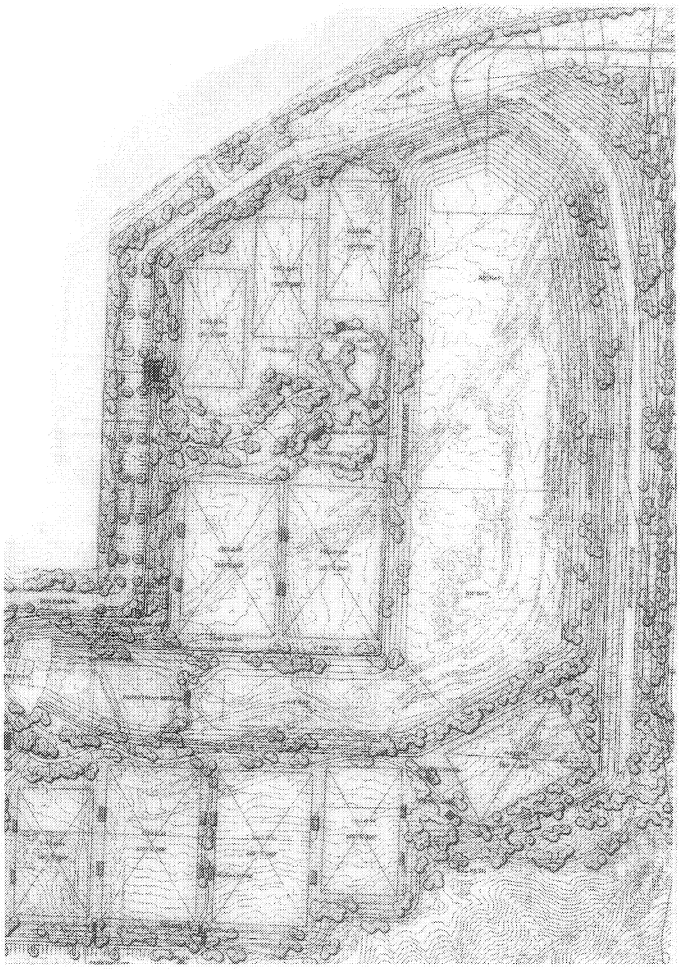
FINAL
Environmental Impact Report No. 96-1

ANAVERDE FLOOD CONTROL BASIN AND SPORTS COMPLEX
City of Palmdale



Lead Agency:
City of Palmdale

Consultant:
Robert Bein, William Frost & Associates

November 4, 1996
JN 32668

RESOLUTIONS

ATTACHMENT 4

CITY OF PALMDALE
LOS ANGELES COUNTY, CALIFORNIA
RESOLUTION NO. PC-96-67

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF PALMDALE, CALIFORNIA, CERTIFYING ENVIRONMENTAL IMPACT REPORT NUMBER 96-1 FOR THE PALMDALE SPORTS COMPLEX

THE PLANNING COMMISSION OF THE CITY OF PALMDALE HEREBY FINDS, RESOLVES, AND ORDERS AS FOLLOWS:

Section 1. An application was duly filed by the City of Palmdale, hereinafter referred to as the Applicant, requesting certification of an EIR for a regional drainage and recreational facility, known as the Palmdale Sports Complex, Conditional Use Permit (CUP) 96-14, and hereinafter referred to as the project. The project proposes to create a 73 acre development to be built in two phases. The project area is generally bounded by Rayburn Road to the north, State Route 14 to the east, Avenue R-8 to the south, and Tierra Subida Avenue to the west. The project site is legally described on Attachment 1 and shown on Attachment II.

Section 2. An Environmental Initial Study was prepared for the project by the Planning Department staff, pursuant to Section 15063 of the State CEQA Guidelines. The initial study, which was completed on April 25, 1996, identified that there was substantial evidence that the project may have a significant environmental impact on several environmental resources and governmental services. Pursuant to State CEQA Guidelines 15064 and 15081, a decision was made to prepare an Environmental Impact Report ("EIR") for the project.

Section 3. On April 25, 1996, a Notice of Preparation for the EIR was prepared and sent to the State Clearinghouse in the Office of Planning and Research for the State of California and to other responsible agencies.

Section 4. On April 10, 1996, a contract was entered into between the City and RBF Consultants, Inc., of Irvine, California, whereby RBF agreed to be the lead consultant for the preparation of the EIR for the project. Thereafter, a screencheck version of the Draft EIR was presented to the City on August 5, 1996. A preliminary draft of the EIR was presented to the City on August 25, 1996.

Section 5. On September 4, 1996, the Draft EIR was completed. Pursuant to State CEQA Guidelines Section 15085, the City prepared a Notice of Completion of the Draft EIR which was filed with the State Office of Planning and Research on September 4, 1996. The EIR was circulated to interested agencies between

September 4, 1996 and October 21, 1996 for a 45-day comment period, pursuant to State CEQA Guidelines Section 15087. Comments were received and responses prepared and incorporated into the EIR. A copy of the EIR is on file in the office of the Planning Department.

Section 6. The Planning Commission held a public hearing on the Draft EIR on November 7, 1996, and received testimony regarding the EIR. Notice of the time, place, and subject matter of the public hearing was published in the Antelope Valley Press on October 8, 1996, in accordance with the requirements of Public Resources Code Section 21092 and a copy of such notice was filed with the Los Angeles County Clerk, in accordance with the requirements of Public Resources Code Section 21092.3.

Section 7. The Planning Commission hereby finds that the EIR, the comments to the EIR, and the responses to those comments have been received by the Commission, that the Commission has reviewed and considered those documents prior to acting on the applications, and finds, pursuant to State CEQA Guidelines Section 15090, that the Final EIR has been completed in compliance with CEQA, the State CEQA Guidelines, and the City's CEQA Guidelines.

Section 8. The Planning Commission hereby certifies Final EIR 96-1, which consists of the Draft EIR, any comments received, any responses by the City to the comments received, and other materials as set forth in the staff report dated November 7, 1996, and exhibits thereto, which EIR was prepared for the Palmdale Sports Complex (CUP 96-14). The Planning Commission's certification is subject to the text changes contained in Exhibit "A" to this Resolution.

