completed, significance of the deposits is known and final mitigation measures, as recommended by Padon, have been implemented. The Borrow Area is quite large. It should be possible to avoid the sites in this area through careful coordination with Padon.

The first Potential Borrow Area is located in the southeast portion of Section 23, immediately to the north of Elizabeth Lake Road. One archaeological site, CA-LAn-1645 was recorded by Padon in this area (see description in preceding section), but was destroyed before any work was done. However, another site, RR-45 (described above), was located, tested and found to be not significant. CA-LAn-1644H, also in this vicinity, was tested by Padon and was found to be not significant. Numerous isolates were found a short distance to the west (Bissell 1990). No extensive archaeological sites are known in this Potential Borrow Area, but a portion of it consists of alluvial material that may be obscuring extensive deposits. It is therefore recommended that an archaeologist monitor ground disturbing activity in such areas.

The second Potential Borrow Area is located south of Elizabeth Lake Road near the west end of the study area. No archaeological sites are known to exist in the area, but it is

an alluvial basin that has been receiving natural fill. Given the archaeological sensitivity of the area it is probable that archaeological deposits are contained in the alluvium. It is therefore recommended that an archaeologist monitor ground disturbing activity in this Potential Borrow Area.

RECOMMENDATIONS

Individual known sites that could be subjected to impact from work in Amargosa Area Assessment District 90-1 were discussed in some detail in a preceding section. The management recommendations pertinent to the individual sites are summarized in Table 1 on the following two pages. Other general recommendations related to the project area are:

1. The study area is quite sensitive from a cultural resources standpoint. Archaeological deposits may be discovered anywhere within the project area. It is recommended that all ground disturbing activity related to the project be periodically inspected by an archaeologist. The inspecting archaeologist must be prepared to document and recover any significant cultural material that may appear as rapidly as is consistent with standard archaeological field methodology. This requirement may cause some delays in grading activity, but close coordination between the archaeologist and the contractor will keep such delays to a minimum.

2. Three areas are more critical than the balance of the study area, given the known distribution of sites and isolates. It is recommended that archaeological monitoring of ground disturbing activity be on a full time basis while work is in progress in these areas. The three areas are depicted on the Project Map on page 8 of this report. The three critical areas are:

- A. Immediately north of archaeological site CA-LAn-949. An area about one kilometer in length centered on the site should be carefully monitored.

Table 1: Status of Archaeological Sites in Amargosa Area Assessment District 90-1

| <u>SITE NUMBER</u> | <u>SIGNIFICANCE</u> | <u>CONDITION</u> | <u>IMPACT</u> | <u>RECOMMENDATIONS</u> |
|--------------------|---------------------|--|---------------|---|
| CA-LAN-767 | Significant | Partially excavated Some natural damage | Direct | Determine boundaries. Preserve if possible. Salvage excavate if preservation not possible. Develop reinterment plan with Native American input. Monitor grading in site area. |
| CA-LAN-948 | Unknown | Damaged by ranching | Secondary | Monitor grading in site area. |
| CA-LAN-949 | Significant | Test excavated | Secondary | Coordinate with Van Horn to insure mitigative actions are complete. Monitor grading in site area. |
| CA-LAN-950 | Unknown | Damaged by ranching | Direct | Test excavate to determine significance. Preserve if possible. Salvage excavate if preservation is not possible. Monitor grading in site area. |
| CA-LAN-951 | Unknown | Destroyed | None | No further action required. |
| CA-LAN-952 | Unknown | Damaged by ranching | Secondary | Monitor grading in site area. |
| CA-LAN-953 | Significant | Test excavated | Secondary | Coordinate with Padon to insure mitigative actions are complete. Monitor grading in site area. |

Table 1 (Continued): Status of Archaeological Sites in Amargosa Area Assessment District 90-1

| <u>SITE NUMBER</u> | <u>SIGNIFICANCE</u> | <u>CONDITION</u> | <u>IMPACT</u> | <u>RECOMMENDATIONS</u> |
|--------------------|---------------------|---------------------|---------------|---|
| CA-LAn-954 | Unknown | Damaged by ranching | Secondary | Test excavate to determine significance. Preserve if possible. Salvage excavate if preservation is not possible. Monitor grading in site area. |
| CA-LAn-955 | Unknown | Pristine | Secondary | Test excavate to determine significance. Preserve if possible. Salvage excavate if preservation is not possible. Monitor grading in site area. |
| CA-LAn-959 | Significant | Test excavated | Secondary | Coordinate with Padon to insure mitigative actions are complete. Monitor grading in site area. |
| CA-LAN-1644H | Not significant | Test excavated | None | No further action required. |
| CA-LAN-1645 | Unknown | Destroyed | None | No further action required. |
| RR-45 | Not significant | Test excavated | None | No further action required. |
| CA-LAN-1646H | Not significant | Pristine | None | No further action required. |
| CA-LAN-1746 | Not significant | Test excavated | None | Coordinate with Van Horn to insure mitigative actions are complete. |

Table 1 (Continued): Status of Archaeological Sites in Amargosa Area Assessment District 90-1

| <u>SITE NUMBER</u> | <u>SIGNIFICANCE</u> | <u>CONDITION</u> | <u>IMPACT</u> | <u>RECOMMENDATIONS</u> |
|--------------------|---------------------|------------------|---------------|---|
| CA-LAN-1747 | Not significant | Test excavated | None | Coordinate with Van Horn to insure mitigative actions are complete. |
| CA-LAN-1748 | Not significant | Test excavated | None | Coordinate with Van Horn to insure mitigative actions are complete. |
| CA-LAN-1837 | Unknown | Pristine | None | Monitor grading in site area. |
| Isolates | Not significant | Pristine | None | Monitor grading in site area. |

NOTE: Any site that cannot be preserved and must be destroyed is to be subjected to controlled destruction as described in the text.

B. From a few hundred meters east of site CA-LAn-950 westward to a few hundred meters west of site CA-LAn-955.

C. From the vicinity of site CA-LAn-1837 eastward to where the power line crosses Elizabeth Lake Road.

3. It is also recommended that grading monitoring be on a full time basis while work is underway in the Borrow Area or one of the Potential Borrow Areas. These areas are primarily alluvial and cultural resources may be concealed in these areas.

4. Several settling basins are proposed as part of the Amargosa Area Assessment District 90-1 project. Any ground disturbing activity within the basins should be monitored on a full time basis by an archaeologist. Again, the basins are alluvial areas, and cultural resources may well be concealed.

5. If destruction of any archaeological site becomes necessary due to unavoidable impacts, the site should be destroyed using controlled methods to allow collection of the maximum amount of data. One method of controlled destruction involves the use of a small scraper to remove the cultural deposit in very thin lifts. Following each scraper pass the surface is inspected, and artifacts pin flagged, surveyed and recovered. Surface scrapes with the material passed through fine mesh are also made after each scraper pass. This provides some control for the smaller items of cultural material. Exposed features or dense artifact concentrations are excavated using standard archaeological methods. This procedure is repeated until the entire cultural deposit is removed. Experience has shown the above method to be most viable in recovering the maximum amount of data from sites that must be destroyed. However, it is proper to implement this option only if all means of preserving the site have been explored and rejected for valid engineering or design reasons.

6. Outside coordination:

A. The Native American Community will be especially interested in the work required at CA-LAn-767. The project

archaeologist, City representatives and appropriate members of the Native American Community should meet well in advance of the recommended test excavation to insure that all methodologies and strategies related to the site are understood by all parties. The work recommended earlier for CA-LAn-767 involves only the determination of site boundaries. Removal of burials will not be required for this test excavation. However, such removal may be required in the future if it is determined that burials exist in an area where impacts cannot be avoided. Early development of a strategy for recovery, scientific study and reinterment will allow the project to proceed without unnecessary delay.

B. Test excavations supervised by Padon are underway on the Ritter Ranch, and Van Horn is currently doing similar work on sites on the City Ranch. The project archaeologist must coordinate with Padon and Van Horn to insure that the Amargosa Area Assessment District 90-1 project causes no undue impact to sites on the Ritter and City Ranches.



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PALEONTOLOGICAL ASSESSMENT FOR
AMARGOSA CREEK IMPROVEMENT PROJECT - PHASE II
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INTRODUCTION

The following presents the results of RMW's assessment of the paleontological resources within the Amargosa Creek Improvement Project-Phase II EIR study area. The study area is located west of the City of Palmdale on Elizabeth Lake Road from Foxholm Drive on the east to Bouquet Canyon on the west (Figure 1).

The purpose of this report is to assess the known and potential paleontological resources within the study area. Pertinent geological and paleontological literature was reviewed for information on the paleontological resources within and near the study area. A paleontological literature and records search conducted in December 1989 for the Ritter Ranch provided information on the recorded paleontological occurrences in the vicinity of the study area. A walkover survey of those areas not surveyed in the previous EIRs and those areas likely to have fossiliferous rocks exposed was conducted in September 1990.

STRATIGRAPHY AND PALEONTOLOGY

Exposed in the area are rocks that have been brought together by movement on the San Andreas and Portal Faults. These rocks range in age from the present to at least 100 million years old. The rocks are divided into two groups: metamorphic and igneous rocks along the northern bank of Amargosa Creek, and sedimentary rocks on the creek floor and on the southern bank.

It is in the sedimentary rocks, that are generally located south of Amargosa Creek, that fossil remains are most likely to be found in the vicinity of the study area. These rocks have been assigned to two geologic formations: the Ritter Ranch Formation and the Anaverde Formation. Published geologic maps of the area assign all the sediments to the Anaverde Formation. We will follow this usage, because it is beyond the scope of this report to resolve this dispute. The Anaverde Formation has a limited history of fossil production in the Palmdale area. A modest assemblage of fossil plants is reported from this formation east

of the study area. There are no other records of fossils from this formation in the vicinity of the study area. No fossils were located during this study. However, what appear to be ancient soil horizons were noted near the western end of the study area. These features are commonly associated with vertebrate fossils.

Covering the lower flanks of the surrounding hills and extending into the study area are Pleistocene age terrace deposits. These deposits were left by streams flowing through the area near the end of the Ice Age. Occasionally the remains of Ice Age land animals are discovered in these deposits. A single bone fragment was located during a paleontological assessment of Ritter Ranch in these deposits north of the study area. No fossils were observed in these deposits in the study area.

Present on the valley floor and flanks of the hills is a thin covering of Quaternary alluvium. These materials are the deposits of the current Amargosa Creek drainage. Typically they are too young to contain fossils. Due to the thin nature of these deposits in portions of the study area, it is likely that excavations associated with this project will penetrate the alluvium to the older rock units below.

Also present in the study area are metamorphic and granitic rocks. The granitic rocks are approximately 100 million years old. These rocks formed when molten rocks cooled deep within the earth. They are now exposed due to the uplift and erosion that has taken place in the region associated with the development of the San Gabriel Mountains. Because of the intrusive origins of these rocks, they do not contain fossils. The granitic rocks are present in a small exposure just outside the eastern end of the study area and may be present beneath the Quaternary alluvium in the valley floor within the study area. The age of the metamorphic rocks is uncertain, but they are considered to be at least as old as the granitic rocks. These rock have been greatly altered by heat and pressure deep within the Earth. Any fossils that originally were present in them have been destroyed by these events. Metamorphic rocks are exposed along the north side of Leona Valley throughout the study area.

CONCLUSIONS AND RECOMMENDATIONS

Excavations into the Anaverde Formation, the Pleistocene terrace deposits, and those portions of the Quaternary alluvium underlain by the Anaverde Formation may expose significant fossils. Because the Quaternary alluvium is so thin in portions of the study area, it is very likely that it will be penetrated by excavations and in some areas the Anaverde Formation will be exposed. Therefore, in those areas the alluvium should be considered to have the same potential for fossils as the Anaverde Formation. The presence of ancient soil horizons suggests that fossils may be discovered in the Anaverde Formation. Therefore, the Anaverde Formation is considered to have a high paleontological sensitivity. Because of the presence of fossil bone in the terrace deposits they are considered to have a high potential for the discovery of significant fossils. Quaternary alluvium, except where it is underlain by the Anaverde Formation is considered to have a low potential for the discovery of significant fossils. The metamorphic and granitic rocks have no potential for the discovery of significant fossils.

The improvements along Amargosa Creek will expose fossils, however they will be destroyed unless proper mitigation measures are implemented. The destruction of the fossils would be an adverse impact on the region's paleontological resources. This would be an adverse impact because these fossils can supply information on the age of the Anaverde Formation, which is still in question, and on the timing of the movements of the San Andreas fault zone. Implementation of the following mitigation measures can reduce this adverse impact to an acceptable level.

The following mitigation measures will reduce the adverse impact of the improvements along Amargosa Creek on the region's paleontological resources to an acceptable level. These mitigation measures have proven successful in protecting paleontological resources, while allowing the timely completion of many developments in southern California.

1. A qualified paleontologist shall be retained to perform periodic inspections of excavations and, if necessary, salvage exposed fossils. The frequency of inspections will depend on the rate of excavation, the materials being excavated, and the abundance of fossils.

2. The paleontologist shall be allowed to divert or direct grading in the area of an exposed fossil to facilitate evaluation and, if necessary, salvage.

3. Provisions for preparation and curation shall be made before the fossils are donated to their final repository.

4. All fossils collected should be donated to a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County.

If you have any questions or if we can be of additional service do not hesitate to contact us.

Respectfully,

A handwritten signature in black ink, appearing to read "Rod Raschke". The signature is stylized with large, flowing loops and a long horizontal stroke at the end.

Rod Raschke
Certified Paleontologist

Exploratory Excavation of
Archaeological Site CA-LAn-767, Amargosa Creek,
Palmdale, Los Angeles County, California

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MANAGEMENT SUMMARY

Improvements to Elizabeth Lake Road and Amargosa Creek in the vicinity of CA-LAn-767 may impact that site. One component of CA-LAn-767 is a cemetery site from which a minimum of 11 burials were removed by Antelope Valley College in 1975. The current project was designed to determine if any part of the cemetery extended into the impact area of the proposed project.

The current excavations established that there is very little likelihood that additional intact burials exist at CA-LAn-767. Scattered fragments of human bone are still present. The cemetery has been impacted to the point of destruction by the 1975 excavations and extra legal collecting activity. The proposed project will not impact the cemetery portion of CA-LAn-767.

During the current excavations it became apparent that an earlier component is present at CA-LAn-767. This component is evidenced by a few grinding implements and flakes related to vegetable resource collecting and processing. The earlier component does extend into the impact area of the proposed project. The earlier component has been impacted by the previous excavations and by the erosive action of Amargosa Creek. The current project was insufficient in scope to fully characterize the early component.

It is recommended that the soil removals required in the vicinity of CA-LAn-767 be accomplished in a controlled manner to permit recovery of any archaeological data that may be present. A recommended methodology is contained in an Appendix.

It is recommended that the collections from the current excavation and from future monitoring be curated at Antelope Valley College with the collections from the 1975 excavations.

The material collected in 1975 has never been fully analyzed or reported. It is recommended that this work be accomplished as part of the Amargosa Creek Assessment District 90-1 project.

The City of Palmdale should develop and adopt policies to control illegal collecting activity at archaeological sites.

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INTRODUCTION

CA-LAn-767 is a cemetery located immediately south of Elizabeth Lake Road and Amargosa Creek a short distance to the west of Palmdale, Los Angeles County, California. Eleven human burials were removed from this site by researchers from Antelope Valley College in 1975. The burials were removed from a block excavation (that is, the excavation units were contiguous), so only a small fraction of the immediate area was explored through subsurface work. It is likely that other burials remained at the site.

Roger Robinson, the instructor from Antelope Valley College who conducted the 1975 excavations, stated that the minimum number of individuals that can be contained in the existing collection is 11. The burials were at two depths, separated by a layer of stream cobbles. Apparently, the stream cobbles represented one episode of flood deposition. The four burials below the cobble layer were essentially intact, while those above the cobbles were heavily disturbed by water action. Quantities of grave goods in the form of shell beads and some steatite pendants were recovered during the excavation. Only limited analysis of the collected material has been completed and no detailed description of the material has been published (Robinson 1990).