Section 9. The Planning Commission has also reviewed and considered the Mitigation Monitoring Program for the EIR that has been prepared pursuant to the requirements of Public Resources Code Section 21081.6 and finds that such Program is designed to ensure compliance with the mitigation measures during project implementation. The Planning Commission therefore adopts the Mitigation Monitoring

Program for EIR 96-1, as contained in Exhibit "B" of this Resolution.

ADOPTED AND APPROVED this 7th day of November, 1996.

AYES: 4 Chairman Mayfield, Commissioners Johnson, and Glozer, Vice Chairman Thompson

NOES: 0

ABSENT: 0 ABSTAIN: 1 Commissioner Hofbauer

John Mayfield, Chairman
Planning Commission

ATTEST:

Kathy Inman, Deputy City Clerk

MEB:PS:kmi

ATTACHMENT 4

CITY OF PALMDALE
LOS ANGELES COUNTY, CALIFORNIA
RESOLUTION NO. PC-96-68

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF PALMDALE, CALIFORNIA, APPROVING CONDITIONAL USE PERMIT (CUP) 96-14 FOR THE PALMDALE SPORTS COMPLEX

THE PLANNING COMMISSION OF THE CITY OF PALMDALE HEREBY FINDS, RESOLVES, AND ORDERS AS FOLLOWS:

Section 1. An application was duly filed by the City of Palmdale, hereinafter referred to as the Applicant, requesting approval of a regional drainage and recreational facility, known as the Palmdale Sports Complex, Conditional Use Permit (CUP) 96-14, and hereinafter referred to as the project. The project proposes to establish a regional drainage facility and sports complex on 73 acres to be built in two phases. The project area is generally bounded by Rayburn Road to the north, State Route 14 to the east, Avenue R-8 to the south, and Tierra Subida Avenue to the west. The project site is legally described on Attachment I and shown on Attachment II.

Section 2. The project area is generally absent of prior human encroachment. The site is zoned PF (Public Facility) on the Zoning map and General Plan Land Use map of the City of Palmdale.

Section 3. The adjacent land use to the north along Rayburn Road is vacant, with single-family residences farther to the north. The Zoning and General Plan designations for the area along Rayburn Road is C-3 (General Commercial) and CC (Community Commercial), respectively. The residential subdivision farther to the north is zoned R-1 (Single Family Residential) and designated SFR-3 (Single Family, 3.1-6.0 DU/AC). The land use to the east, across SR-14 is undeveloped parcels and residential neighborhoods. The Zoning and General Plan designations for this area are R-1-7,000 and SFR-3, respectively. The area tc the south is vacant and is zoned R-1-1 (Single Family Residential, 1 acre minimum lot size), and has a General Plan Land Use designation of SD (Special Development). The seven acre area adjacent to the west at the southeast corner of Rayburn Road and Tierra Subida Avenue, as well as the vacant land farther to the west is zoned and designated as C-2 (Office Commercial) and OC (Office Commercial), respectively.

Section 4. An Environmental Impact Report ("EIR") was prepared for the project by RBF Consultants, Inc. The EIR was circulated to interested agencies between September 4, 1996 and October 21, 1996. Comments were received and responses

prepared and incorporated into the EIR. A copy of the EIR is on file in the office of the Planning Department.

Section 5. The Planning Commission conducted a public hearing on Conditional Use Permit 96-14 on November 7, 1996, at 7:00 p.m. at City Hall Council Chambers, 708 E. Palmdale Blvd., Palmdale, California. Notices of the time, place, and purpose of the aforesaid meetings were duly provided in accordance with California Government Code Sections 65355 and 65090, and Public Resources Code Section 21092.

Section 6. Evidence, both written and oral, was duly presented to and considered by the Planning Commission at the aforesaid public hearing, including but not limited to the staff report dated November 7, 1996, along with testimony by the applicant and other members of the public.

Section 7. The Planning Commission adopted Resolution No. PC-96-67 on November 7, 1996, certifying the EIR, with certain amendments thereto as contained in Exhibit "A", attached to said Resolution, and with the Mitigation Monitoring Program for the project as contained in Exhibit "B", attached to said Resolution.

Section 8. CEQA Section 15091 states that no public agency shall approve or carry out a project for which an EIR has been completed which identifies one or more significant environmental impacts, unless the public agency makes one or more of three possible findings for each of those significant impacts as follows:

1. Changes or alterations have been required in, or incorporated into the project which avoid or substantially lessen the significant environmental effect as identified in the final EIR.

2. Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

3. Specific economic, social, or other considerations make infeasible the mitigation measures or project alternatives identified in the final EIR.

Section 9. With respect to the potentially significant environmental effects for which changes or alterations have been required in, or incorporated into the project

which avoid or substantially lessen the significant environmental effects as identified in the EIR, the Planning Commission finds as follows:

A. **EARTH RESOURCES**

Construction

Grading activities would be required to make the basin functional and to prepare the site for recreational development, subsequently resulting in the exposure of soils to short-term erosion by wind and water.

Geology and Soils

Project grading could result in settlement and other unstable soil conditions, potentially resulting in a significant effect on the environment.

B. **DRAINAGE AND WATER QUALITY**

Sports Complex

Construction and maintenance of the ten soccer fields could affect water quality and/or hydrology.

C. **NOISE**

Short-Term Impacts

Project construction activities will temporarily increase local noise levels.

D. **TRAFFIC AND CIRCULATION**

Short-Term (Construction Impacts)

Development of the proposed project would increase construction traffic on local streets.

Long-Term Traffic Impacts

Due to the lack of parking data for the proposed use, it is difficult to estimate the exact number of parking spaces which can adequately serve the proposed use. Therefore, potential insufficient on-site parking may occur.

E. **AESTHETICS**

Short-Term

Construction of the flood control basin, soccer fields, and related improvements would create temporary aesthetic nuisances associated with project construction and grading activities for the adjacent residential neighborhood.

Long-Term

Long-term development impacts would be permanent and significantly alter views across the site.

F. **BIOLIGICAL RESOURCES**

Vegetation

Implementation of the proposed project would result in the loss of some existing plant communities and Joshua trees.

Wildlife

Implementation of the proposed project could potentially affect wildlife in this habitat area.

Sensitive Species and Habitats

Implementation of the proposed project could potentially affect existing wetland habitats.

G. **CULTURAL RESOURCES**

Archaeology

Project construction and increase human disturbance on-site could impact existing archaeological resources.

Paleontology

Project construction and increased human disturbance on-site could impact existing paleontological resources.

Section 10. With respect to the potentially significant environmental effects for which specific economic, social, or other considerations make infeasible the mitigation measure or project alternatives identified in the EIR, CEQA Section 15093 requires the decision maker to balance the benefits of the project against its unavoidable environmental risks in determining whether to approve the project. According to CEQA, if the benefits of the project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered "acceptable". With respect to these significant and unavoidable impacts which cannot be further mitigated to a level of non-significance, the Planning Commission finds as follows:

A. **Change in Topography**

Implementation of the proposed project would result in modification of the existing topography which would occur during grading activities. Gradual topographic change as project phasing progresses is a significant and unavoidable impact of basin excavation and dam construction. It should be noted that topographical alterations will alter the aesthetic character of the site.

Discussion. The ultimate project would require excavation (cut) of approximately 674,000 cubic yards of earth material and fill of approximately 635,000 cubic yards of earth material, resulting in an alteration of site topography. With an estimated 30,000 cubic yards of excess fill on the adjacent parcel the overall grading will be essentially balanced (only 9,000 cubic yards will require export). Placement of the excavated material to construct the dame and earthen levees of the basin

and the soccer fields would alter the topography of the project site and those areas receiving this fill.

Gradual topographic change as project phasing progresses is a significant and unavoidable impact of basin excavation and dam construction. It should be noted that topographical alterations will alter the aesthetic character of the site. No mitigation measures have been identified which will reduce impacts associated with the physical modification of the project site's topography.

CONCLUSION: Changes in topography as a result of the project reduction in PM10 are considered to be impractical given the purpose and design of the project. However, the project's specific economic, social, or other considerations outweigh the identified significant impacts. This effect is determined to be acceptable because there are potentially significant benefits of the project. These include consistency with the area's General Plan requirements for drainage and flood control facilities and recreational facilities.

B. **Seismicity**

Due to the proximity of the San Andreas Fault Zone and the Little Rock fault to the project site, ground motion during seismic events could cause the dam embankment to fail.

Discussion. Because of its proximity to the San Andreas Fault Zone and the Little Rock fault, the proposed flood control basin and sports complex could be subject to ground shaking from earthquakes. Ground shaking during an earthquake or potential ground rupture from movement along Little Rock fault may cause slope failures within the basin, thereby displacing water. The potential for ground rupture at the project site is considered to be high. Vertical displacement associated with ground rupture and/or strong ground shaking could cause failure of the dam or levees, or both. Since water levels would be above grade when the facility if filled with flood water, the possibility of catastrophic flooding by failure of the dam or levee caused by a seismic event must be considered significant. However, it should be noted that the proposed basin would hold water at a high level for a limited period of time and ground shaking could result in only some limited deformation of the slopes. In addition,

considering that the basin is designed to empty even the maximum potential flood (MPF) within five days, the probability of concurrence of the peak ground acceleration with any flooding condition is extremely low (less than 0.0004 percent in 50 years).

Further soils investigations will be necessary both to establish the suitability of excavated materials for dam and levee construction, and to determine final design parameters which address seismic concerns. All appropriate means should be taken to ensure dame and levee survival during a seismic event. However, it may not be possible to fully mitigate against the possibility of failure of the dam for vertical displacements associated with ground rupture.

Mitigation Measure: The proposed project shall adhere to and be in strict compliance with the seismic design criteria of the Uniform Building Code and the City of Palmdale, as well as the California Department of Water Resources, Division of Safety of Dams Guidelines for the Design and Construction of Small Embankment Dams.

CONCLUSION: Further reductions in the level of risk of dam failure emissions are considered to be impractical given the location of the project. However, the project's specific economic, social, or other considerations outweigh the identified significant impacts. This effect is determined to be acceptable because there are potentially significant benefits of the project. These include consistency with the area's General Plan requirements for drainage and flood control facilities and recreational facilities.

C. **Air Resources**

Short-term Construction Impacts

Project implementation would result in significant fugitive dust (PM) and nitrogen oxide exhaust emissions from the construction equipment used on-site and the trucks to transport materials/excess fill to/from the site.

Development of the proposed project will occur over two phases, with Phase I consisting of a 29-acre sports complex (10 soccer fields and appurtenant facilities) and Phase II consisting of a 43-acre flood control

basin and appurtenant facilities. Project implementation will involve an estimated 9,000 cubic yards requiring export to an off-site location. Each phase will occur over an estimated period of six months.

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:

- Exhaust emissions from the heavy-duty, diesel powered construction equipment used on-site as well as the vehicles used to transport materials to/from the site and to transport excess fill off-site.
- Particulate (fugitive dust) emissions from grading, excavation, and clearing activities on-site.
- Air pollutant emissions at the power plan serving the site, while temporary power lines are needed to operate construction equipment and provide lighting.

Discussion: Diesel-powered, earth-moving vehicles used during the excavation/construction phases would produce exhaust emissions. The impacts from the emissions would depend on climate conditions (wind dispersion of exhaust) and the number of vehicles working at the project site. During construction activities, the smell of diesel fumes would be the most noticeable impact directly downwind from the project site. Nitrogen oxide compounds (NO_x) and carbon monoxide (CO) are the main pollutants released by diesel-powered equipment. Calculations of on-site emissions indicate that all projected emissions fall below levels designated as significant thresholds, with the exception of nitrogen oxides. Exhaust emissions from the heavy-duty construction equipment during the short-term construction phase are estimated to range from 70.60 pounds per day of reactive hydrocarbons to 681.83 pounds per day of nitrogen oxide emissions.

The heavy-duty, diesel powered vehicles used to transport excess fill off-site will generate exhaust emissions during transport. Approximately 9,000 cubic yards of excess fill will be transported to an off-site disposal site, which is assumed to be located approximately 15 miles north of the project site.