The material and documentation related to the 1975 excavation is curated at Antelope Valley College. Unfortunately, the material from the previous excavation, other than some photographs, could not be retrieved for use during the current effort. This situation arose because new construction at the college necessitated the inaccessible storage of the material. This situation will continue at least to late 1991 (Robinson 1990).

**THE LOCATION MAP IS NOT INCLUDED IN THE APPENDICIES, AS THE
SPECIFIC LOCATION OF ARCHEOLOGICAL SITES IS NOT PUBIC RECORD.**

The City of Palmdale is initiating a project to improve access to the Leona Valley area. The proposed project involves improvements to both Elizabeth Lake Road and Amargosa Creek. Within the site vicinity a rather steep cliff lies immediately north of Elizabeth Lake Road. Accordingly, the planned expansion of the road and the creek improvements will be made to the south, in the direction of CA-LAn-767. The Project Map in the pocket at the rear of this report depicts the current location of Elizabeth Lake Road, Amargosa Creek and the area where burials were removed from the site. Also depicted is the approximate alignment of the toe of the fill to be constructed to support the new roadway, which will be at considerably higher elevation than the existing roadway. However, the proposed alignment of Amargosa Creek is unknown at the present time.

It is clear that the fill slope toe will pass very near the archaeological site, and that severe impacts could result. Accordingly, the project described in this report was undertaken. The current project had one major goal. That goal was to determine the location and condition of any remaining deposits at the cemetery site. This data would then be used to assess the impact of the proposed project on the cemetery. The recovery of archaeological data, other than location and content, was not a primary goal of the project. Burials encountered during the excavation were to be left in place, pending finalization of project plans and full assessment of proposed project impacts. Ultimate management decisions will be based on the extent of the remaining deposit, its location and the engineering constraints posed by the project.

PHYSICAL SETTING

The routes of both Amargosa Creek and Elizabeth Lake Road follow the San Andreas Rift Zone, known as Leona Valley in the study area vicinity. This narrow defile enters the Antelope Valley some two kilometers to the east southeast of CA-LAn-767. Amargosa Creek flows past the site to the east southeast, turns

northward at the entrance to Antelope Valley and empties into Rosamond Dry Lake in the central part of Antelope Valley.

To the south are the higher elevations of the Sierra Pelona. Ritter Ridge, the eastern end of a larger feature known as Portal Ridge, lies to the north. Ritter Ridge is lower in elevation than the Sierra Pelona. Ritter Ridge is rather narrow; the broad expanse of the Antelope Valley begins only about two kilometers north of the site.

The region is igneous in nature and metamorphism is evident in many places. Quartz veins are common in the local granite and outcrops of steatite are known in both the Sierra Pelona and along Ritter Ridge. Outcrops of rhyolite and felsite are also common. Granite cobbles of various sizes offered the native population a source of raw material for the production of grinding implements. Rhyolite was a favored local material for the production of chipped lithic instruments and the steatite was used for food processing implements, cooking utensils and decorative items.

The surrounding hills host a desert growth dominated by juniper, yucca, sage and many non-native grasses. The latter were introduced during the 1800s when cattle grazing became the major area industry. Riparian species are found along portions of Amargosa Creek, though many of these are introduced species. The creek offered a source of water through most of the year. Currently, the creek is mostly dry, but was thought to have a more pronounced flow in the past, prior to the pumping of groundwater. In any event, sag ponds related to the San Andreas Rift Zone were numerous and would have impounded much of the available water. The sag ponds would have attracted a great variety of animals and birds. Thus, all of the resources required by the native population were locally available.

CULTURAL BACKGROUND

The distribution of people in the study area vicinity at the time of arrival of the Spanish is anything but clear. The

Smithsonian volume on the California Indians (individual papers will be cited below) is the latest major ethnographic work to appear. This volume shows the study area as occupied by a group known as the Tataviam (King and Blackburn 1978). The Tataviam apparently spoke a Takic language dialect that differed markedly from that of other Takic speakers to the northeast, east and south. Very little is known of Tataviam culture, society or environmental adaptations. Apparently, they were quite similar to groups to the northeast, east and south.

The Kitanemuk were located to the north and east of the Tataviam (Blackburn and Bean 1978). Both groups subsisted through hunting of small game and collecting of seeds and other vegetable products. Local yucca appears to have been a dietary staple.

The Gabrielino were located to the south of the Tataviam (Bean and Smith 1978). The Gabrielino had a much greater population than the Tataviam and were able to take advantage of marine resources. Their languages had the same apparent roots.

To the west of the Tataviam were the Chumash (Grant 1978). The Chumash were highly advanced and spoke a language derived from Hokan stock of the Yuman language family, representing an origin quite different from that of the Tataviam.

Sutton (1980) assigned cemeteries located apart from villages to the Tataviam. One of the deposits he discusses is CA-LAN-767, the object of this study.

Several cultural sequences have been proposed for the desert areas to the north and east, but none of these can be confidently applied to the local area. In fact, Moratto (1984), author of the latest comprehensive work on California Archaeology, flatly states, "In the western Mojave Desert south of Owens Valley, no local cultural sequence has been established."

Moratto does describe the little local information that has been developed. Based on work from the western Antelope Valley a "Rhyolite Tradition" has been identified. The name, of

course, derives from the predominate material found in collections from the period, which roughly spans the years 4000 to 2000 B.C. Knives, choppers, scrapers and cores are the primary constituents of Rhyolite Tradition collections, but grinding implements are also known.

The Late Prehistoric Period, defined from work in the western Antelope Valley (including at least two sites near CA-LAn-767), covers the period from about 250 B.C. to A.D. 1650. Sutton (1980), who has written a great deal about the local archaeology, describes the Late Prehistoric sites as:

Large permanent (or semi-permanent) villages with a variety of smaller special purpose sites occupied on a seasonal basis (Robinson 1977). The presence of large villages (which include cemeteries) and the number and complexity of other sites would suggest that the Antelope Valley supported a large population during the late prehistoric period, and was not a "fringe" area as suggested by the ethnographic data.

The period between the Rhyolite Tradition and the Late Prehistoric Period may be a real hiatus of occupation, or may merely represent a lack of data. Certainly, the determination of which is true is one of the major research questions to be studied during excavations in the Antelope Valley area.

The Late Prehistoric Period sites contain quantities of non-local material. Obsidian, Pacific Ocean shell and Channel Island steatite are examples. The presence of this material in local sites has led some researchers to the conclusion that trade was a major reason why people were present in the study area during Late times.

Recent reconnaissance work in the vicinity of CA-LAn-767 has provided support for Sutton's view that the prehistoric population may have been much larger than originally supposed. Numerous reconnaissance projects within the last two years have discovered a surprisingly high density of sites along Amargosa Creek and in the surrounding hills. The larger habitation sites are usually located along the major drainages at the lower

elevations. Specialized use stations for plant and lithic resource gathering and processing, hunting and ceremony are found in the surrounding hills. Future excavation of some of these sites will provide data related to the cultural sequence and the life style of the native peoples.

LOCATION OF 1975 EXCAVATIONS

As was previously explained, the original site survey data was in storage that did not permit access during the current project. Robinson, the original excavator, suggested that I contact Mr. Jay Trembly to locate the previous excavations. Trembly recorded the site, lives only a short distance away and was present during all of the Robinson excavation work. Trembly confidently identified the area of the previous excavations where some 15 one by one meter units had been contiguously excavated. There was no reason to doubt Trembly's location. He is intimately familiar with the area and two fences, Amargosa Creek, a power line and a telephone line provide excellent landmarks, unchanged since the first excavation.

Nevertheless, there was some apprehension about having the exact location, since disturbance is pronounced in the area. The disturbance was quite evident not only in the immediate area of the original excavations (as identified by Trembly), but for several tens of meters in every direction. There was an element of uncertainty that the proper area had been identified. However, the Trembly location was the best information available. Accordingly, the area he identified was staked and surveyed as the location of the original excavations.

METHODOLOGY

The goal of the project was to determine if the proposed project would impact existing archaeological deposits. The approach was to excavate lines of one by one meter units beginning between the bank of Amargosa Creek and the known site and extending incrementally toward the site. Excavation was to

be halted when clearly in situ archaeological deposits were encountered. The last sterile unit in that line of excavations was to be defined as the site boundary. The intent was to determine if burials remained and to accurately locate the boundary of the cemetery.

Survey control was by transit and stadia methods. Accuracy was maintained at one minute of arc for horizontal and vertical angles, 10 centimeters for distances and one centimeter for elevations. Survey was controlled from a permanent datum established at the western edge of the site. The datum is an iron pipe set in concrete marked with the site trinomial.

Excavation was accomplished using flat shovels and hand tools. Excavation was in arbitrary levels of 10 centimeters. Level was controlled by line level and steel tape from a datum established at the highest corner of each unit. The units were oriented to true north. Standard RMW field policy states that exposure of bedrock or excavation of three sterile levels will be accomplished before abandoning a given unit. At CA-LAN-767 it was recognized that archaeological material could be deeply buried by alluvium. Accordingly, units were abandoned only when the Principal Investigator determined there was little probability that additional archaeological material would be recovered, regardless of the number of levels excavated. A central posthole was excavated in the center of the floor of each unit to confirm that sterile conditions had been attained. All excavated material was passed through 1/8 inch mesh. Drawings and photographs were made as appropriate.

Nine one by one meter units were excavated, as were six test pits. The test pits were excavated using post hole diggers and were approximately 40 centimeters in diameter. Initial units were excavated about one half the distance between the creek and the expected edge of the cemetery. Subsequent units were placed between the first units and the cemetery, within the cemetery and beyond the cemetery. The shovel test pits were excavated to explore additional areas to the east. All shovel test pit

material was screened through 1/8 inch mesh.

PROJECT CREW

All of the excavation crew, excepting only the Native American Observer, are full time RMW Paleo Associates employees. The author of this report served as project Principal Investigator. The author holds a Masters degree in Anthropology and is certified by the Society of Professional Archaeologists as a Field Archaeologist. Ken Becker served as Field Director. Becker is completing a Masters degree in Anthropology and holds a Bachelors degree in the same discipline. Joan Brown, Stuart Evans, Juanita Shinn and Ed Knell served as Excavators. Brown holds a Masters degree in Anthropology and is certified by the Society of Professional Archaeologists as a Field Archeologist. Knell holds a Bachelors degree in Anthropology, while Evans and Shinn hold similar degrees in History. All employees have extensive experience in southern California excavation projects. Laboratory quantification was completed by Ed Knell. Joan Brown was responsible for the identification of faunal material.

Mr. Andy Greene served as Native American Monitor during the project and assisted with the excavation work. Mr. Greene is a very knowledgeable person and his input was most helpful in accomplishing the goals of the project.

SURFACE EXAMINATION

Detailed examination of the surface of the site and surrounding area produced only a single artifact. This tool is a pestle recovered from an undisturbed area about 70 meters south of the site datum. The pestle is made of schist and is badly damaged. It is split longitudinally and one end is missing entirely. The preserved end has extensive wear. Dimensions are as listed in the Artifact Catalog in Appendix A. The location where the pestle was recovered is shown on the project map contained in a pocket at the rear of this report.

Several areas contained large numbers of cobbles. According to Trembley, these were cobbles removed from the original excavations in 1975 and placed in windrows. The cobbles were not returned to the units during backfilling. The windrows have now been disturbed and the cobbles strewn about.

UNIT EXCAVATIONS

Excavations were completed between 22 April and 29 April 1991. A brief description of each excavation unit follows. The locations of the units are shown on the project map. Dimension and weight details related to artifacts are listed in the Artifact Catalog in Appendix A.

Unit 1A: This unit was placed to the northeast of the previously excavated part of the site in the direction of the nearest approach of Amargosa Creek. The unit was within the impact area of the proposed street improvements. The area of Unit 1A appeared to be undisturbed.

The unit was excavated to a depth of 90 centimeters and a central post hole extended the depth an additional 20 centimeters. A few fragments of small rodent bones were found in the upper 40 centimeters of the unit, but the excavation was otherwise sterile. No artifactual material was found.

The upper 30 centimeters of Unit 1A was a loamy, sandy soil horizon. Plant debris was evident, as were small animal bones. A cobble layer was encountered at 30 centimeters and extended to about 50 centimeters depth. The cobbles were in a matrix of sandy soil. Below the cobbles the soil became a mixture of sand and gravel sized pebbles, with an occasional cobble. The soil profile seemed to represent undisturbed alluvial deposits laid down by Amargosa Creek.

Unit 2A: This unit was placed between Unit 1A and the edge of the earlier excavations. The unit is near the edge of the expected impact area of the proposed improvements to Elizabeth Lake Road.

Unit 2A was excavated to a depth of 100 centimeters and a

central post hole extended the depth by 45 centimeters. A few small animal bone fragments were found in the lower levels of the unit. Otherwise, the unit was sterile.

A sandy, loamy soil was encountered from the surface to a depth of about 20 centimeters. A cobble layer in a sandy matrix was encountered between 20 and 35 centimeters depth. Alternate layers of sand and gravel were found between 35 centimeters and 90 centimeters. At 90 centimeters another cobble layer was encountered that extended to the deepest part of the unit. Pockets of pure sand were interspersed in the lower cobble layer. The soil profile from Unit 2A also seemed to indicate undisturbed alluvial deposition.

Unit 3A: Unit 3A was placed within the disturbed area thought to contain the original excavations and in line with Units 1A and 2A.

The unit was excavated to a depth of 120 centimeters and a central posthole extended the depth by about 30 centimeters. Rodent bone fragments, including one tooth, were found between 30 and 70 centimeters depth. All of these appeared to be modern intrusives.

A fragment of a bowl or mortar was recovered from the 30 to 40 centimeter level. The tool, made of steatite, is Artifact Catalog Number 36. The fragment was once part of a much larger tool that was broken in antiquity. The surviving fragment was then used as a small bowl or mortar. The secondary usage was rather extensive. The rough edges created when the original tool was broken have been worn smooth and a worn lip is evident around the surviving portion of the heavily pecked working surface.

A steatite pendant blank was also recovered from the 30 to 40 centimeter level. This object, Artifact Catalog Number 37, is unfinished, but has been shaped and the beginning of a drilled hole can be seen on one surface.

Hematite was recovered from the 20 to 30 centimeter level (one fragment), the 30 to 40 centimeter level (two fragments)

and the 40 to 50 centimeter level (one fragment). These are Artifact Catalog Numbers 34, 38 and 44. Hematite was aboriginally used as pigment.

Unit 3A contained a sandy, loamy soil from 0 to 30 centimeters depth. A layer of gravel in a sandy loam matrix occupied the next 15 to 20 centimeters. The mortar described above was contained in this stratum. Below the gravel and extending to a depth of about 85 centimeters was a stratum of clean, well sorted sand. Gravel was infrequent and cobbles were absent entirely. From a depth of 85 centimeters to 120 centimeters a silt deposit was encountered. The stratum contained very little gravel and no cobbles. A cobble layer was encountered at 120 centimeters and continued to the greatest depth of the central post hole. The soil profile again indicated an undisturbed deposit.

Unit 4A: It was fully expected that Unit 3A would encounter considerable archaeological material. Large quantities of shell beads had been recovered during the original excavations. Small artifacts such as shell beads can migrate considerably over long periods of time. Some shell remains were expected at Unit 3A, since the excavation was within the disturbed area thought to contain the 1975 excavations. However, no such material was recovered. The artifacts recovered at Unit 3A may or may not be related to the cemetery. The artifacts were recovered from the correct depth to be associated with the upper burials, as verbally described by Robinson, but no similar tools were found in direct association with the burials. Steatite pendants were found with the burials, but the artifact from Unit 3A is unfinished. Given this situation it was determined that Unit 4A should be placed directly in the center of the area thought to have been previously excavated. A unit so located would establish if prior excavation had occurred, thus providing confirmation that the current excavations were, in fact, being correctly placed.

Unit 4A contained a mixture of sand, gravel and cobbles

throughout its 120 centimeter depth. This mixture continued to a cobble layer exposed at the bottom of a central post hole that extended 20 centimeters beyond the 120 centimeter floor. Clearly, the soil of Unit 4A had been disturbed by previous excavation to a depth of about 140 centimeters.

Some fragments of modern rodent bone were found between 30 and 50 centimeters depth. Two fragments of larger bone were recovered from the 60 to 70 centimeter level. These fragments had structure and wall thickness to indicate they were part of a human sized animal. However, they were so fragmentary that they could not be definitely identified. Since 11 burials had been removed from the immediate area, the bones were interpreted as human. The two bone fragments were returned to the unit prior to backfilling.

The mixed condition of the soil and the presence of two probable human bone fragments provided confirmation that the excavations were being correctly placed. The total lack of shell artifacts remained a puzzle.

Unit 5A: Unit 5A was placed roughly in line with Units 1A through 4A, but was located to the southwest of the area thought to be previously excavated. Modern bone fragments from small animals were found to depths of 50 centimeters.

A small secondary flake of chalcedony (Artifact Catalog Number 70) was recovered from the 10 to 20 centimeter level of the unit. Fragments of carbonized material were retrieved from the 30 to 40 and the 40 to 50 centimeter levels. However, this material was not in association with artifactual material and may be natural in origin.

Unit 5A was excavated to a depth of 90 centimeters and a central post hole extended the depth by 20 centimeters. The soil throughout the unit was a remarkably uniform sandy loam. Isolated gravel fragments began appearing at a depth of about 70 centimeters. The gravel became progressively denser until it became general at a depth of about 110 centimeters. There was no indication that the soil had been previously disturbed. Unit

5A is at a slightly higher elevation than the other units. Apparently the soil horizon thickens considerably with distance from Amargosa Creek.

Unit 1B: Unit 1B was placed north of the area excavated in 1975, approximately one half the distance between the bank of Amargosa Creek and the 1975 excavations. The unit was excavated to a depth of 110 centimeters and a central post hole extended the depth for 20 centimeters.

A granite bifacial mano (Artifact Catalog Number 98) was found in the northeast corner of Unit 1B at a depth of 90 centimeters. The mano is not stream eroded. A fragment of unworked shell (Artifact Catalog Number 101) was recovered from the 90 to 100 centimeter level. Rodent bone fragments were found between 50 and 100 centimeters below unit datum.

The upper 25 centimeters of Unit 1B contained a sandy loam, with little gravel and essentially no cobbles. From 25 centimeters to about 45 centimeters a very heavy cobble layer was encountered. The cobbles in this layer were quite large and were densely packed. Below the cobble layer and extending to a depth of about 70 centimeters was a stratum of sand containing some gravel. Cobbles and sand were found between a depth of 70 and 105 centimeters. The cobbles were not dense in this stratum. However, another dense cobble layer began at a depth of approximately 105 centimeters and extended to the maximum depth of the unit. An undisturbed soil profile is indicated.

Unit 2B: This unit was placed in line with Unit 1B and the area thought to contain the 1975 excavations and immediately adjacent to the latter feature.

Unit 2B was excavated to depth of 110 centimeters and a central post hole extended the depth by about 20 centimeters. Rodent bone was found throughout the unit.

No artifacts were recovered from Unit 2B, but a fragment of apparently human bone was found in the 100 to 110 centimeter level. The fragment is a portion of a long bone and has the correct structure and wall thickness to indicate it is from a

human sized animal, but it lacks the features required for positive identification. The bone was interpreted as human and returned to the excavation unit prior to backfilling.

A fragment of hematite was recovered from the 10 to 20 centimeter level. Three fragments of hematite were found in the 40 to 50 centimeter level. The hematite fragments are Artifact Catalog Numbers 108 and 115.

Unit 2B contained a sandy loam to a depth of about 40 centimeters. A heavy cobble layer was found between 40 and 60 centimeters depth. Gravel and sand were also present in the cobble layer. Some cobbles continued to appear to a depth of 70 centimeters. Below 70 centimeters the soil was a mixture of sand and gravel with few cobbles. An undisturbed soil profile is indicated.

Unit 1C: Unit 1C was placed to the northwest of the area thought to contain the 1975 excavations. The artifactual material found in Unit 1B indicated that a subsurface deposit may exist in the area selected for Unit 1C.

Unit 1C was excavated to a depth of 100 centimeters and a central post hole extended the depth by about 25 centimeters. Bones of small mammals and rodents were found throughout the unit.

A granite bifacial mano (Artifact Catalog Number 144) was recovered from the 30 to 40 centimeter level. A small portion of one corner of the tool is missing. The two primary working surfaces are flat, with noticeable rounding only at the edges of the tool. A small dimple has been pecked into the center of each of the major working faces of the tool. The purpose of these dimples is unknown. The intact end of the tool has also been used, but not to the extent of the larger faces. A small secondary flake of chert (Artifact Catalog Number 158) was recovered from the 80 to 90 centimeter level.

Hematite fragments were recovered from the 0 to 10 centimeter level (Artifact Catalog Number 134), the 20 to 30 centimeter level (Artifact Catalog Number 139), the 30 to 40

centimeter level (Artifact Catalog Number 141) and the 50 to 60 centimeter level (Artifact Catalog Number 148). A fragment of white ocher (Artifact Catalog Number 142) was found in the 30 to 40 centimeter level. Carbonized material was found in the 30 to 40 centimeter level and in the 50 to 60 centimeter level (Artifact Catalog Numbers 143 and 151). The carbonized material was not in association with any archaeological feature, so may be of natural origin.

Unit 1C contained a sandy loam in the upper 35 centimeters. Sand, cobbles and gravel were encountered between 35 and 60 centimeters depth. From 60 to 80 centimeters the soil consisted of sand and gravel with an occasional cobble. Cobbles in a matrix of sand and gravel were found between 80 and 95 centimeters. A mixture of sand and gravel then continued to the greatest depth of the unit. An undisturbed soil profile is indicated.

Unit 1D: Unit 1D was placed in the northwestern part of the study area. Material recovered from Units 1B and 1C hinted that a subsurface deposit might exist in this area.

Unit 1D was excavated to a depth of 100 centimeters and a central post hole extended the depth by about 30 centimeters. Small mammal and rodent bone was found throughout the unit, but the excavation was otherwise sterile.

The upper 30 centimeters of Unit 1D contained a sandy loam. The strata between 30 and 50 centimeters depth contained large cobbles in a sand and gravel matrix. Gravel and sand were encountered between 50 and 80 centimeters, with some cobbles present in the lower portion of the stratum. These alternating layers of coarse and fine material continued to the bottom of the unit. An undisturbed soil profile is indicated.

Shovel Test Pits: Six shovel test pits were excavated in areas to the east of the cemetery and on both banks of Amargosa Creek. These excavations were made to determine the probability of archaeological deposition in those areas. All of the shovel test pits were sterile, excepting occasional small mammal and

rodent bone. The soil profiles at all of the shovel test pits revealed no disturbance at depth.

SITE VISITORS

The current excavations were quite visible to travelers along Elizabeth Lake Road and there are apparently many people in the area who have more than a passing interest in local archaeology. Consequently, numerous persons visited the site during the current excavations.

Several of the site visitors recalled the 1975 Robinson excavations. However, much of the information given by the visitors did not agree with descriptions of the 1975 work given by Robinson and Trembley. The major discrepancies are:

1. Visitors frequently placed the 1975 excavations at a point other than that identified by Trembley. Identified areas were as far as 200 meters distant on the eastern bank of Amargosa Creek.
2. The 1975 excavations were completed using a crew of 10 to 12 persons, but one visitor claimed to remember as many as 50 people at the site, including several children.
3. One visitor claimed to have seen a backhoe in use at the site, but no such equipment was used by Robinson.
4. Trembley was present during all of the Robinson excavation work. One visitor claimed he was present during much of the work, knows Trembley well, but stated that he never saw Trembley at the site.

Were it not for one observation, one could easily dismiss the comments of the visitors as mistaken memories. However, when the surface was examined in those areas identified by visitors as having been excavated there are large and quite obvious surface disturbances. Such areas have many depressions, the soil is soft and cobbles, ordinarily found 30 to 40 centimeters below the surface, are strewn about.

The only reasonable conclusion one can reach is that the visitors were accurately describing what they saw. If this is

the case, it follows that the area was subjected to extraordinary episodes of extra legal excavation (pothunting). The timing of the pothunting is unknown, but it was probably shortly after Robinson completed his work at the site.

The area containing the 1975 excavations is shown on the Project Map in the pocket at the end of this report. Robinson excavated 15 contiguous one by one meter units. The area shown on the Project Map is much larger than 15 square meters. The depicted area represents the limits of very heavy disturbance surrounding the point identified by Trembley as containing the Robinson excavations. Disturbance extends far beyond that shown on the map; only the region of obvious, very extensive disturbance is shown. The Robinson excavations were probably near the center of the depicted area. The surrounding disturbance was apparently caused by pothunters who were working outward from the periphery of the Robinson excavations. Some support for this view is found in the fact that not a single shell bead was recovered during the current excavation, but many such objects were found by Robinson. Apparently, the pothunters completely exhausted the cemetery portion of the site.

Pothunters will not work in unproductive areas. It is therefore quite probable that the large disturbed areas in the vicinity of the cemetery also contained archaeological deposits. It is impossible to estimate the magnitude of the loss due to pothunting activity, but judging from the scale of disturbance in the vicinity it is quite large.

DISCUSSION

The most important insight gained as a result of the current excavation is that two episodes of use can be associated with CA-LAN-767. The earlier component is characterized by the presence of grinding implements and flakes. Such implements were found at depths ranging from 40 to 90 centimeters below the surface in Units 3A, 1B and 1C. The later component is marked by the cemetery. All of the material from the site has been

recovered from roughly the same depth range. However, the material from the earlier component would have been deposited on the then existing surface, while the burials would have been emplaced at some depth below the surface. Thus, the two deposits are now encountered at roughly the same depth.

It is unclear whether the mortar or bowl fragment from Unit 3A should be assigned to the earlier component or the latter. Robinson found no similar tools elsewhere in the cemetery deposits, indicating that the tool may belong with the early component. However, the tool was in proximity to the cemetery area and was found in close association with hematite fragments. The tool is of a size that could have been used as a grinding implement for the preparation of pigments. Thus, the tool could have been used as part of the mortuary practices. It should be noted that hematite was found in Units 3A, 2B and 1C, all of which are near the cemetery area.

The steatite pendant blank recovered from Unit 3A is most probably associated with the cemetery. Certainly, Robinson recovered finished pendants as part of the grave goods. Perhaps the unfinished state of the pendant blank and the fact that it was found on the periphery of the cemetery indicates that such offerings were prepared while the interment ceremony was in progress.

Very little can be said about the timing of the two components at CA-LAN-767. It is clear that the phase represented by the grinding implements and flakes predates the cemetery use, but the length of time between cannot be determined. Some carbonized material was recovered during the current excavations, but none of it was in association with features that would clearly establish its origin as cultural. Dating analysis of the carbonized material would be of questionable value.

The early component was related to the collecting and processing of vegetable resources. All of the tools (manos, flakes and the bowl, if one includes it) are consistent with

this interpretation. The area was clearly used as a cemetery during the time of the second component.

The CA-LAN-767 site area can only be described as highly disturbed. The current excavation, Robinson's 1975 excavations and the pothunting has left major disturbance in the area. In addition, Amargosa Creek has violent periods of flooding and deposition in the site area. The water activity has undoubtedly removed many small items from the site and has displaced many others.

The presence of an earlier component was not expected at CA-LAN-767. An Archaeological Site Supplement has been prepared for submission to the Archaeological Information Center, University of California, Los Angeles. A copy of this form is contained in Appendix B.

IMPACTS

Elizabeth Lake Road is to be elevated in the vicinity of CA-LAN-767. This will require construction of a fill, the toe of which passes near the edge of the cemetery. Construction of the fill will, of course, require removal of soil until adequately compacted material is reached.

The combination of Robinson excavation and pothunting has apparently removed all of the burials from CA-LAN-767, excepting only scattered fragments of bone. The construction will have only negligible impact on this feature.

The early component of CA-LAN-767, characterized by grinding implements, extends from the cemetery area into the area where the fill will be constructed. Only limited controlled excavation has been accomplished within the area of impact, but two of the four units in the area produced grinding implements, a fragment of shell and a flake. Since these excavations cover only a tiny fraction of the area, it is likely that many additional artifacts exist in the subsurface. The area is in close proximity to Amargosa Creek and the existing excavations reveal many past episodes of alternating erosion and

deposition. It is likely that the archaeological deposit in this area has been at least somewhat disrupted by the natural actions of Amargosa Creek. The impact of the proposed construction is difficult to assess, since the true extent and condition of the archaeological deposit are not known.

The presence of an earlier component was not expected at CA-LAn-767. The primary thrust of the study was related to the cemetery. The earlier component became apparent only after a considerable portion of the field work was accomplished. Once the determination that no impact would be caused to the cemetery the remaining resources were used to study the earlier component. However, the study of the earlier component as presented in this report cannot be considered as extensive or complete, though it is adequate for the proposed undertaking, provided that recommendations offered later are followed.

CONCLUSIONS

1. A cemetery once existed at CA-LAn-767. The cemetery has been entirely removed, except for scattered bone fragments, by a 1975 Antelope Valley College excavation and by pothunters.
2. Burials and associated grave goods removed from CA-LAn-767 and curated at Antelope Valley College have never been adequately analyzed or published.
3. An episode of occupation related to vegetable resource collecting and processing predates the cemetery at CA-LAn-767. The earlier occupation extends to the north of the cemetery area into the area of project impact. The extent of the early component to the south of the cemetery is unknown, since that area was not within the scope of the present study.
4. The proposed project will have negligible impact on the cemetery, since it is already essentially destroyed. The impact of the project on early component material is difficult to assess, since the extent and condition of the

deposit are not well defined.

RECOMMENDATIONS

1. The cemetery component of CA-LAn-767 is not within the area of impact from the proposed project. No further consideration is required for this part of the project area.
2. The earlier component extends into the impact area. Soil removals should be made in a manner to allow recovery of the archaeological data. An appropriate method for the removal of the soil in this part of the deposit is contained in Appendix C, and is recommended for use at CA-LAn-767.
3. Given the proximity of a known Native American cemetery, the observation crew required to complete Recommendation 2, above, should include a Native American Observer.
4. The material collected during the current project should be curated at Antelope Valley College. The balance of the collections from the site other than the material in private hands is at Antelope Valley College. Curation of the collection from the current excavation at that facility will keep all site material together.
5. Material collected during the recommended grading observation should be described in a written report and should be curated at Antelope Valley College.
6. The material collected during the 1975 excavations, currently curated at Antelope Valley College, should be subjected to detailed analysis with the data published in a form that will insure its availability to future researchers. This work will partially mitigate the damage that CA-LAn-767 has sustained. The work should be completed as part of the Amargosa Creek Assessment Area 90-1 project.
7. It is recommended that the City of Palmdale develop and adopt policies and procedures for the control of illegal collecting activities. At a minimum, police patrols should be increased in areas of active excavations. Sites that are in especially vulnerable areas should be fenced during

excavations and also subject to increased police patrols, both during the excavation and for an extended period of time following the excavation. It is also suggested that sensitive sites in the area be visited by City staff on a routine basis.



Ronald M. Bissell

Archaeologist

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- Sutton, Mark Q.
1980 Some Aspects of Kitanemuk Prehistory. Journal of California and Great Basin Anthropology, Vol. 2, No. 2, pp. 214-225.

THE APPENDICES FOR THIS STUDY ARE AVAILABLE FOR REVIEW AT THE CITY OF PALMDALE PLANNING DEPARTMENT.