No definitive methodology by which to assess the significance of the project's impact directly upon air quality has been set forth to date by any regulatory agency, including the SCAQMD (which has jurisdiction over the project). However, the SCAQMD has suggested threshold values for air pollutant emissions as a means of generally assessing the potential significance upon ambient air quality of a proposed project's emissions. It should be noted that according to the SCAQMD *CEQA Air Quality Handbook*, the threshold values are considered to be suggestions only. The intent of the SCAQMD threshold values is to provide guidelines in order to generally determine the significance of the project's stationary and mobile source emissions. In accordance with the SCAQMD's recommendation, this analysis has utilized the threshold values as one of the criteria to determine the potential significance of the project's air pollutant emissions.

When the total daily exhaust emissions from the construction equipment are added to the estimated fugitive dust emissions, SCAQMD NSR threshold values are exceeded for fugitive dust and nitrogen oxides. Short-term impacts (based on threshold levels) for carbon monoxide, sulfur dioxide, and reactive hydrocarbons would not be considered significant.

Discussion: Fugitive dust poses two public health and safety concerns. The first concern is that of respiratory problems attributable to the suspended particulates in the air. The second concern is that of motor vehicle accidents caused by reduced visibility during severe wind conditions. Fugitive dust may also cause significant property damage during strong wind storms by acting as an abrasive material agent, much like sandblasting activities.

The actual quantity of fugitive dust emissions generated is governed by the type and amount of work being done and the prevailing wind conditions. Site preparation, clearing, grading, excavation and heavy-duty equipment/truck use on unpaved surfaces can create large quantities of fugitive dust during the construction process. However, based on typical earth-moving operations and assuming that no mitigation measures are employed, an estimated 55 pounds of particulate matter will be discharged daily into the atmosphere per acre graded. It should be noted that the fugitive dust emissions represent particulate matter with

diameters equal to, or less than, ten microns (PM). PM is a specific subset of total particulates and is monitored by the SCAQMD as one of several criteria air pollutants. Furthermore, most particulate matter settles out within a small distance from the Project site.

The entire 73-acre project site will not be subject to earth-moving operations on a daily basis. It is estimated that earth-moving activities will occur over an area of approximately 10 acres at one time. Applying the EPA factor to the relevant project surface area provides a dust emissions estimate of approximately 550 pounds per day per acre (before mitigation). The EPA has estimated that regular watering of the portions of a site under operation may reduce fugitive dust emissions by up to 50 percent. Therefore, with watering measures implemented, project fugitive dust (particulate) emissions are estimated to be approximately 275 pounds per day per acre for the duration of earth-moving operations, which is a significant impact.

Mitigation Measures: The project will implement the following mitigation for construction-related air emissions:

a. The Project Applicant shall obtain any and all permits as may be required by the South Coast Air Quality Management District ("SCAQMD") for the removal, transportation, and disposal of soil.
b. Ground wetting procedures and other dust palliative measures shall be followed during earth-moving operations and construction to minimize fugitive dust emissions.
c. Trucks importing or exporting earthen materials shall be covered and sprinkled prior to entering public streets.
d. Roadways shall be periodically swept or otherwise cleared of any spilled export material to assist in minimizing fugitive dust in accordance with SCAQMD Rule 403.
e. Construction equipment shall be maintained in proper tune.
f. Construction/grading activities shall be phased and/or scheduled to avoid high ozone days.

CONCLUSION: Further reductions in air emissions during construction activities are considered to be impractical given the scale of the project, the development plan and the foreseeable level of technology and standard practices that can be applied to large scale grading activities.

However, the project's specific economic, social, or other considerations outweigh the identified significant impacts. This effect is determined to be acceptable because there are potentially significant benefits of the project. These include consistency with the area's General Plan requirements for drainage and flood control facilities and recreational facilities.

D. **Light and Glare**

Implementation of the sports complex element of the proposed project would introduce a new light source into this rural setting.

Discussion: The illumination of all ten soccer fields and parking lots will introduce a new light source in this rural setting. The residential development north of Rayburn Road and motorists on adjacent roadways will be most affected by the lighted fields. As a potential mitigation, the direction and intensity of lighting will be controlled by state of the art control devices which will focus the light on the parking lots and soccer fields, which will minimize light spilling into adjacent areas. Light and glare will also be controlled by the hours of operation of the sports complex which will end no later than 10:00 p.m. It should be noted that lighting levels will also be reduced due to the fact that the playing surfaces will be located within the proposed flood control basin, approximately 20 to 25 feet below the top of the basin embankments. For security, parking lot lights will remain on beyond 10:00 p.m. until approximately 10:30 p.m.

Due to the fact that the project will introduce significant new light sources into a rural area, this will significantly alter the natural landscape and affect the aesthetic character of the project site, even following implementation of the available mitigation measures.

Mitigation Measures: During construction, the contractor shall keep the site clear of all trash, weeds, etc. Compliance with this measure is subject to periodic site inspection by City Staff.

During construction, the contractor shall provide screening of the site's northern perimeter, along Rayburn Road, in order to partially screen views of the site from residential lots to the north.

The contractor shall establish construction staging areas at least 500 feet from the nearest residential lot. The equipment stored in the staging area shall be kept in an orderly fashion. Compliance with this measure is subject to periodic site inspections by City Staff.

The City of Palmdale shall review and approve the project's landscape plans. The landscape plans should include the planting of native shrubs and California junipers along the northern, western, and eastern project boundaries in order to partially screen the basin from view of motorists traveling along Rayburn Road, Tierra Subida Avenue, and the Antelope Valley Freeway. Landscaping shall, at minimum, address the following:

- Use of native and/or drought-tolerant species;
- Proposed palette, size, and placement; and
- Irrigation requirements

All lights used to illuminate the parking areas and soccer fields 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, unless specifically permitted by a special event permit on a case-by-case basis.

The Sports Complex hours of operation shall conclude no later than 10:00 p.m. All lights, except for security lighting within parking lot areas, shall be turned off.

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.