H. Correspondence

SEP 24 1990
RECEIVED



PALMDALE WATER DISTRICT

Board of Directors

2005 East Avenue Q · Palmdale, California 93550 · Telephone 947-4111

FAX 947-8604

LAGERLOF, SENECAI, DRESCHER & SWIFT
Attorneys

- LESLIE O. CARTER
Division 1
- WALTER M. DAHLITZ
Division 2
- JOE J. SAGE
Division 3
- JOHN M. SIDWELL
Division 4
- NOLAN NEGAARD
Division 5



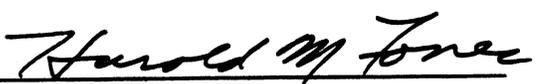
September 18, 1990

ROBERT BEIN, WILLIAM FROST & ASSOCIATES
 14725 Alton Parkway
 P. O. Box 19739
 Irvine, CA 92713-9739

Gentlemen:

We have received your request for comment on the improvements for the Ritter Ranch development. Naturally we are pleased to receive this information and wish it to continue, however, the water service to this area will be provided by the County of Los Angeles and Antelope Valley East-Kern Water Agency. Under those circumstances, we feel it inappropriate to supply the information that you requested. If this assumption is incorrect, please let me know, and I will answer the questionnaire.

Very truly yours,


 HAROLD M. FONES,
 Engineer-Manager

HMF/dtr

TELEPHONE SERVICE
QUESTIONNAIRE

RECEIVED
SEP 18 1990

ROBERT BEIN WML FROSI

1. Please indicate the location of telephone lines within the immediate project vicinity.
SEE ATTACHED MAPS
2. Do you anticipate any significant impacts of the project on telephone facilities or services? If so, please list/summarize additions or modifications. Will telephone service be available for the project?
3. Do you have any required or recommended mitigation measures for significant impacts?
4. Is there any other relevant information regarding potential impacts of the project?

W. A. Olenick
Signature

Engineer
Title

PACIFIC BELL
Agency

2. YES.

THERE ARE NOT SUFFICIENT TELEPHONE FACILITIES IN THE AREA TO HANDLE A PROJECT OF THIS SIZE. ADDITIONAL CABLE, CONDUIT AND ELECTRONIC EQUIPMENT WILL HAVE TO BE BUILT TO SUPPLY PHONE SERVICE.

SERVICE TO THE SITE WILL BE PROVIDED BY PACIFIC BELL IN ACCORDANCE WITH CURRENT RATES AND TARIFFS. GIVEN ADEQUATE LEAD TIME, APPROXIMATELY 90-120 DAYS FROM RECEIPT OF A COMPLETE SET OF FINALIZED PLANS.

3. ON SITE FACILITIES WILL BE PROVIDED BY UTILIZING JOINT TRENCHES. SUBSTRUCTURES IN THE ROAD RIGHT OF WAY WILL BE PROVIDED BY THE DEVELOPER ON A PRO-RATA BASIS AND ON PRIVATE PROPERTY AT THE FULL EXPENSE TO THE DEVELOPER.

4. FACILITIES NOT DIRECTLY SERVING THIS PROJECT, BUT REQUIRING RELOCATION AS A RESULT OF THIS PROJECT ARE BILLABLE TO THE DEVELOPER AT FULL COST.

RECEIVED
OCT 1 1990
ROBERT BEIN VIA FILE

26763

SOUTHERN CALIFORNIA  GAS COMPANY

September 26, 1990

6520 FOOTHILL BOULEVARD • TUJUNGA, CALIFORNIA

Robert Bein, William Frost & Associates
14725 Alton Parkway
P.O. Box 19739
Irvine. CA 92718-9739

MAILING ADDRESS: BOX 457 • TUJUNGA, CALIFORNIA 91043

ATTENTION: Fred Trueblood

REGARDING: Amargosa Creek Improvement Project

The following is in response to your September 12, 1990 letter requesting information relative to an Environmental Impact Report on the proposed development of Ritter Ranch.

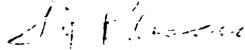
Within areas of interest and responsibilities of the Southern California Gas Company, we find the proposed development reasonable and acceptable.

This letter is not to be interpreted as a contractual commitment to serve the subject development, but only as an information service. Its intent is to notify you that the proposed project can be served from existing mains in the area. This can be done without a major impact on overall system capacity, service to existing customers, or the environment.

Average consumption is estimated at 1095 therms per year per single family dwelling unit. This estimate is based on past system averages and does not encompass the possible effect of the State's new insulating requirements and consumer's efforts towards energy conservation. Industrial or commercial customers loads vary with types of equipment used. The availability of natural gas service, as set forth in this letter is based upon present conditions of gas supply and regulatory policies. As a public utility, the Southern California Gas Company is under the jurisdiction of the California Public Utilities Commission. We can also be affected by actions of federal regulatory agencies. Should these agencies take any action which affects gas supply or the condition under which service is available, gas service will be provided in accordance with the revised conditions.

We have developed several programs which are available, upon request, to provide assistance in selecting the most effective applications of energy conservation techniques for a particular project. If you desire further information on any of our energy conservation programs, please contact the following for assistance: Area Market Services Manager at (818) 951-2451.

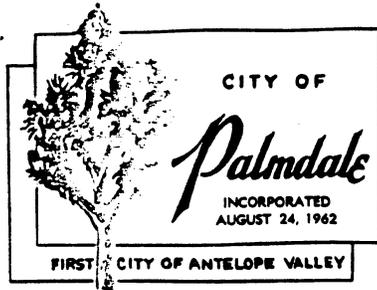
Sincerely,



S.J. Plescia
Planning Aide

SP/dm

cc: G. Baca
N. Stevenson
(EIRRES1.DOC)



RECEIVED
OCT 2 1990

ROBERT BEIN, WILLIAM FROST
CITY OF PALMDALE

Wm. J. "Pete" Knight
MAYOR
Joseph P. "Joe" Davies, Jr.
MAYOR PRO TEM
Janis C. Hamm
COUNCILMEMBER
James C. Ledford, Jr.
COUNCILMEMBER
James A. Root
COUNCILMEMBER

September 27, 1990

Robert Bein, William Frost & Associates
14725 Alton Parkway P.O. Box 19739
Irvine, CA 92713-9739
Attn: Rica Weber

Dear Ms. Weber:

Below are responses to the questionnaire sent by you, numbered to correspond with the attached questions:

1. The City of Palmdale Department of Parks and Recreation does not provide facilities which serve Leona Valley
2. Yes, this proposed project will accommodate residential development which in turn impacts parks and recreation facilities/programs.
3. There will be required fees to mitigate impacts created by residential development as a result of the project. Compliance to the Parkland Development Fee Section 3.34.010, et al., of Chapter 3.34 of Title 3 of the Palmdale Municipal Code will mitigate impacts.
4. No, parkland dedication or payment of fees relates only to residential development.

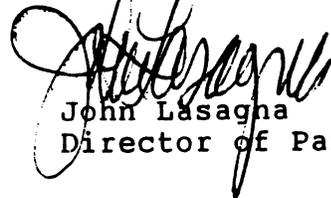
Page 2

5. No, however, while projects of this type do not require mitigation of impacts to parks and recreation facilities/programs, the potential for residential development as a result of this project shall require mitigation of impacts. This project can assist in mitigation in direct impacts to parks and recreation by permitting use of the Amargosa Creek improvements for park and recreation purposes, i.e., trails along creek and use of basins for sports playfields.

6. No.

If you need any further information, please contact me at 805-273-0513.

Sincerely,



John Lasagna
Director of Parks and Recreation

JL/ab

ANTELOPE VALLEY UNION HIGH SCHOOL DISTRICT

OCT 5 1990

REPORT OF THE BOARD

BOARD OF TRUSTEES
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44811 SIERRA HIGHWAY, LANCASTER, CALIFORNIA 93534-3226
(805) 948-7655



ADMINISTRATION
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DISTRICT SUPERINTENDENT
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ASSISTANT SUPERINTENDENT
EDUCATIONAL SERVICES
E. MICHAEL ROSSI
ASSISTANT SUPERINTENDENT
PERSONNEL SERVICES
DARLENE HINKEL
ASSISTANT SUPERINTENDENT
BUSINESS SERVICES

October 5, 1990

Ms. Trina Rice
Robert Bein, William Frost, and Associates
P.O. Box 19739
Irvine, CA 92713-9739

Dear Ms. Rice:

Subject: Amargosa Creek Improvement Project Phase II

The high school students are currently served by Highland High School (grades 9-10) and Quartz Hill High School (grades 11-12). In 1992, all students from the area will be served by Highland High School, which is located at Avenue P-8 and 25th Street West. The capacity of Highland will be 2,100 students, and expected enrollments will exceed that figure. Since all schools within the high school district are overcrowded by well over 50%, any growth-inducing project will have a significant impact. The developer fees under AD 2926 pay only about 20% of the cost of school construction.

Should you have any questions, please contact me.

Sincerely,
Richard J. Aitken
Richard Aitken
District Engineer

RA:rh



OCT 11 1990

COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-4998
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (213) 699-7411, (213) 685-5217
Fax: (213) 695-6139

CHARLES W. CARRY
Chief Engineer and General Manager

October 9, 1990

File No: 20-00.00-00

Ms. Rica Weber
Robert Bein, William Frost and Associates
14725 Alton Parkway
P.O. Box 19739
Irvine, CA 92713-9739

Dear Ms. Weber:

Amargosa Creek Improvement Project-Phase II

This is in response to your letter, which was received on September 13, 1990, regarding the proposed project. The Sanitation Districts do not currently maintain any facilities within the project area, however it is the Sanitation District's understanding that the Amargosa Creek Trunk Sewer is proposed to be constructed within the project area. The proposed sewer line will be constructed as a City of Palmdale project and, upon completion and acceptance, will be transferred to Sanitation District No. 20 for operation and maintenance. Specific information concerning the proposed sewer line should be obtained from the City of Palmdale.

Although this proposed project individually will not generate any wastewater, this project is the precursor to the development of the west side of Palmdale, (including Ritter Ranch and City Ranch), which will result in an increase in wastewater service demand estimated to be over 3.5 million gallons per day (mgd). This increase will constitute a significant increase over the current service demand of 7.2 mgd in District No. 20. However, through the Connection Fee Program, the Sanitation Districts have established a system whereby the fees collected from all new users are used to finance expansions to the existing Sewerage System in order to accommodate new development.

If you have any further questions, please contact the undersigned at (213) 699-7411, extension 2709.

Very truly yours,

Charles W. Carry

Kim M. Visser
Engineering Technician
Financial Planning &
Property Management Section

KMV:ms

Southern California Edison Company

P. O. BOX 4349
LANCASTER, CALIFORNIA 93539

October 17, 1990

RECEIVED
OCT 22 1990
SECRETARY'S OFFICE

Robert Bein,
William Frost & Associates
14725 Alton Parkway
P.O. Box 19739
Irvine, California 92713-9739

Attn: Rica Weber
Environmental Analyst

Dear Ms. Weber:

In response to your questionnaire regarding Amargosa Creek Improvement Project:

1. The entire Amargosa Improvement Project is located within the service territory of the SCE Company and specifically the Antelope Valley District. The majority of our facilities are above ground and can be located by physically plotting them on the construction plans. Complete facilities maps can be inspected at our office.
2. Electrical loads of the project are within the parameters of the overall projected load growth, which Edison plans to meet in the subject area.
3. SCE facilities in the area will be adequate and we will continue to increase our capabilities, as the area develops, in accordance with our tariff schedules on file with the CPUC.
4. Our facilities may require relocation and/or conversion to underground. However, any impact to our facilities or customers cannot be assessed, until we have plans with enough detail to allow us to design the necessary modifications.
5. We are quite sure this project will have short term construction impacts. However, with proper planning, we will be able to avoid any disruption of service to our existing customers.

Page 2
Ms. Weber

6. All necessary rights of way and easements must be in place before any actual construction can begin.
7. Load times appear to be very short and we do not have any detailed plans to date. This could require planning or construction work outside of our normal work hours. If this becomes necessary, we may require the customers to pay for these premium hours.

I hope this provides you with the information you require. However, please understand that a project of this size requires many hours of planning and coordination and, as of this date, we do not have detailed plans.

If I may be of further assistance, please call me at (805) 945-9393.

Sincerely,



DAVID RUPP
Customer Service Planner

RSW/plh

cc: M. Sedlacek
R. Wells
Utility Specialists, Inc.
Allen Taylor

20763

RECEIVED

OCT 28 1990



County of Los Angeles

Office of the Sheriff

Hall of Justice

Los Angeles, California 90012

(805) 948-8466



SHERMAN BLOCK, SHERIFF

October 25, 1990

Robert Bein, William Frost & Associates
14725 Alton Parkway
Irvine, California 92713-9739

Attention: Trina Rice
Environmental Services

Dear Ms. Rice:

AMARGOSA CREEK IMPROVEMENT PROJECT PHASE II

The City of Palmdale contracts with Los Angeles County Sheriff's Department for criminal and traffic enforcement. Antelope Valley Sheriff Station is located at 1010 West Avenue J in Lancaster and is approximately eight (8) miles from the project site.

Antelope Valley Station patrols 1,356 square miles of northern Los Angeles County, including the cities of Palmdale and Lancaster. The population of this area is approximately 225,000.

The average response time for emergency calls is 5.1 minutes.

Manpower increases necessary to accommodate the anticipated growth in the entire area are determined by computing response times and calls for service.

The only anticipated problems in a project such as yours would be theft of construction materials and equipment and traffic related problems when the roadways are diverted. A well lighted construction yard with 24 hour guard and a well planned traffic program would be recommended.

ROBERT BEIN, WILLIAM FROST
AND ASSOCIATES

-2-

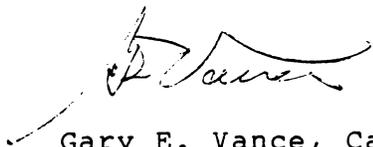
October 25, 1990

If we may be of further assistance, please contact Deputy James E. Murren at (805) 948-8466, Monday through Friday, 8:00 AM to 4:00 PM.

We appreciate the opportunity to assist in the planning process of this project.

Sincerely,

SHERMAN BLOCK, SHERIFF

A handwritten signature in cursive script, appearing to read "Gary E. Vance", is written over a horizontal line.

Gary E. Vance, Captain
Commander, Antelope Valley Station



COUNTY OF LOS ANGELES

FIRE DEPARTMENT

1320 NORTH EASTERN AVENUE
LOS ANGELES, CALIFORNIA 90063-3294

(213) 267-2481

P. MICHAEL FREEMAN
FIRE CHIEF
FORESTER & FIRE WARDEN

January 2, 1991

Rica Weber, Environmental Analyst
Robert Bein, William Frost & Associates
14725 Alton Parkway
P.O. Box 19739
Irvine, CA 92713-9739

Dear Ms. Weber:

**SUBJECT: ENVIRONMENTAL IMPACT REPORT -- CITY OF PALMDALE
FOR AMARGOSA CREEK IMPROVEMENT PROJECT - PHASE II
LOCATED ALONG ELIZABETH LAKE ROAD BETWEEN 25TH
STREET W. AND GODDE HILL ROAD**

The subject property does not appear to have any impact on the Los Angeles County Fire Department at this time. However, our Forestry Division would like to add the following at this time:

FORESTRY DIVISION

We have reviewed the EIR for the Amargosa Creek Improvement Project, Phase II. We will address our comments to the completed EIR when it is made available.

The Forestry Division's Environmental Impact Review consists of comments in the following areas:

1. Oak Tree Reports
2. Soil Erosion Control
3. Fire Resistive Landscapes

SERVING THE UNINCORPORATED AREAS OF LOS ANGELES COUNTY AND THE CITIES OF:

AGOURA HILLS
ARTESIA
AZUSA
BALDWIN PARK
BELL
BELLFLOWER
BELL GARDENS

BRADBURY
CARSON
CERRITOS
CLAREMONT
COMMERCE
CUDAHY
DIAMOND BAR

DUARTE
GLENDDORA
HAWAIIAN GARDENS
HIDDEN HILLS
HUNTINGTON PARK
INDUSTRY
IRWINDALE

LA CANADA FLINTRIDGE
LAKEWOOD
LA MIRADA
LANCASTER
LA PUENTE
LAWDALE
LOMITA

H-13

MAYWOOD
NORWALK
PALMDALE
PALOS VERDES ESTATES
PARAMOUNT
PICO RIVERA
RANCHO PALOS VERDES

ROLLING HILLS
ROLLING HILLS ESTATES
ROSEMEAD
SAN DIMAS
SANTA CLARITA
SIGNAL HILL
SOUTH EL MONTE

SOUTH GATE
TEMPLE CITY
WALNUT
WEST HOLLYWOOD
WESTLAKE VILLAGE
WHITTIER

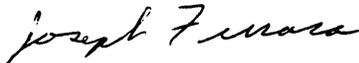
Rica Weber, Environmental Analyst
January 2, 1991
Page 2

4. Watershed Management
5. Rare and Endangered Plants/Animals
6. Conservation of Natural Resources

If you have any additional questions, please feel free to contact this office at (213) 267-2481.

Very truly yours,

P. MICHAEL FREEMAN



BY
JOSEPH FERRARA, CHIEF, FORESTRY DIVISION
PREVENTION AND CONSERVATION BUREAU

JF:jmb



WESTSIDE UNION SCHOOL DISTRICT

46809 SEVENTIETH STREET WEST
LANCASTER, CALIFORNIA 93536
(805) 948-2669
FAX (805) 942-2576

BOARD OF TRUSTEES

David W. Doddridge
Sandy Engebretson
Gwendolyn A. Farrell
Lynne M. Murley
Charles H. Strole

January 8, 1991

GEORGE "BUD" REAMS
District Superintendent

ALLAN SACKS
Assistant Superintendent
Business Services

REGINA ROSSALL
Director
Educational Services

TOM NIEKAMP
Director
Project and Special Education

SCHOOLS

DEL SUR SCHOOL
Carol Lea Collins
Principal
9023 West Avenue H
Lancaster, CA 93536
(805) 942-0488

JOE WALKER MIDDLE SCHOOL
Steve Kelish
Principal
5632 West Avenue L-8
Lancaster, CA 93536
(805) 943-3258

LEONA VALLEY SCHOOL
Julie Matzke
Principal
9063 West Leona Avenue
Leona Valley, CA 93551
(805) 948-9010
(805) 270-0104

QUARTZ HILL SCHOOL
Paul Brunner
Principal
41820 Fiftieth Street West
Quartz Hill, CA 93536
(805) 943-3236

RANCHO VISTA SCHOOL
Julie Matzke
Principal
40641 Peonza Lane
Palmdale, CA 93551
(805) 722-0148

VALLEY VIEW SCHOOL
Donald P. Holstrom
Principal
3310 West Avenue L-8
Lancaster, CA 93536
(805) 943-2451

Ms. Rica Weber, Environmental Analyst
Robert Bein, William Frost & Associates
P. O. Box 19739
Irvine, California 92713-9739

Dear Ms. Weber:

Listed below are responses to your questions as attached to your letter dated September 19, 1990.

1. Please indicate the name and location of schools which are available to serve the Leona Valley.

The Leona Valley School (grades Kindergarten through 5th). This school is located at 9063 West Leona Valley Road. This school currently accommodates 170 students. A new five classroom pod will be constructed during the 1991-92 School Year increasing the enrollment potential to 320 students.

2. What is the enrollment of each school in the vicinity of the project? What is the distance to the school site from the project?

Enrollment: See response to question #1.
Distance from the project to the school site is 6 to 7 miles.

In consideration of AB2926, are there any assessment fees or other required or recommended mitigation measures for the project.

Developer Fees under the provisions of AB2926 are the only means mitigating the increased student enrollments. This means of building needed school facilities is woefully inadequate. Developer Fees only pay for 30% of permanent school construction.

Ms. Rica Weber
Page 2

Presently, the California State Legislature has put the Educational Community on notice that they will not propose any additional 800 Million Dollar Bonds for state wide school construction. Instead, the Legislature has indicated that they will propose a constitutional amendment to change the voter approval percentage from 66 2/3 to 60% for locally initiated school construction bonds.

It seems that our California State Legislature is again dumping the problem of constructing local school on the individual school districts.

The Westside Union School District is currently negotiating with the Antelope Valley Building Industry Association to establish a Mello-Roos Community Facilities District. This tax entity will be designed to provide school construction funds in place of AB2926 Developer Fees.

Is there any other relevant information regarding significant impacts of the project.

There are other significant developments planned in the same general area.

1. Kaufman/Broad
City Ranch South
(3500 homes)
2. Ritter Ranch
(7200 homes)
3. Sante Fe Hills
(1500 homes)

Please address any future inquiries regarding growth and development issues to Mr. George "Bud" Reams, District Superintendent, Westside Union School District.

Sincerely,


George "Bud" Reams
District Superintendent

GR/cmf



COUNTY OF LOS ANGELES

FIRE DEPARTMENT

1320 NORTH EASTERN AVENUE
LOS ANGELES, CALIFORNIA 90063-3294

(213) 881-2481

RECEIVED

MAR 24 1993

ROBERT BEIN, WM. FROST

P. MICHAEL FREEMAN
FIRE CHIEF
FORESTER & FIRE WARDEN

March 22, 1993

Ms. Holly Weatherby
Robert Bein, William Frost & Associates
Environmental Analyst
Environmental Services
14725 Alton Parkway
P.O. Box 19739
Ervine, CA 92713

Dear Ms. Weatherby:

**SUBJECT: ENVIRONMENTAL IMPACT REPORT -- CITY OF PALMDALE --
AMARGOSA CREEK IMPROVEMENT PROJECT PALMDALE**

SERVICE RESPONSIBILITY

Due to the fact that only limited information is available on this project at the present time, we are not able to respond completely as to how this project will affect our Department. We would like to reserve the right to respond further at a future date when more specific information is available.

FORESTRY DIVISION

We have reviewed the response to comments for the Amargosa Creek Improvement Project for the City of Palmdale. Our comments in our response dated January 2, 1991, remain unchanged (see enclosed).

If you have any additional questions, please contact this office at the phone number shown above.

Very truly yours,

P. MICHAEL FREEMAN

By
PAUL H. RIPPENS, CHIEF, FORESTRY DIVISION
PREVENTION BUREAU

PHR:jmb

Enclosure

SERVING THE UNINCORPORATED AREAS OF LOS ANGELES COUNTY AND THE CITIES OF:

AGOURA HILLS
ARTESIA
AZUSA
BALDWIN PARK
BELL
BELLFLOWER
BELL GARDENS

BRADBURY
CALABASAS
CARSON
CERRITOS
CLAREMONT
COMMERCE
CUDAHY

DIAMOND BAR
DUARTE
GLEN DORA
HAWAIIAN GARDENS
HIDDEN HILLS
HUNTINGTON PARK
INDUSTRY

IRWINDALE
LA CANADA FLINTRIDGE
LAKEWOOD
LA MIRADA
LANCASTER
LA PUENTE
LAWDALE

LOMITA
MALIBU
MAYWOOD
NORWALK
PALMDALE
PALOS VERDES ESTATES
PARAMOUNT

PICO RIVERA
RANCHO PALOS VERDES
ROLLING HILLS
ROLLING HILLS ESTATES
ROSEMEAD
SAN DIMAS
SANTA CLARITA

SIGNAL HILL
SOUTH EL MONTE
SOUTH GATE
TEMPLE CITY
WALNUT
WEST HOLLYWOOD
WESTLAKE VILLAGE
WHITTIER

I. Assessment District Reports

CITY OF PALMDALE
ASSESSMENT DISTRICT 90-1
MARGOSA AREA PUBLIC IMPROVEMENTS

DESCRIPTION OF WORK AND PRELIMINARY COST ESTIMATE

PHASE I

I Construction

A. Street Construction, including the opening and widening of streets by: removal of existing pavement as required clearing, grubbing, grading and the installation of base material, pavement, curbs, gutters, sidewalks, shoulders, medians, and median drains; slopes and slope drains and protective material as required; construction of bike and equestrian trails along Elizabeth Lake Road as designated in the various specific plans and environmental documents; and widening for turning movements and bus stops along Elizabeth Lake Road and at intersecting streets. Where the following are not set out as a separate item, street construction also includes minor storm drains, landscaping including irrigation facilities, street lights and utilities.

1. Elizabeth Lake Road from Bridge Road to 1,000 feet +/- West of Godde Hill Road, a distance of 25,600 lineal feet, following basically the existing street alignment, however with realignments for improved traffic conditions and resolution of drainage problems, including intersection improvements with existing and new streets, with street widths and rights-of-way as follows:

| Driving Improvements | Right-of-Way Width |
|-------------------------|-----------------------|
| 64 foot | 100 foot |

2. Elizabeth Lake Road from Bridge Road to 20th Street West, a distance of 5,300 lineal feet including intersection improvements with existing and new streets, with a revised center line alignment (however, following in general the current street location) in a 100 foot wide right-of-way, improved 84 feet from pavement driving edge to driving edge.

3. 25th Street West from Elizabeth Lake Road, northerly for a distance of 1,000 feet, with a revised intersection point and angle of intersection with Elizabeth Lake Road, in a 100 foot right-of-way, improved 84 feet curb to curb.
 4. Godde Hill Road from Elizabeth Lake Road, northeasterly for a distance of approximately 600 feet, with a revised alignment from Elizabeth Lake Road northeasterly for approximately 300 feet, and a revised intersection point and angle of intersection, with revised elevations to match the revised elevation of Elizabeth Lake Road at the point of join. Improvement width to taper from approximately 40 feet at the join at Elizabeth Lake Road to approximately 26 feet at the join to the existing roadway, with a typical pavement width of 32 feet.
- B. Traffic signals and improvements, including standards, controllers, inter-connections and appurtenances and accommodations at connecting street intersections for turning movements at various streets as determined by traffic studies including but not limited to: (Actual completion of traffic signals and other traffic control improvements may be delayed until warranted by increased traffic.)
1. Intersection of Elizabeth Lake Road and 25th Street West.
 2. Intersection of Elizabeth Lake Road and Bridge Road.
 3. Intersection of Elizabeth Lake Road and Godde Hill Road.
 4. Intersection of Elizabeth Lake Road and 20th Street West.
 5. Intersection of Elizabeth Lake Road and Ranch Center Drive.
 6. Intersection of Elizabeth Lake Road and Santa Fe Hills Drive.

- -

C. Storm Drain Facilities

1. The acquisition of land for and the construction of storm water detention basins including excavation and the construction of inlet, outlet and spillway facilities and storm water channels, natural and improved with fencing, access and maintenance roads as required at all detention facilities at the locations described:

- a) A detention basin (designated Basin B) approximately 800 lineal feet by 5,800 lineal feet: covering 124 acres in area; maximum depth of 34 feet; storage capacity of 2,050 acre feet; located on the south side of Elizabeth Lake Road from 1,400 lineal feet west of Godde Hill Road to 4,400 lineal feet east of Godde Hill Road.

Portions of this basin will be left in a natural condition or will be enhanced by plantings etc. as mitigation for work required in the creek area.

- b) A double 54 inch reinforced concrete pipe (R C P) approximately 98 feet in length and a 54 inch R C P, approximately 30 feet in length located approximately 1,190 feet east of Godde Hill Road, draining a brow ditch on the north side of Elizabeth Lake Road, into Basin B.
- b1) A 33 inch reinforced concrete pipe (R C P) approximately 135 feet in length and certain 18 inch lateral pipes located at the intersection of Godde Hill Road and Elizabeth Lake Road.
- c) An outlet structure consisting of three 54 inch R C P, approximately 335 feet in length, located approximately 2,270 feet east of Godde Hill Road, under Elizabeth Lake Road, terminating in a rip rap outlet structure and flowing into the natural stream bed.
- d) An overflow spillway from detention Basin B, located on the south side of Elizabeth Lake Road, said spillway being 700 +/- lineal feet in total length, including a stilling basin with the outflow from the stilling basin discharging into a modified natural channel adjacent to Elizabeth Lake Road.

- -

- e) A 42 inch reinforced concrete pipe draining "Pine Creek", approximately 320 feet in length under Elizabeth Lake Road, outletting into a natural stream bed, located at approximately 4,040 feet east of Godde Hill Road.
- f) A roadway culvert, consisting of multi culverts (6 - 10 feet high by 11.5 feet wide) or a multiple span bridge, with a clearance height of 10 feet and total width of 70 feet, providing for drainage under the roadway entrance to Ritter Ranch Planning Area 1K.
- f1) An 18 inch reinforced concrete pipe (R C P) approximately 130 feet in length, located 6,220 feet east of Godde Hill Road, draining water from the north side of Elizabeth Lake Road into a natural drain on the south side.
- f2) A reinforced concrete culvert, 6 feet in height and 11 feet in width, approximately 195 feet in length, located 8,160 feet east of Godde Hill Road, draining water from the south side of Elizabeth Lake Road to the north side, discharging into a natural channel.
- g) A modified natural storm flow channel on the north side of Elizabeth Lake Road from the outlet of the reinforced concrete pipes under Elizabeth Lake Road, described in c) above, such modification consisting of excavation and of rip rap and/or other methods of slope protection improvements where required to protect the disturbed areas and/or the roadway embankment on both sides of the existing channel, discharging into the natural stream channel and a natural rock and concrete inlet approximately 7,100 lineal feet downstream from said outlet discharging into detention Basin E.
- h) A detention basin (designated Basin E) approximately 1,800 lineal feet in length by 660 feet maximum width, covering 13.8 acres; maximum depth of 15 feet and detention capacity of 48 acre feet, on the north side of Elizabeth Lake Road, located from 9,785 feet east of Godde Hill Road to 11,080 feet east of Godde Hill Road.

- -

- i) An outlet structure consisting of a 10 foot by 10 foot reinforced concrete box culvert, approximately 180 feet in length, under a proposed entrance road into Ritter Ranch Planning Area 3. Located approximately 11,175 feet east of Godde Hill Road.
- j) A 60 inch reinforced concrete pipe, length of 145 lineal feet located 9,060 feet east of Godde Hill Road, draining water from the south side to the north side of Elizabeth Lake Road and discharging into the natural stream bed on the north side of Elizabeth Lake Road.
- k) A 42 inch reinforced concrete pipe draining water from both sides of Elizabeth Lake Road and from the median area of the roadway to a natural stream on the north side of Elizabeth Lake Road. Approximate length of 155 feet. Located approximately 9,615 feet east of Godde Hill Road.
- kl) A combined 24 inch and 30 inch reinforced concrete pipe (R C P) approximately 125 feet in length, located 9,880 feet east of Godde Hill Road, draining water from the south side of Elizabeth Lake Road to the north side.
- l) A 36 inch reinforced concrete pipe, length of 140 feet, located approximately 10,425 feet east of Godde Hill Road, draining water from the south side of Elizabeth Lake Road to the natural flow on the north side.
- m) A 48 inch reinforced concrete pipe, length of 175 feet, located approximately 11,640 feet east of Godde Hill Road, draining water from the south side of Elizabeth Lake Road to the natural flow on the north side.
- n) A 42 inch reinforced concrete pipe, length of 125 feet, located approximately 12,385 feet east of Godde Hill Road, draining a small sump area on the south side of Elizabeth Lake Road to the natural flow on the north side.
- o) A 36 inch reinforced concrete pipe, length of 155 feet, located approximately 14,355 feet east of Godde Hill Road, draining water from the south side of Elizabeth Lake Road to the natural flow on the north side.

- -

- p) A rock rip rap transition, approximately 70 lineal feet from the outlet structure described in i) above to the natural channel.
- q) A natural unmodified stream bed approximately 3,575 lineal feet in length from 11,035 feet east of Godde Hill Road to 14,610 feet east of Godde Hill Road.
- r) A rock rip rap and/or other method of slope protection transition approximately 230 lineal feet in length from the natural channel to a 9.5 foot (height) by 12 foot (width) reinforced concrete box culvert under the entrance road way to Santa Fe Development (approximately 15,165 feet east of Godde Hill Road) and under Elizabeth Lake Road, (replacing an existing triple 60 inch corrugated metal pipe), approximately 715 feet in length, conveying the natural flow from the north side of Elizabeth Lake Road to the south side, discharging into the natural channel (item s below) on the south side of Elizabeth Lake Road.
- s) A natural stream bed approximately, 1,720 feet in length with the disturbed areas and/or the adjacent road-way fill embankments protected from water damage by placement of rock rip rap and/or other method of slope protection on such fill or disturbed areas.
- t) A 36 inch reinforced concrete pipe, approximate length of 125 feet, located approximately 11,300 feet west of 25th Street West (existing) draining water from the north side to the south side of Elizabeth Lake Road.
- u) A 30 inch reinforced concrete pipe, approximate length of 135 feet, located approximately 10,500 feet west of 25th Street West (existing), draining water from the north side to the south side of Elizabeth Lake Road.