CONCLUSION: Further reductions in light emissions are considered to be impractical given the scale and purpose of the project and the level of technology for large area lighting. However, the project's specific economic, social, or other considerations outweigh the identified significant impacts. This effect is determined to be acceptable because there are potentially significant benefits of the project. These include consistency with the area's General Plan requirements for recreational facilities as part of co-located drainage and flood control facilities.

Section 11. The Planning Commission has reviewed and considered the alternatives to the Project as discussed in the EIR. Those alternatives are: (1) a "No Project" alternative; (2) a channel alternative; (3) a reduced scale alternative; and (4) an alternative site alternative. With respect to these alternatives to the Project, the Planning Commission finds, pursuant to Public Resources Code Section 21081, that there are economic, social, and other considerations of the Project that make these alternatives infeasible. Specifically, the Planning Commission finds that the "No Project" alternative would not address the City's requirements for recreational facilities and for regional drainage control facilities, as identified in the General Plan. The channel alternative would incur costs approximated to be in excess of $80 million dollars, would create potentially significant impacts to downstream properties in the path of the channel, would not create recreational opportunities, and would not reduce flooding hazards to downstream properties. The reduced scale alternative would incur similar impacts on the project site as the Project, with reduced recreational opportunities. The alternative site alternative was determined to be infeasible because the project is designed to control the drainage of the upstream portions of the Anaverde Creek. Therefore, the Planning Commission finds that none of the alternatives would meet the objectives of the Project for flood control and recreational facilities in a feasible manner and the benefits of the Project with respect to flood control and recreational facility improvements outweigh the environmental benefits that would be derived from any of the project alternatives.

Section 12. The Planning Commission recognizes that during build-out of the Palmdale Sports Complex project, substantial changes may occur with respect to the circumstances under which the project is undertaken or that new information of substantial importance may become available which shows that the project may have substantially more and/or severe environmental effects than were identified in the EIR. The Planning Commission therefore expresses its intent to reserve the City's authority to require additional environmental review of the project under those and other circumstances pursuant to State CEQA Guidelines Sections 15162 and 15163 and any other applicable laws and regulations, with regard to one or several of the environmental and public resources discussed in Section 9 and 10 of this Resolution.

Section 13. With respect to Conditional Use Permit (CUP) 96-14, the Planning Commission of the City of Palmdale, finds as follows:

A. The Planning Commission hereby specifically finds that all of the facts set forth in Sections 1 through 12 of this Resolution, are true and correct.

B. The proposed use is consistent with the goals, policies, and objectives of the General Plan because the project will provide for a regional drainage control facility for the Anaverde Creek in accordance with General Plan Public Services Goal PS3 which states, "Develop and maintain adequate storm drainage and flood control facilities". The use also satisfies General Plan Parks, Recreation and Trails Element Goal PRT1 which states, "Provide adequate parks to meet the needs of existing and future residents". The proposed use is not inconsistent with any other goals, policies, or objectives in the Palmdale General Plan.

C. The proposed use is beneficial and desirous to the community and is consistent with the purpose, intent, and standards of the Zoning Ordinance and other applicable ordinances and codes adopted by the City of Palmdale because the project will provide for required flood control facilities for properties that are presently affected by flooding of the Anaverde Creek and the project will provide recreational facilities to residents City-wide. Both of these uses are permitted by the PF (Public Facilities) land use designation of the property.

D. The site for the proposed use is adequate in size and shape to accommodate all yards, open spaces, setbacks, walls and fences, parking areas, fire and building code considerations pertaining to the application, or as required by the Commission as a condition. Evidence supporting this finding is contained in the submitted plans and application materials for the project, including the phased site plan for the project, the preliminary soils and hydrology report, and the Environmental Impact Report prepared for the project.

E. The proposed use and the on-going operation of the use will not have a substantial adverse effect on abutting property or the permitted use thereof, and will not generate excessive noise, vibration, traffic, or other disturbances, nuisances, or hazards because the project design and the Conditions of Approval prepared for the project, and the Mitigation Monitoring Program for the project has identified certain resources to include the allowance of such nuisance effects. The exception to this is the potential significant effects from air resources during construction activity and light and glare effects during operation of the facilities. However, these effects have been found to be acceptable, as evidenced by the Statement of Overriding Considerations adopted for the project.

F. The site for the proposed use has adequate access, meaning that the site design incorporates street and highway limitations because Tierra Subida Avenue and Rayburn Road are both paved arterial roadways which will be improved as part of the project.

Section 14. The Planning Commission has reviewed and considered the EIR for the project and finds that the EIR has been completed in compliance with CEQA. The Planning Commission has also reviewed and considered the Mitigation Monitoring Program for the EIR that has been prepared pursuant to the requirements of Public Resources Code Section 21081.6 and finds that such Program is designed to ensure compliance with the mitigation measures during project implementation.

Section 15. Based upon the aforementioned findings, the Planning Commission adopts Resolution No. PC-96-68, approving Conditional Use Permit (CUP) 96-14, subject to the conditions contained in Attachment III.

Section 16. The Deputy City Clerk shall certify to the adoption of this Resolution.

PASSED, APPROVED, AND ADOPTED this 7th day of November, 1996.

AYES: 4 Chairman Mayfield, Vice Chairman Thompson, Commissioners Glozer and Johnson

NOES: 0

ABSENT: 0

ABSTAIN: 1 Commissioner Hofbauer

John Mayfield, Chairman
Planning Commission

ATTEST:

Kathy Inman, Deputy City Clerk

STAFF REPORTS

CITY OF PALMDALE
OFFICE OF THE
PLANNING DEPARTMENT

MEMORANDUM

TO: Members of the Planning Commission

FROM: Molly Bogh, Director of Planning MB

PREPARED BY: Paul Scheibel, AICP, Associate Planner

SUBJECT: **Draft Environmental Impact Report (EIR) 96-1 for the Palmdale Sports Complex**

DATE: November 7, 1996

RECOMMENDATION

Staff recommends that the Planning Commission adopt Resolution No. PC-96-67 certifying Environmental Impact Report 96-1 for the Palmdale Sports Complex, subject to the recommended text changes contained in said Resolution, and adopt the Mitigation Monitoring Program for the project.