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- v) A 24 inch reinforced concrete pipe, approximate length of 135 feet, located approximately 10,100 feet west of 25th Street West (existing), draining water from the north side to the south side of Elizabeth Lake Road.
- w) Three reinforced concrete box culverts, each 8 feet in height and 12 feet in width and approximately 100 feet in length under Ranch Center Drive (proposed), approximately 9,150 feet west of 25th Street West, conveying the natural stream flow.
- x) A modified natural stream channel approximately 500 feet in length, such modification consisting of grading, with the adjacent roadway embankment protected by rock rip rap.
- y) Two sections of natural unmodified stream bed lying east and west of the box culverts described in (z) below beginning approximately 1,400 feet west of and ending 5,980 feet east of the box culvert, ending approximately 1,350 feet west of 25th Street West.
- z) Two reinforced concrete box culverts, each 9 feet in height and 12 feet in width and approximately 130 feet in length under Elizabeth Lake Road, approximately 7,325 feet west of 25th Street West, discharging into the natural stream bed on the north side of Elizabeth Lake Road.
- aa) A 27 inch reinforced concrete pipe approximate length of 240 feet, located approximately 1,040 feet west of Bridge Road, draining water from the south side Elizabeth Lake Road to the north side with a graded channel, bottom width of five feet, approximately 350 feet in length from the end of the 27 inch R C P to the natural water course.

- -

- bb) A detention basin on the north side of Elizabeth Lake Road beginning approximately 1,350 feet west of 25th Street West and extending to immediately west of 25th Street West, with maximum dimensions:
length 1,500 feet, width 600 lineal feet;
depth, 15 feet, with a maximum capacity of 40 acre feet, with a natural inlet from the West (see aa) above). This may be a temporary basin and may not be constructed or may be eliminated when the channel is completed.
- cc) A two (2) barrel reinforced concrete box culvert, each barrel is 11 feet in width and 6 feet in height, approximately 100 feet in length, under 25th Street West, with an inlet transition from the detention basin described in bb) above and with a rectangular channel outlet transition to the trapezoidal channel east of 25th Street West, such rectangular channel tapering from the rectangular channel section to the trapezoidal section described in pp) below. Approximate transition length of 540 lineal feet.
- dd) A 48 inch reinforced concrete pipe, approximate length of 130 feet, located approximately 6,500 feet west of 25th Street West (existing), draining water from the south side to the north side of Elizabeth Lake Road.
- ee) A 24 inch reinforced concrete pipe, approximately length of 150 feet, located approximately 5,850 feet west of 25th Street West (existing), draining water from the south side to the north side of Elizabeth Lake Road.
- ff) A 24 inch reinforced concrete pipe, approximate length of 115 feet, located 5,575 feet west of 25th Street West (existing), draining water from the south side to the north side of Elizabeth Lake Road.
- gg) A 27 inch reinforced concrete pipe, approximate length of 130 feet, located approximately 5,225 feet west of 25th Street West (existing), draining water from the south side to the north side of Elizabeth Lake Road.

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- hh) A combined double 27 inch and a single 36 inch reinforced concrete pipe, approximate length of 115 feet, located approximately 3,525 feet west of 25th Street West (existing), draining water from the south side to the north side of Elizabeth Lake Road.

- ii) A triangle shaped detention basin approximately 450 lineal feet by 300 lineal feet, covering 1.55 acres, with a maximum depth of 5 feet, and a maximum capacity of 10 acre feet, on the north side of Elizabeth Lake Road, approximately 800 feet east of 25th Street West with a 24 inch reinforced concrete outlet pipe draining into the trapezoidal channel. This may be a temporary basin and may not be constructed or may be eliminated when the channel is completed.

- jj) A triangle shaped detention basin located 1,000 feet east of 25th Street West, north of Elizabeth Lake Road and south of the Amargosa Creek Channel; maximum length of 900 feet and width of 175 feet. Basin capacity of 10 acre feet; covering 1.6 acres; maximum depth of 10 feet, with a 24 inch reinforced concrete outlet pipe draining into the trapezoidal channel. This may be a temporary basin and may be not be constructed or may be eliminated when the channel is completed.

- kk) A 54 inch reinforced concrete pipe, 1,164 feet in length, connecting to an existing 54 inch diameter reinforced concrete pipe in 25th Street West and a 60 inch reinforced concrete pipe, 1,596 feet in length, connecting to the 54 inch pipe described above, and extending easterly from 25th Street West to the Amargosa Creek trapezoidal channel, 1,620 lineal feet east of the center line of 25th Street West (existing).

- ll) A 27 inch reinforced concrete pipe, approximately 155 feet in length, under Elizabeth Lake Road (1,365 feet west of Bridge Road), draining the area westerly of Bridge Road.

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- mm) A 24 inch reinforced concrete pipe, approximately 255 feet in length, including catch basins and 18 inch pipe laterals, at the intersection of 25th Street West (as realigned) and Elizabeth Lake Road including an inlet structure to the channel.
- nn) A 42 inch reinforced concrete pipe from the area of Bridge Road, 280 lineal feet in length, crossing Elizabeth Lake Road, emptying into the detention facility described in item bb) above, including a concrete and rock outlet structure at the point of discharge into the detention basin and also including catch basins and manholes and 18 inch R C P laterals.
- oo) A 36 inch reinforced concrete pipe in Elizabeth Lake Road, 495 lineal feet in length, draining the area between 20th Street West and 25th Street West, emptying into the detention basin described in item ff) above or into the trapezoidal channel including 540 lineal feet of 18 inch R C P laterals, catch basins, manholes and inlet and outlet structures.
- pp) A trapezoidal shaped reinforced concrete channel beginning 600 feet east of the center line of 25th Street West (proposed), bottom width of 10 feet, height of 10.5 feet, side slopes of 1.5 horizontal to 1 vertical, east for a length of approximately 2,290 feet, including 15 foot wide improved access roads each side.
- qq) A transition, approximate length of 100 feet, from the trapezoidal channel to a double reinforced concrete box culvert, each box having a width of 10 feet, height of 9 feet, under future 20th Street West, box length of 106 feet and a transition, approximate length of 100 feet, from the reinforced concrete box culvert to the trapezoidal channel.
- rr) A trapezoidal shaped, reinforced concrete channel, bottom width of 10 feet, height of 10.5 feet, side slopes of 1.5 horizontal to 1 vertically, east for a length of approximately 3,120 feet, including 15 foot wide access roads on each side.

- -

- ss) A transition, approximate length of 100 feet, from the trapezoidal channel, to a double reinforced concrete box culvert, each having a width of 10 feet, height of 9 feet, under future Palm Tree Drive, box length of 80 feet, and a transition, approximate length of 100 feet, from the reinforced concrete box culvert to the trapezoidal channel.
- tt) A trapezoidal shaped, reinforced concrete channel, bottom width of 10 feet, height of 11 feet, side slopes of 1.5 horizontal to 1 vertical, east for a length of approximately 2,010 feet, including 15 foot wide access roads each side and including an access ramp on the south side of the channel.
- uu) A 100 foot reinforced concrete channel transition from the trapezoidal channel to a double reinforced concrete box culvert.
- vv) A double reinforced concrete box culvert, each box 12 feet in width and 10.5 feet in height, with a total box culvert length of 775 feet.
- ww) A reinforced concrete transition structure, approximate length of 60 feet, from the double reinforced concrete box culvert described above in item vv) to an existing triple reinforced concrete box culvert under 10th Street West, including removal and reuse or disposal of all interfering construction.
- xx) An underground storm drain pipe, approximately 3,950 feet in length for nuisance water flows to be constructed under the golf course, beginning at the outlet of the existing reinforced concrete channel at the 14 Freeway and extending northerly thereof for approximately 3,950 feet.

- -

D. Sewer Lines (Sanitary)

1. Construction of sanitary sewer trunk lines in or adjacent to Elizabeth Lake Road from Bridge Road to 3,000 feet +/- east of Godde Hill Road, a distance of 22,000 lineal feet, with diameters of 21" (8,000 feet), and 18" (13,000 feet), including manholes and appurtenances, within the Right-of-Way of Elizabeth Lake Road.
2. Construction of sanitary sewer trunk lines from Bridge Road to 10th Street West, a distance of 10,500 lineal feet, diameter of 27", including manholes and appurtenances, within a public easement (paralleling the Amargosa Creek Channel).
3. Construction of an 8 inch sanitary sewer trunk line from City Ranch South Area 6, easterly for 800 lineal feet in Elizabeth Lake Road to 20th Street West (proposed) and then northerly 200 feet in 20th Street West (proposed).

E. Water Facilities (domestic)

1. Construction of water mains in Elizabeth Lake Road from 20th Street West to 3,000 feet +/- east of Godde Hill Road, a total distance of 24,100 feet and in 25th Street West from Elizabeth Lake Road, northerly for 1,000 lineal feet, including valves, cross ties and appurtenances, with diameters of 36" (2,200 feet), 30" (8,500 feet), 24" (2,700 feet), 20" (13,500 feet), and 16" (3,200 feet).
2. Construction of a water pumping station, capacity of 20,000 gallons per minute, including piping, valves, control devices, telephone and power connections, located southerly of the intersection of 25th Street West and Elizabeth Lake Road.
3. Construction of a water pumping station, capacity of 10,700 gpm. including piping, valves, control devices, telephone and power connection, located at Avenue O-8 and 25th Street West.
4. Construction of a 36" water transmission main in 25th Street West from Avenue O-8 to Avenue P, a total length of 2,700 feet including valves, cross ties and appurtenances.

- -

F. Utilities

1. Relocation of existing overhead and underground electrical and telephone utility lines including an existing underground fiber optics facility, to an overhead pole line in a temporary easement, located north and south of the existing Elizabeth Lake Road, with reconstruction in underground ducts to occur when permanent facilities are available as described in 2 below.
2. Construction of underground conduits or ducts including excavation and backfill, laying of cable and conduit, pulling of cables, valve boxes and appurtenances, gas lines, valves and appurtenances, and main line laterals at intersecting streets, in Elizabeth Lake Road from 20th Street West to approximately 1,000 feet west of Godde Hill Road, a distance of 37,000 lineal feet, and in 25th Street West from Elizabeth Lake Road, northerly for 1,000 lineal feet for the relocation of and installation of electrical power lines, telephone lines (including a fiber optics facility), gas mains and cable television lines.

G. Landscaping, Irrigation & Misc.

Construction of walls, and installation of irrigation facilities and landscaping along 25th Street West and Elizabeth Lake Road as required in various specific plans and site plans and as described in various environmental documents for such specific and site plans.

H. Untreated Water Facilities

Construction of facilities for distribution of untreated water to be used for construction purposes and for landscape irrigation, including acquisition of land for the pump station and reservoir including easements as required.

1. Construction of a water pumping station, capacity of 7,000 gallons per minute, including piping, valves, control devices, telephone and power connections, to be located westerly of the Leona Valley Siphon.

- -

2. Construction of a 16 cubic foot per second turnout from the California Aqueduct in the area of the existing Leona Valley Siphon.
3. Construction of a 24" trunk water main, 950 lineal feet in length, and a 20" trunk water main, 22,100 lineal feet in length, for untreated water in an easement along the Aqueduct from the pumping station to Elizabeth Lake Road and in Elizabeth Lake Road from the Aqueduct to a point 3,000 feet +/- east of Godde Hill Road.

II Mitigation

- A. Construction of facilities for mitigation of the effect of the project on various areas, said construction to consist of but not limited to: grading; planting (trees, shrubs, grasses); irrigation (temporary & permanent); tree removals and relocations; construction of stream revetments (pipe and wire or cemented river rocks) to create ponded areas; monitoring, reporting and maintenance for a five year period.
- B. Acquisitions, easements and use permits.

III Acquisitions (Right-of-way, water capacity rights, sewer capacity rights and capacity in existing storm water facilities).

- A. Acquisition of Rights-of-Way and easements as shown on Right-of-Way maps for all public streets, storm drains, and detention basins, sewers, water facilities including pump stations, public utilities and all miscellaneous and appurtenant uses, as described herein, including appraisals, acquisition, title and legal.
 1. Elizabeth Lake Road, Bridge Road to 1,000 feet West of Godde Hill Road.
 2. Elizabeth Lake Road, Bridge Road to 22nd Street West.
 3. 25th Street West from Elizabeth Lake Road, northerly for approximately 1,000 feet.

- -

4. Godde Hill Road from Elizabeth Lake Road, north and northeasterly for approximately 600 lineal feet.
 5. Amargosa Creek from westerly of Godde Hill Road to 10th Street West.
 6. Water facilities (two pumping station sites).
 7. Untreated water facilities (pumping station).
 8. Sewer line easement on 20th Street West (proposed).
 9. Legals, title appraisals, acquisition.
-
- B. Acquisition of capacity in the existing sewer trunk line from 10th Street West to Division Street as constructed under City of Palmdale Assessment District 88-1.
 - C. Acquisition of capacity in existing culverts and channels between 10th Street West and the 14 Freeway, including rights-of-way and easement costs.
 - D. Acquisition of capacity rights in an existing 36 inch water transmission main in 25th Street West from Avenue P to 5,300 feet south of Avenue P.

Exploratory Excavation of
Archaeological Site CA-LAn-767, Amargosa Creek,
Palmdale, Los Angeles County, California

PREPARED FOR:

Robert Bein, William Frost and Associates
14725 Alton Parkway
Post Office Box 19739
Irvine, California 92713-9739

PREPARED BY:

RMW Paleo Associates, Incorporated
23352 Madero, Suite J
Mission Viejo, California 92691
(714) 770-8042
FAX (714) 458-9058
Project Number: 91-1074

AUTHOR:

Ronald M. Bissell

20 August 1991

MANAGEMENT SUMMARY

Improvements to Elizabeth Lake Road and Amargosa Creek in the vicinity of CA-LAn-767 may impact that site. One component of CA-LAn-767 is a cemetery site from which a minimum of 11 burials were removed by Antelope Valley College in 1975. The current project was designed to determine if any part of the cemetery extended into the impact area of the proposed project.

The current excavations established that there is very little likelihood that additional intact burials exist at CA-LAn-767. Scattered fragments of human bone are still present. The cemetery has been impacted to the point of destruction by the 1975 excavations and extra legal collecting activity. The proposed project will not impact the cemetery portion of CA-LAn-767.

During the current excavations it became apparent that an earlier component is present at CA-LAn-767. This component is evidenced by a few grinding implements and flakes related to vegetable resource collecting and processing. The earlier component does extend into the impact area of the proposed project. The earlier component has been impacted by the previous excavations and by the erosive action of Amargosa Creek. The current project was insufficient in scope to fully characterize the early component.

It is recommended that the soil removals required in the vicinity of CA-LAn-767 be accomplished in a controlled manner to permit recovery of any archaeological data that may be present. A recommended methodology is contained in an Appendix.

It is recommended that the collections from the current excavation and from future monitoring be curated at Antelope Valley College with the collections from the 1975 excavations.

The material collected in 1975 has never been fully analyzed or reported. It is recommended that this work be accomplished as part of the Amargosa Creek Assessment District 90-1 project.

The City of Palmdale should develop and adopt policies to control illegal collecting activity at archaeological sites.