INTRODUCTION

This report is organized to provide the Planning Commission with a compilation of the following subject categories relative to the Environmental Impact Report (EIR) for the Palmdale Sports Complex:

I. Introduction of the project, procedural compliance with CEQA law, comments received, and responses to comments received for the Draft EIR.

II. Review of the contents of the draft EIR for the project.

III. Analyses of the key issues to be considered by the Planning Commission.

IV. Recommended text revisions to the draft EIR.

RECEIVED
NOV 04 1996
ROBERT BEIN, WM PROST

I. INTRODUCTION OF THE PROJECT AND PROCEDURAL COMPLIANCE WITH CEQA

A. Site Location and Description

The area that comprises the proposed Palmdale Sports Complex is approximately 73 acres located in the southwest portion of Palmdale. The "project" as addressed within the EIR consists of the proposed 73-acre Anaverde Detention Basin and Sports Complex. The project proposes to build an earthen dam at the lowest point of the site using fill material from the property. Ultimately, the project would consist of the flood control basin and a sports complex, including 10 soccer fields (lighted for night time use), parking, restrooms, concession area, hiking trails, picnic and tot lot facilities, and maintenance facilities. The project is consistent with the "Public Facility" designation in the City General Plan Land Use and Zoning maps.

The project site lies in depressed ground approximately twenty-five feet below the adjacent roads. The project site is relatively flat, except for the Anaverde Creek channel which bisects the site from the southwest to the northeast. The existing channel contains a depression that was created in 1988 by the County of Los Angeles as part of initial construction of a previously approved detention basin. There is a small graded area which contains approximately 100 cubic yards of concrete rubble of unknown origin in the northern portion of the project site. Following creation of the initial detention basin in 1988, the Anaverde Creek flow shifted south to its present location. Riparian vegetation emerged as a result of the ponding water and reduced stream flow within the basin.

Vegetation consists of relatively undisturbed desert scrub, stands of mature Juniper bushes and sparsely distributed mature Joshua trees which appear to be in a healthy state. The entire project site is surrounded by a six foot high chain link fence. Consequently, the area is relatively undisturbed by human encroachment, except for the previously noted excavation and concrete rubble.

The San Andreas Fault is located approximately one-half mile to the south of the site, and the Little Rock Fault extends across the approximate

center of the site. The California Aqueduct is located approximately one mile to the south of the site.

Across State Route 14 (the Antelope Valley Freeway) from the project site, to the east, are undeveloped parcels of land and residential neighborhoods. Beyond the southern boundary, the project site is ringed by low (less than 100 feet from the toe to crest), steep hills. The area west of Tierra Subida Avenue is hilly terrain designated for low density residential development. To the north of Rayburn Road is vacant land designated for office commercial development, and two single-family residential subdivisions are located farther to the north.

The Anaverde Creek extends northerly and easterly from the Sierra Pelonas to the Antelope Valley Freeway (SR-14), and then northerly through the cities of Palmdale and Lancaster. The portion of the Anaverde Creek that is west of the Antelope Valley Freeway contains 10,200 acres. This is nearly half of the tributary watershed of the Anaverde Creek. The Anaverde Creek crosses State Route 14 just south of Rayburn Road.

B. Procedural Compliance and Public Review

A Notice of Preparation and Initial Study were prepared and sent to the State Clearinghouse on April 25, 1996. The Draft EIR was advertised and released for public review on September 6, 1996. A Notice of Completion was prepared and the Draft EIR was sent to the State Clearinghouse for distribution and for the mandatory 45-day review period, which began on September 4, 1996, and ended on October 21, 1996. All comments that were received within the 45-day review period are identified in paragraph 1.D. of this staff report. Responses to each comment were prepared and forwarded to the commenting agency on October 28, 1996, and are also included in Attachment 3 of this report. Commenting agencies were provided with a minimum 10-day review and response period prior to the public hearing to consider certification of the Final EIR and notice of this public hearing was provided to each respondent. This procedure is pursuant to and in compliance with Section 15088 of the California Environmental Quality Act (CEQA) Guidelines.

C. Distribution of the Draft EIR

After completion of the Draft EIR, copies of the Draft EIR and/or Notice of Availability of the document were sent to the following list of persons and organizations for their review and comments:

City of Palmdale
City Clerk
Planning Director
City Engineer
City Traffic Engineer
City Geologist
City Landscape Architect
Planning - public service counter
City Hall - reception counter
Library - reference counter

Federal Agencies
U.S. Fish and Wildlife Services

State Agencies
State Clearinghouse
Caltrans District 7
RWQCB Lahontan Region
Department of Fish and Game

Regional Agencies
South Coast Air Quality Management District
Southern California Associated Governments (SCAG)
Metropolitan Transportation Agency (MTA)

County of Los Angeles
L.A. County Dept. of Public Works
L.A. County Regional Planning
L.A. County Fire Department
L.A. County Sanitation District
L.A. County Sheriff's Department
L.A. County Waterworks District #40

Utilities/Service
Antelope Valley East Kern Water Agency (AVEK)
Antelope Valley Landfill
Antelope Valley Transit
Palmdale Water District

School Districts
Antelope Valley Union High School District
Palmdale School District
Westside Union High School District

Other
Antelope Valley Archaeological Society
Antelope Valley United Water Purveyors
City of Lancaster
Palmdale Association of Realtors
Palmdale Business Association
Palmdale Chamber of Commerce
Palmdale Community Association
So. Calif. Archaeological Survey Office, UCLA

D. Comments Received

As of the close of the 45-day public review period, the following agencies had submitted comments. These comments are attached as Attachment 3 of this staff report.

1. Palmdale Water District (9/13/96)
   Mr. Dennis D. LaMoreaux, General Manager

2. County Sanitation Districts of Los Angeles County (10/3/96)
   Ms. Marie L. Pagenkopp, Engineering Technician

3. State Department of Water Resources (10/4/96)
   Mr. Vernon H. Persson, Chief, Division of Safety of Dams

4. Caltrans District 7 (10/10/96)
   Mr. Stephen J. Buswell, IGR/CEQA Coordinator

5. Southern California Association of Governments (10/21/96)
   Ms. Vivian Doche-Boulos, Intergovernmental Review

E. Response to Comments

Responses to all comments received on this Draft EIR were prepared by staff and by the EIR consultant and are attached to this staff report as Attachment 3.

F. Other Materials to be Incorporated Into the Final EIR

The following list identifies all materials that are or will be included in the final EIR:

a. Draft EIR
b. Addendum
c. State Clearinghouse Form
d. State Clearinghouse Letters
e. Notice of Completion
f. Mitigation Monitoring Program
g. Staff report and minutes of the public hearing on the final EIR from the Planning Commission
h. Planning Commission Resolution of certification of the final EIR
i. Notice of Determination
j. Comments received on the draft EIR and responses to comments

G. Approvals Using This EIR

The Final EIR is intended to serve as the environmental document for the following application:

Conditional Use Permit (CUP) 96-14

The final EIR may also serve as the environmental document for subsequent approvals which may reference the final EIR in the environmental review process and include: administrative reviews, major and minor modifications to the CUP. The final EIR could also be used by the Local Agency Formation Commission (LAFCO) for approval of

annexations into utilities service districts. Additionally, the final EIR could be used for approval of a variety of permits including wetlands encroachment, road and highway encroachments, streambed alteration, and sewer and storm water discharge. Permit requirements would be evaluated on a permit-by-permit basis.

II. REVIEW OF THE CONTENTS OF THE DRAFT ENVIRONMENTAL IMPACT REPORT (EIR) 96-1

A. Significant Effects and Level of Significance After Mitigation Measures are Employed

The following discussion is a summary of the impacts determined to be significant and the level of significance if the mitigation measures contained in the EIR document are employed, with respect to the following issues:

1. Earth Resources
2. Air Resources
3. Drainage and Water Quality
4. Noise
5. Traffic and Circulation
6. Aesthetics
7. Biological Resources
8. Cultural Resources

1. EARTH RESOURCES

Construction

Grading activities would be required to make the basin functional and to prepare the site for recreational development, subsequently resulting in the exposure of soils to short-term erosion by wind and water. **Significance: Less than significant with mitigation**.

Topography

Implementation of the proposed project would result in modification of the existing topography which would occur during grading activities. **Significance: Significant with mitigation.**

Geology and Soils

Project grading could result in settlement and other unstable soil conditions, potentially resulting in a significant effect on the environment. **Significance: Less than significant with mitigation.**

Seismicity

Due to the proximity of the San Andreas Fault Zone and the Little Rock fault to the project site, ground motion during seismic events could cause the dam embankment to fail. **Significance: Significant with mitigation.**

2. **AIR RESOURCES**

Short-term Construction Impacts

Project implementation would result in exhaust emissions from the construction equipment used on-site and the trucks to transport materials/excess fill to/from the site. **Significance: Significant with Mitigation.**

Project implementation would result in particulates (fugitive dust) (PM10) emissions during site preparation, excavation, and grading activities. **Significance: Significant with Mitigation.**

3. **DRAINAGE AND WATER QUALITY**

Sedimentation

Sediments would build up in the basin with the implementation of the proposed project. **Significance: Less than significant.**

Sports Complex

Construction and maintenance of the ten soccer fields could affect water quality and/or hydrology. **Significance: Less than significant with Mitigation.**

4. **NOISE**

Short-Term Impacts

Project construction activities will temporarily increase local noise levels. **Significance: Less than significant with Mitigation.**

5. **TRAFFIC AND CIRCULATION**

Short-Term (Construction Impacts)

Development of the proposed project would increase construction traffic on local streets. **Significance: Less than significant with Mitigation.**

Long-Term Traffic Impacts

Due to the lack of parking data for the proposed use, it is difficult to estimate the exact number of parking spaces which can adequately serve the proposed use. Therefore, potential insufficient on-site parking may occur. **Significance: Less than significant with Mitigation.**

6. **AESTHETICS**

Short-Term

Construction of the flood control basin, soccer fields, and related improvements would create temporary aesthetic nuisances associated with project construction and grading activities for the adjacent residential neighborhood. **Significance: Less than significant with Mitigation.**

Long-Term

Long-term development impacts would be permanent and significantly alter views across the site. **Significance: Less than significant with Mitigation.**

Light and Glare

Implementation of the sports complex element of the proposed project would introduce a new light source into this rural setting. **Significance: Significant with Mitigation.**

7. **BIOLIGICAL RESOURCES**

Vegetation

Implementation of the proposed project would result in the loss of some existing plant communities and Joshua trees. **Significance: Less than significant with Mitigation.**

Wildlife

Implementation of the proposed project could potentially affect wildlife in this habitat area. **Significance: Less than significant with Mitigation.**

Sensitive Species and Habitats

Implementation of the proposed project could potentially affect existing wetland habitats. **Significance: Less than significant with Mitigation.**

8. **CULTURAL RESOURCES**

Archaeology

Project construction and increase human disturbance on-site could impact existing archaeological resources. **Significance: Less than significant with Mitigation.**

Paleontology

Project construction and increased human disturbance on-site could impact existing paleontological resources. **Significance: Less than significant with Mitigation.**

B. Short-Term Uses and Long-Term Impacts of the Proposed Project

The Relationship Between Short-term Uses and Long-Term Productivity are discussed as follows:

The project will result in several short-term impacts. Short-term refers to impacts that will occur during construction periods. These short-term impacts include:

- Increased generation of dust and localized emissions of air pollutants during construction;
- Increased noise from construction equipment;
- Change of traffic flow due to road and utility construction; and
- Degradation of aesthetic appeal due to dust generation during construction activities.

The long-term impacts of the project include permanent environmental changes resulting from increased activity occurring on the land. These long-term environmental impacts include:

- Change in topography of the area
- Consumption of water and other resources
- Increase mobile source emissions
- Alteration of drainage pattern
- Increased noise levels
- Increased vehicle traffic
- Change in aesthetics of the area due to topography change and increased light and glare
- Loss of biological resources

These environmental impacts may be offset by various long-term benefits to the City of Palmdale. Some of these benefits include regional flood and drainage control and increased available recreation resources. Furthermore, the project will implement a land use plan and public facilities that are consistent with the General Plan.