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INTRODUCTION

CA-LAn-767 is a cemetery located immediately south of Elizabeth Lake Road and Amargosa Creek a short distance to the west of Palmdale, Los Angeles County, California. Eleven human burials were removed from this site by researchers from Antelope Valley College in 1975. The burials were removed from a block excavation (that is, the excavation units were contiguous), so only a small fraction of the immediate area was explored through subsurface work. It is likely that other burials remained at the site.

Roger Robinson, the instructor from Antelope Valley College who conducted the 1975 excavations, stated that the minimum number of individuals that can be contained in the existing collection is 11. The burials were at two depths, separated by a layer of stream cobbles. Apparently, the stream cobbles represented one episode of flood deposition. The four burials below the cobble layer were essentially intact, while those above the cobbles were heavily disturbed by water action. Quantities of grave goods in the form of shell beads and some steatite pendants were recovered during the excavation. Only limited analysis of the collected material has been completed and no detailed description of the material has been published (Robinson 1990).

The material and documentation related to the 1975 excavation is curated at Antelope Valley College. Unfortunately, the material from the previous excavation, other than some photographs, could not be retrieved for use during the current effort. This situation arose because new construction at the college necessitated the inaccessible storage of the material. This situation will continue at least to late 1991 (Robinson 1990).

THE LOCATION MAP IS NOT INCLUDED IN THE APPENDICES, AS THE SPECIFIC LOCATION OF ARCHEOLOGICAL SITES IS NOT PUBLIC RECORD.

The City of Palmdale is initiating a project to improve access to the Leona Valley area. The proposed project involves improvements to both Elizabeth Lake Road and Amargosa Creek. Within the site vicinity a rather steep cliff lies immediately north of Elizabeth Lake Road. Accordingly, the planned expansion of the road and the creek improvements will be made to the south, in the direction of CA-LAN-767. The Project Map in the pocket at the rear of this report depicts the current location of Elizabeth Lake Road, Amargosa Creek and the area where burials were removed from the site. Also depicted is the approximate alignment of the toe of the fill to be constructed to support the new roadway, which will be at considerably higher elevation than the existing roadway. However, the proposed alignment of Amargosa Creek is unknown at the present time.

It is clear that the fill slope toe will pass very near the archaeological site, and that severe impacts could result. Accordingly, the project described in this report was undertaken. The current project had one major goal. That goal was to determine the location and condition of any remaining deposits at the cemetery site. This data would then be used to assess the impact of the proposed project on the cemetery. The recovery of archaeological data, other than location and content, was not a primary goal of the project. Burials encountered during the excavation were to be left in place, pending finalization of project plans and full assessment of proposed project impacts. Ultimate management decisions will be based on the extent of the remaining deposit, its location and the engineering constraints posed by the project.

PHYSICAL SETTING

The routes of both Amargosa Creek and Elizabeth Lake Road follow the San Andreas Rift Zone, known as Leona Valley in the study area vicinity. This narrow defile enters the Antelope Valley some two kilometers to the east southeast of CA-LAN-767. Amargosa Creek flows past the site to the east southeast, turns

northward at the entrance to Antelope Valley and empties into Rosamond Dry Lake in the central part of Antelope Valley.

To the south are the higher elevations of the Sierra Pelona. Ritter Ridge, the eastern end of a larger feature known as Portal Ridge, lies to the north. Ritter Ridge is lower in elevation than the Sierra Pelona. Ritter Ridge is rather narrow; the broad expanse of the Antelope Valley begins only about two kilometers north of the site.

The region is igneous in nature and metamorphism is evident in many places. Quartz veins are common in the local granite and outcrops of steatite are known in both the Sierra Pelona and along Ritter Ridge. Outcrops of rhyolite and felsite are also common. Granite cobbles of various sizes offered the native population a source of raw material for the production of grinding implements. Rhyolite was a favored local material for the production of chipped lithic instruments and the steatite was used for food processing implements, cooking utensils and decorative items.

The surrounding hills host a desert growth dominated by juniper, yucca, sage and many non-native grasses. The latter were introduced during the 1800s when cattle grazing became the major area industry. Riparian species are found along portions of Amargosa Creek, though many of these are introduced species. The creek offered a source of water through most of the year. Currently, the creek is mostly dry, but was thought to have a more pronounced flow in the past, prior to the pumping of groundwater. In any event, sag ponds related to the San Andreas Rift Zone were numerous and would have impounded much of the available water. The sag ponds would have attracted a great variety of animals and birds. Thus, all of the resources required by the native population were locally available.

CULTURAL BACKGROUND

The distribution of people in the study area vicinity at the time of arrival of the Spanish is anything but clear. The

Smithsonian volume on the California Indians (individual papers will be cited below) is the latest major ethnographic work to appear. This volume shows the study area as occupied by a group known as the Tataviam (King and Blackburn 1978). The Tataviam apparently spoke a Takic language dialect that differed markedly from that of other Takic speakers to the northeast, east and south. Very little is known of Tataviam culture, society or environmental adaptations. Apparently, they were quite similar to groups to the northeast, east and south.

The Kitanemuk were located to the north and east of the Tataviam (Blackburn and Bean 1978). Both groups subsisted through hunting of small game and collecting of seeds and other vegetable products. Local yucca appears to have been a dietary staple.

The Gabrielino were located to the south of the Tataviam (Bean and Smith 1978). The Gabrielino had a much greater population than the Tataviam and were able to take advantage of marine resources. Their languages had the same apparent roots.

To the west of the Tataviam were the Chumash (Grant 1978). The Chumash were highly advanced and spoke a language derived from Hokan stock of the Yuman language family, representing an origin quite different from that of the Tataviam.

Sutton (1980) assigned cemeteries located apart from villages to the Tataviam. One of the deposits he discusses is CA-LAN-767, the object of this study.

Several cultural sequences have been proposed for the desert areas to the north and east, but none of these can be confidently applied to the local area. In fact, Moratto (1984), author of the latest comprehensive work on California Archaeology, flatly states, "In the western Mojave Desert south of Owens Valley, no local cultural sequence has been established."

Moratto does describe the little local information that has been developed. Based on work from the western Antelope Valley a "Rhyolite Tradition" has been identified. The name, of

course, derives from the predominate material found in collections from the period, which roughly spans the years 4000 to 2000 B.C. Knives, choppers, scrapers and cores are the primary constituents of Rhyolite Tradition collections, but grinding implements are also known.

The Late Prehistoric Period, defined from work in the western Antelope Valley (including at least two sites near CA-LAn-767), covers the period from about 250 B.C. to A.D. 1650. Sutton (1980), who has written a great deal about the local archaeology, describes the Late Prehistoric sites as:

Large permanent (or semi-permanent) villages with a variety of smaller special purpose sites occupied on a seasonal basis (Robinson 1977). The presence of large villages (which include cemeteries) and the number and complexity of other sites would suggest that the Antelope Valley supported a large population during the late prehistoric period, and was not a "fringe" area as suggested by the ethnographic data.

The period between the Rhyolite Tradition and the Late Prehistoric Period may be a real hiatus of occupation, or may merely represent a lack of data. Certainly, the determination of which is true is one of the major research questions to be studied during excavations in the Antelope Valley area.

The Late Prehistoric Period sites contain quantities of non-local material. Obsidian, Pacific Ocean shell and Channel Island steatite are examples. The presence of this material in local sites has led some researchers to the conclusion that trade was a major reason why people were present in the study area during Late times.

Recent reconnaissance work in the vicinity of CA-LAn-767 has provided support for Sutton's view that the prehistoric population may have been much larger than originally supposed. Numerous reconnaissance projects within the last two years have discovered a surprisingly high density of sites along Amargosa Creek and in the surrounding hills. The larger habitation sites are usually located along the major drainages at the lower

elevations. Specialized use stations for plant and lithic resource gathering and processing, hunting and ceremony are found in the surrounding hills. Future excavation of some of these sites will provide data related to the cultural sequence and the life style of the native peoples.

LOCATION OF 1975 EXCAVATIONS

As was previously explained, the original site survey data was in storage that did not permit access during the current project. Robinson, the original excavator, suggested that I contact Mr. Jay Trembly to locate the previous excavations. Trembly recorded the site, lives only a short distance away and was present during all of the Robinson excavation work. Trembly confidently identified the area of the previous excavations where some 15 one by one meter units had been contiguously excavated. There was no reason to doubt Trembly's location. He is intimately familiar with the area and two fences, Amargosa Creek, a power line and a telephone line provide excellent landmarks, unchanged since the first excavation.

Nevertheless, there was some apprehension about having the exact location, since disturbance is pronounced in the area. The disturbance was quite evident not only in the immediate area of the original excavations (as identified by Trembly), but for several tens of meters in every direction. There was an element of uncertainty that the proper area had been identified. However, the Trembly location was the best information available. Accordingly, the area he identified was staked and surveyed as the location of the original excavations.

METHODOLOGY

The goal of the project was to determine if the proposed project would impact existing archaeological deposits. The approach was to excavate lines of one by one meter units beginning between the bank of Amargosa Creek and the known site and extending incrementally toward the site. Excavation was to

be halted when clearly in situ archaeological deposits were encountered. The last sterile unit in that line of excavations was to be defined as the site boundary. The intent was to determine if burials remained and to accurately locate the boundary of the cemetery.

Survey control was by transit and stadia methods. Accuracy was maintained at one minute of arc for horizontal and vertical angles, 10 centimeters for distances and one centimeter for elevations. Survey was controlled from a permanent datum established at the western edge of the site. The datum is an iron pipe set in concrete marked with the site trinomial.

Excavation was accomplished using flat shovels and hand tools. Excavation was in arbitrary levels of 10 centimeters. Level was controlled by line level and steel tape from a datum established at the highest corner of each unit. The units were oriented to true north. Standard RMW field policy states that exposure of bedrock or excavation of three sterile levels will be accomplished before abandoning a given unit. At CA-LAN-767 it was recognized that archaeological material could be deeply buried by alluvium. Accordingly, units were abandoned only when the Principal Investigator determined there was little probability that additional archaeological material would be recovered, regardless of the number of levels excavated. A central posthole was excavated in the center of the floor of each unit to confirm that sterile conditions had been attained. All excavated material was passed through 1/8 inch mesh. Drawings and photographs were made as appropriate.

Nine one by one meter units were excavated, as were six test pits. The test pits were excavated using post hole diggers and were approximately 40 centimeters in diameter. Initial units were excavated about one half the distance between the creek and the expected edge of the cemetery. Subsequent units were placed between the first units and the cemetery, within the cemetery and beyond the cemetery. The shovel test pits were excavated to explore additional areas to the east. All shovel test pit

material was screened through 1/8 inch mesh.

PROJECT CREW

All of the excavation crew, excepting only the Native American Observer, are full time RMW Paleo Associates employees. The author of this report served as project Principal Investigator. The author holds a Masters degree in Anthropology and is certified by the Society of Professional Archaeologists as a Field Archaeologist. Ken Becker served as Field Director. Becker is completing a Masters degree in Anthropology and holds a Bachelors degree in the same discipline. Joan Brown, Stuart Evans, Juanita Shinn and Ed Knell served as Excavators. Brown holds a Masters degree in Anthropology and is certified by the Society of Professional Archaeologists as a Field Archeologist. Knell holds a Bachelors degree in Anthropology, while Evans and Shinn hold similar degrees in History. All employees have extensive experience in southern California excavation projects. Laboratory quantification was completed by Ed Knell. Joan Brown was responsible for the identification of faunal material.

Mr. Andy Greene served as Native American Monitor during the project and assisted with the excavation work. Mr. Greene is a very knowledgeable person and his input was most helpful in accomplishing the goals of the project.

SURFACE EXAMINATION

Detailed examination of the surface of the site and surrounding area produced only a single artifact. This tool is a pestle recovered from an undisturbed area about 70 meters south of the site datum. The pestle is made of schist and is badly damaged. It is split longitudinally and one end is missing entirely. The preserved end has extensive wear. Dimensions are as listed in the Artifact Catalog in Appendix A. The location where the pestle was recovered is shown on the project map contained in a pocket at the rear of this report.

Several areas contained large numbers of cobbles. According to Trembley, these were cobbles removed from the original excavations in 1975 and placed in windrows. The cobbles were not returned to the units during backfilling. The windrows have now been disturbed and the cobbles strewn about.

UNIT EXCAVATIONS

Excavations were completed between 22 April and 29 April 1991. A brief description of each excavation unit follows. The locations of the units are shown on the project map. Dimension and weight details related to artifacts are listed in the Artifact Catalog in Appendix A.

Unit 1A: This unit was placed to the northeast of the previously excavated part of the site in the direction of the nearest approach of Amargosa Creek. The unit was within the impact area of the proposed street improvements. The area of Unit 1A appeared to be undisturbed.

The unit was excavated to a depth of 90 centimeters and a central post hole extended the depth an additional 20 centimeters. A few fragments of small rodent bones were found in the upper 40 centimeters of the unit, but the excavation was otherwise sterile. No artifactual material was found.

The upper 30 centimeters of Unit 1A was a loamy, sandy soil horizon. Plant debris was evident, as were small animal bones. A cobble layer was encountered at 30 centimeters and extended to about 50 centimeters depth. The cobbles were in a matrix of sandy soil. Below the cobbles the soil became a mixture of sand and gravel sized pebbles, with an occasional cobble. The soil profile seemed to represent undisturbed alluvial deposits laid down by Amargosa Creek.

Unit 2A: This unit was placed between Unit 1A and the edge of the earlier excavations. The unit is near the edge of the expected impact area of the proposed improvements to Elizabeth Lake Road.

Unit 2A was excavated to a depth of 100 centimeters and a

central post hole extended the depth by 45 centimeters. A few small animal bone fragments were found in the lower levels of the unit. Otherwise, the unit was sterile.

A sandy, loamy soil was encountered from the surface to a depth of about 20 centimeters. A cobble layer in a sandy matrix was encountered between 20 and 35 centimeters depth. Alternate layers of sand and gravel were found between 35 centimeters and 90 centimeters. At 90 centimeters another cobble layer was encountered that extended to the deepest part of the unit. Pockets of pure sand were interspersed in the lower cobble layer. The soil profile from Unit 2A also seemed to indicate undisturbed alluvial deposition.

Unit 3A: Unit 3A was placed within the disturbed area thought to contain the original excavations and in line with Units 1A and 2A.

The unit was excavated to a depth of 120 centimeters and a central posthole extended the depth by about 30 centimeters. Rodent bone fragments, including one tooth, were found between 30 and 70 centimeters depth. All of these appeared to be modern intrusives.

A fragment of a bowl or mortar was recovered from the 30 to 40 centimeter level. The tool, made of steatite, is Artifact Catalog Number 36. The fragment was once part of a much larger tool that was broken in antiquity. The surviving fragment was then used as a small bowl or mortar. The secondary usage was rather extensive. The rough edges created when the original tool was broken have been worn smooth and a worn lip is evident around the surviving portion of the heavily pecked working surface.

A steatite pendant blank was also recovered from the 30 to 40 centimeter level. This object, Artifact Catalog Number 37, is unfinished, but has been shaped and the beginning of a drilled hole can be seen on one surface.

Hematite was recovered from the 20 to 30 centimeter level (one fragment), the 30 to 40 centimeter level (two fragments)

and the 40 to 50 centimeter level (one fragment). These are Artifact Catalog Numbers 34, 38 and 44. Hematite was aboriginally used as pigment.

Unit 3A contained a sandy, loamy soil from 0 to 30 centimeters depth. A layer of gravel in a sandy loam matrix occupied the next 15 to 20 centimeters. The mortar described above was contained in this stratum. Below the gravel and extending to a depth of about 85 centimeters was a stratum of clean, well sorted sand. Gravel was infrequent and cobbles were absent entirely. From a depth of 85 centimeters to 120 centimeters a silt deposit was encountered. The stratum contained very little gravel and no cobbles. A cobble layer was encountered at 120 centimeters and continued to the greatest depth of the central post hole. The soil profile again indicated an undisturbed deposit.

Unit 4A: It was fully expected that Unit 3A would encounter considerable archaeological material. Large quantities of shell beads had been recovered during the original excavations. Small artifacts such as shell beads can migrate considerably over long periods of time. Some shell remains were expected at Unit 3A, since the excavation was within the disturbed area thought to contain the 1975 excavations. However, no such material was recovered. The artifacts recovered at Unit 3A may or may not be related to the cemetery. The artifacts were recovered from the correct depth to be associated with the upper burials, as verbally described by Robinson, but no similar tools were found in direct association with the burials. Steatite pendants were found with the burials, but the artifact from Unit 3A is unfinished. Given this situation it was determined that Unit 4A should be placed directly in the center of the area thought to have been previously excavated. A unit so located would establish if prior excavation had occurred, thus providing confirmation that the current excavations were, in fact, being correctly placed.

Unit 4A contained a mixture of sand, gravel and cobbles

throughout its 120 centimeter depth. This mixture continued to a cobble layer exposed at the bottom of a central post hole that extended 20 centimeters beyond the 120 centimeter floor. Clearly, the soil of Unit 4A had been disturbed by previous excavation to a depth of about 140 centimeters.

Some fragments of modern rodent bone were found between 30 and 50 centimeters depth. Two fragments of larger bone were recovered from the 60 to 70 centimeter level. These fragments had structure and wall thickness to indicate they were part of a human sized animal. However, they were so fragmentary that they could not be definitely identified. Since 11 burials had been removed from the immediate area, the bones were interpreted as human. The two bone fragments were returned to the unit prior to backfilling.

The mixed condition of the soil and the presence of two probable human bone fragments provided confirmation that the excavations were being correctly placed. The total lack of shell artifacts remained a puzzle.

Unit 5A: Unit 5A was placed roughly in line with Units 1A through 4A, but was located to the southwest of the area thought to be previously excavated. Modern bone fragments from small animals were found to depths of 50 centimeters.

A small secondary flake of chalcedony (Artifact Catalog Number 70) was recovered from the 10 to 20 centimeter level of the unit. Fragments of carbonized material were retrieved from the 30 to 40 and the 40 to 50 centimeter levels. However, this material was not in association with artifactual material and may be natural in origin.

Unit 5A was excavated to a depth of 90 centimeters and a central post hole extended the depth by 20 centimeters. The soil throughout the unit was a remarkably uniform sandy loam. Isolated gravel fragments began appearing at a depth of about 70 centimeters. The gravel became progressively denser until it became general at a depth of about 110 centimeters. There was no indication that the soil had been previously disturbed. Unit

5A is at a slightly higher elevation than the other units. Apparently the soil horizon thickens considerably with distance from Amargosa Creek.

Unit 1B: Unit 1B was placed north of the area excavated in 1975, approximately one half the distance between the bank of Amargosa Creek and the 1975 excavations. The unit was excavated to a depth of 110 centimeters and a central post hole extended the depth for 20 centimeters.

A granite bifacial mano (Artifact Catalog Number 98) was found in the northeast corner of Unit 1B at a depth of 90 centimeters. The mano is not stream eroded. A fragment of unworked shell (Artifact Catalog Number 101) was recovered from the 90 to 100 centimeter level. Rodent bone fragments were found between 50 and 100 centimeters below unit datum.

The upper 25 centimeters of Unit 1B contained a sandy loam, with little gravel and essentially no cobbles. From 25 centimeters to about 45 centimeters a very heavy cobble layer was encountered. The cobbles in this layer were quite large and were densely packed. Below the cobble layer and extending to a depth of about 70 centimeters was a stratum of sand containing some gravel. Cobbles and sand were found between a depth of 70 and 105 centimeters. The cobbles were not dense in this stratum. However, another dense cobble layer began at a depth of approximately 105 centimeters and extended to the maximum depth of the unit. An undisturbed soil profile is indicated.

Unit 2B: This unit was placed in line with Unit 1B and the area thought to contain the 1975 excavations and immediately adjacent to the latter feature.

Unit 2B was excavated to depth of 110 centimeters and a central post hole extended the depth by about 20 centimeters. Rodent bone was found throughout the unit.

No artifacts were recovered from Unit 2B, but a fragment of apparently human bone was found in the 100 to 110 centimeter level. The fragment is a portion of a long bone and has the correct structure and wall thickness to indicate it is from a

human sized animal, but it lacks the features required for positive identification. The bone was interpreted as human and returned to the excavation unit prior to backfilling.

A fragment of hematite was recovered from the 10 to 20 centimeter level. Three fragments of hematite were found in the 40 to 50 centimeter level. The hematite fragments are Artifact Catalog Numbers 108 and 115.

Unit 2B contained a sandy loam to a depth of about 40 centimeters. A heavy cobble layer was found between 40 and 60 centimeters depth. Gravel and sand were also present in the cobble layer. Some cobbles continued to appear to a depth of 70 centimeters. Below 70 centimeters the soil was a mixture of sand and gravel with few cobbles. An undisturbed soil profile is indicated.

Unit 1C: Unit 1C was placed to the northwest of the area thought to contain the 1975 excavations. The artifactual material found in Unit 1B indicated that a subsurface deposit may exist in the area selected for Unit 1C.

Unit 1C was excavated to a depth of 100 centimeters and a central post hole extended the depth by about 25 centimeters. Bones of small mammals and rodents were found throughout the unit.

A granite bifacial mano (Artifact Catalog Number 144) was recovered from the 30 to 40 centimeter level. A small portion of one corner of the tool is missing. The two primary working surfaces are flat, with noticeable rounding only at the edges of the tool. A small dimple has been pecked into the center of each of the major working faces of the tool. The purpose of these dimples is unknown. The intact end of the tool has also been used, but not to the extent of the larger faces. A small secondary flake of chert (Artifact Catalog Number 158) was recovered from the 80 to 90 centimeter level.

Hematite fragments were recovered from the 0 to 10 centimeter level (Artifact Catalog Number 134), the 20 to 30 centimeter level (Artifact Catalog Number 139), the 30 to 40

centimeter level (Artifact Catalog Number 141) and the 50 to 60 centimeter level (Artifact Catalog Number 148). A fragment of white ocher (Artifact Catalog Number 142) was found in the 30 to 40 centimeter level. Carbonized material was found in the 30 to 40 centimeter level and in the 50 to 60 centimeter level (Artifact Catalog Numbers 143 and 151). The carbonized material was not in association with any archaeological feature, so may be of natural origin.

Unit 1C contained a sandy loam in the upper 35 centimeters. Sand, cobbles and gravel were encountered between 35 and 60 centimeters depth. From 60 to 80 centimeters the soil consisted of sand and gravel with an occasional cobble. Cobbles in a matrix of sand and gravel were found between 80 and 95 centimeters. A mixture of sand and gravel then continued to the greatest depth of the unit. An undisturbed soil profile is indicated.

Unit 1D: Unit 1D was placed in the northwestern part of the study area. Material recovered from Units 1B and 1C hinted that a subsurface deposit might exist in this area.

Unit 1D was excavated to a depth of 100 centimeters and a central post hole extended the depth by about 30 centimeters. Small mammal and rodent bone was found throughout the unit, but the excavation was otherwise sterile.

The upper 30 centimeters of Unit 1D contained a sandy loam. The strata between 30 and 50 centimeters depth contained large cobbles in a sand and gravel matrix. Gravel and sand were encountered between 50 and 80 centimeters, with some cobbles present in the lower portion of the stratum. These alternating layers of coarse and fine material continued to the bottom of the unit. An undisturbed soil profile is indicated.

Shovel Test Pits: Six shovel test pits were excavated in areas to the east of the cemetery and on both banks of Amargosa Creek. These excavations were made to determine the probability of archaeological deposition in those areas. All of the shovel test pits were sterile, excepting occasional small mammal and

rodent bone. The soil profiles at all of the shovel test pits revealed no disturbance at depth.

SITE VISITORS

The current excavations were quite visible to travelers along Elizabeth Lake Road and there are apparently many people in the area who have more than a passing interest in local archaeology. Consequently, numerous persons visited the site during the current excavations.

Several of the site visitors recalled the 1975 Robinson excavations. However, much of the information given by the visitors did not agree with descriptions of the 1975 work given by Robinson and Trembley. The major discrepancies are:

1. Visitors frequently placed the 1975 excavations at a point other than that identified by Trembley. Identified areas were as far as 200 meters distant on the eastern bank of Amargosa Creek.
2. The 1975 excavations were completed using a crew of 10 to 12 persons, but one visitor claimed to remember as many as 50 people at the site, including several children.
3. One visitor claimed to have seen a backhoe in use at the site, but no such equipment was used by Robinson.
4. Trembley was present during all of the Robinson excavation work. One visitor claimed he was present during much of the work, knows Trembley well, but stated that he never saw Trembley at the site.

Were it not for one observation, one could easily dismiss the comments of the visitors as mistaken memories. However, when the surface was examined in those areas identified by visitors as having been excavated there are large and quite obvious surface disturbances. Such areas have many depressions, the soil is soft and cobbles, ordinarily found 30 to 40 centimeters below the surface, are strewn about.

The only reasonable conclusion one can reach is that the visitors were accurately describing what they saw. If this is

the case, it follows that the area was subjected to extraordinary episodes of extra legal excavation (pothunting). The timing of the pothunting is unknown, but it was probably shortly after Robinson completed his work at the site.

The area containing the 1975 excavations is shown on the Project Map in the pocket at the end of this report. Robinson excavated 15 contiguous one by one meter units. The area shown on the Project Map is much larger than 15 square meters. The depicted area represents the limits of very heavy disturbance surrounding the point identified by Trembley as containing the Robinson excavations. Disturbance extends far beyond that shown on the map; only the region of obvious, very extensive disturbance is shown. The Robinson excavations were probably near the center of the depicted area. The surrounding disturbance was apparently caused by pothunters who were working outward from the periphery of the Robinson excavations. Some support for this view is found in the fact that not a single shell bead was recovered during the current excavation, but many such objects were found by Robinson. Apparently, the pothunters completely exhausted the cemetery portion of the site.

Pothunters will not work in unproductive areas. It is therefore quite probable that the large disturbed areas in the vicinity of the cemetery also contained archaeological deposits. It is impossible to estimate the magnitude of the loss due to pothunting activity, but judging from the scale of disturbance in the vicinity it is quite large.

DISCUSSION

The most important insight gained as a result of the current excavation is that two episodes of use can be associated with CA-LAN-767. The earlier component is characterized by the presence of grinding implements and flakes. Such implements were found at depths ranging from 40 to 90 centimeters below the surface in Units 3A, 1B and 1C. The later component is marked by the cemetery. All of the material from the site has been

recovered from roughly the same depth range. However, the material from the earlier component would have been deposited on the then existing surface, while the burials would have been emplaced at some depth below the surface. Thus, the two deposits are now encountered at roughly the same depth.

It is unclear whether the mortar or bowl fragment from Unit 3A should be assigned to the earlier component or the latter. Robinson found no similar tools elsewhere in the cemetery deposits, indicating that the tool may belong with the early component. However, the tool was in proximity to the cemetery area and was found in close association with hematite fragments. The tool is of a size that could have been used as a grinding implement for the preparation of pigments. Thus, the tool could have been used as part of the mortuary practices. It should be noted that hematite was found in Units 3A, 2B and 1C, all of which are near the cemetery area.

The steatite pendant blank recovered from Unit 3A is most probably associated with the cemetery. Certainly, Robinson recovered finished pendants as part of the grave goods. Perhaps the unfinished state of the pendant blank and the fact that it was found on the periphery of the cemetery indicates that such offerings were prepared while the interment ceremony was in progress.

Very little can be said about the timing of the two components at CA-LAN-767. It is clear that the phase represented by the grinding implements and flakes predates the cemetery use, but the length of time between cannot be determined. Some carbonized material was recovered during the current excavations, but none of it was in association with features that would clearly establish its origin as cultural. Dating analysis of the carbonized material would be of questionable value.

The early component was related to the collecting and processing of vegetable resources. All of the tools (manos, flakes and the bowl, if one includes it) are consistent with

this interpretation. The area was clearly used as a cemetery during the time of the second component.

The CA-LAN-767 site area can only be described as highly disturbed. The current excavation, Robinson's 1975 excavations and the pothunting has left major disturbance in the area. In addition, Amargosa Creek has violent periods of flooding and deposition in the site area. The water activity has undoubtedly removed many small items from the site and has displaced many others.

The presence of an earlier component was not expected at CA-LAN-767. An Archaeological Site Supplement has been prepared for submission to the Archaeological Information Center, University of California, Los Angeles. A copy of this form is contained in Appendix B.

IMPACTS

Elizabeth Lake Road is to be elevated in the vicinity of CA-LAN-767. This will require construction of a fill, the toe of which passes near the edge of the cemetery. Construction of the fill will, of course, require removal of soil until adequately compacted material is reached.

The combination of Robinson excavation and pothunting has apparently removed all of the burials from CA-LAN-767, excepting only scattered fragments of bone. The construction will have only negligible impact on this feature.

The early component of CA-LAN-767, characterized by grinding implements, extends from the cemetery area into the area where the fill will be constructed. Only limited controlled excavation has been accomplished within the area of impact, but two of the four units in the area produced grinding implements, a fragment of shell and a flake. Since these excavations cover only a tiny fraction of the area, it is likely that many additional artifacts exist in the subsurface. The area is in close proximity to Amargosa Creek and the existing excavations reveal many past episodes of alternating erosion and

deposition. It is likely that the archaeological deposit in this area has been at least somewhat disrupted by the natural actions of Amargosa Creek. The impact of the proposed construction is difficult to assess, since the true extent and condition of the archaeological deposit are not known.

The presence of an earlier component was not expected at CA-LAN-767. The primary thrust of the study was related to the cemetery. The earlier component became apparent only after a considerable portion of the field work was accomplished. Once the determination that no impact would be caused to the cemetery the remaining resources were used to study the earlier component. However, the study of the earlier component as presented in this report cannot be considered as extensive or complete, though it is adequate for the proposed undertaking, provided that recommendations offered later are followed.

CONCLUSIONS

1. A cemetery once existed at CA-LAN-767. The cemetery has been entirely removed, except for scattered bone fragments, by a 1975 Antelope Valley College excavation and by pothunters.
2. Burials and associated grave goods removed from CA-LAN-767 and curated at Antelope Valley College have never been adequately analyzed or published.
3. An episode of occupation related to vegetable resource collecting and processing predates the cemetery at CA-LAN-767. The earlier occupation extends to the north of the cemetery area into the area of project impact. The extent of the early component to the south of the cemetery is unknown, since that area was not within the scope of the present study.
4. The proposed project will have negligible impact on the cemetery, since it is already essentially destroyed. The impact of the project on early component material is difficult to assess, since the extent and condition of the

deposit are not well defined.

RECOMMENDATIONS

1. The cemetery component of CA-LAn-767 is not within the area of impact from the proposed project. No further consideration is required for this part of the project area.
2. The earlier component extends into the impact area. Soil removals should be made in a manner to allow recovery of the archaeological data. An appropriate method for the removal of the soil in this part of the deposit is contained in Appendix C, and is recommended for use at CA-LAn-767.
3. Given the proximity of a known Native American cemetery, the observation crew required to complete Recommendation 2, above, should include a Native American Observer.
4. The material collected during the current project should be curated at Antelope Valley College. The balance of the collections from the site other than the material in private hands is at Antelope Valley College. Curation of the collection from the current excavation at that facility will keep all site material together.
5. Material collected during the recommended grading observation should be described in a written report and should be curated at Antelope Valley College.
6. The material collected during the 1975 excavations, currently curated at Antelope Valley College, should be subjected to detailed analysis with the data published in a form that will insure its availability to future researchers. This work will partially mitigate the damage that CA-LAn-767 has sustained. The work should be completed as part of the Amargosa Creek Assessment Area 90-1 project.
7. It is recommended that the City of Palmdale develop and adopt policies and procedures for the control of illegal collecting activities. At a minimum, police patrols should be increased in areas of active excavations. Sites that are in especially vulnerable areas should be fenced during

excavations and also subject to increased police patrols, both during the excavation and for an extended period of time following the excavation. It is also suggested that sensitive sites in the area be visited by City staff on a routine basis.



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