C. Unavoidable Adverse Impacts

The project will result in unavoidable significant impacts in four resource areas: change in topography, seismicity, short-term air quality, and light and glare. These impacts are discussed in detail in Section III of this staff report.

D. Irreversible and Inevitable Commitment of Resources

The project would require the irreversible and inevitable commitment of various finite resources. These include land, water resources, and biological habitat. The development of the project will result in the commitment of 73 acres of land for drainage and recreational uses. The materials and fossil fuels necessary for construction of new development and infrastructure improvements for the project represent additional resource commitments. This commitment is irreversible and will lead to incremental reduction of those finite resources.

E. Cumulative Impacts

Cumulative impacts are defined in Section 15355 of the CEQA Guidelines as, "changes in the environment which result from the incremental impacts of the project when added to the other closely related past, present, and reasonably foreseeable probable future impacts...". A primary purpose of analyzing the project's cumulative impacts is to identify those project impacts that may be determined to be individually non-significant, but are significant when viewed in conjunction with the impacts generated by similar projects.

The following cumulative impacts discussion is based primarily on build-out of the City in accordance with the General Plan. The City of Palmdale General Plan EIR contains substantial cumulative impact data, particularly regarding the General Plan elements and City-wide traffic model projections.

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 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.

Air Resources

The proposed project will, in combination with other pending or approved projects, have a significant cumulative air quality impact on the already unhealthful regional air quality in the Antelope Valley due to increased vehicle travel and fossil fuel consumption. 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). Future stationary sources within the project vicinity 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 City General Plan land uses and adopted policies.

Drainage/Water Quality

Future development within the project vicinity 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's Drainage Management Plan and the City of Palmdale Drainage Master Plan. Implementation of the Anaverde Flood Control Basin project will assist in controlling the 4-day 50-year and 100-year storm flows generated in the upper watershed.

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.

Noise

Increased traffic will alter the rural character of the presently perceived noise environment to a noise environment more typical of an urban area. Implementation of the mitigation measures for the project will substantially reduce cumulative noise impacts. Cumulative noise impacts are typically mitigated individually by each project providing adequate on-site 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 mitigation program for existing residences.

Traffic and Circulation

The proposed project, in conjunction with other projects will allow for an incremental increase in local traffic volumes. Cumulative traffic impacts will be mitigated by future individual projects contributing fair shares toward constructing ultimate road configuration 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 the creation of assessment districts and payment of traffic impacts fees.

Aesthetics

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. As a result, views of the area will be more chara teristic of an urban rather than rural area as residential units, streets/roads, recreational areas 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.

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 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 area 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.

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.

F. Growth Inducement

This is defined as any action producing growth in excess of projections made by the local jurisdiction or by the regional association of governments which substantially accelerates projected growth in the area. The project is consistent with the planned development pattern of the area and the City, as projected by the Southern California Association of Governments' (SCAG) adopted Regional Comprehensive Plan (RCP) and Palmdale General Plan. Therefore, the project, by itself, is not considered to be growth inducing.

G. Alternatives to the Project as Proposed

The EIR identified four project alternatives that could feasibly achieve the project's basic objectives. The four alternatives are identified as follows:

- Alternative 1 - No Project Alternative;
- Alternative 2 - Channel Alternative;

- Alternative 3 - Reduced Scale Alternative; and
- Alternative 4 - Alternative Site

Alternative 1 - "No Project" Alternative

A "No Project" Alternative would maintain the site in its current state as vacant land. None of the impacts associated with recreational development, flood control improvements and construction activities would occur if the "No Project" Alternative were selected. Implementation of this alternative would retain the existing natural open space and undeveloped character of the project site and would avoid any adverse physical or environmental impact associated with development. Existing geologic, aesthetic, biological and land use conditions in the area would remain the same. In addition, traffic and noise impacts due to construction of the flood control basin and operation of ten (10) soccer fields would not occur with the "No Project" Alternative.

The "No Project" Alternative would not be environmentally preferable to the proposed project because no flood control/water conservation facilities would be constructed on Anaverde Creek and flood flows would continue to inundate portions of Palmdale. In addition, flood designations and insurance requirements in the proposed service area would remain unchanged. Under the "No Project" Alternative, as projects are constructed downstream of the Antelope Valley Freeway, incremental, project-specific measures would be necessary to assure flood protection of those projects. This could actually increase the off-site flood hazard by passing storm runoff to adjacent lands. Such incremental flood protection would be contrary to the goals and objectives of the Antelope Valley Comprehensive Plan of Flood Control and Water Conservation and the City of Palmdale's plans for comprehensive rather than sporadic flood control. Project-specific flood protection measures would also result in reduced ability to manage water resources in the greater Palmdale area. Furthermore, the City General Plan identifies both flood control and recreational facilities as being deficient.

Alternative 2 - "Channel Alternative"

Under the "Channel" Alternative, a concrete-lined trapezoidal channel would be constructed to transfer storm water approximately 33,000 feet (6.25 miles) from the mouth of Anaverde Creek to the proposed Lockheed Basin which would be located southwest of U.S.A.F. Plant 42. The channel would be 60 feet wide at the top with a maximum depth of 12 feet to accommodate storm runoff from Anaverde Creek in the absence of the proposed Anaverde Basin. Existing drainage channels and culverts on the U.S.A.F. Plant 42 grounds would need to be enlarged to accommodate the floodwater brought by the Channel Alternative.

Current cost estimates for a comprehensive flood control program (AKM Consulting Engineers, July 1996), are an estimated $83 million, assuming implementation of the proposed Anaverde Flood Control Basin. In its absence, drainage channels, which are an estimated $62 million, would have to be redesigned to handle larger capacities, dramatically raising costs. Furthermore, the proposed Lockheed/Plant 42 basins, which will cost an estimated $21 million, would also have to be redesigned to handle larger volumes. These changes would incrementally raise costs associated with flood control, as compared to the proposed project.

The Channel Alternative would provide the same level of flood protection as the proposed basin project, except for areas north of the proposed Lockheed Basin including U.S.A.F. Plant 42. The Channel Alternative would increase the amount of storm runoff conveyed to the U.S.A.F. Plant 42 Basin because runoff would no longer pond, infiltrate, and evaporate on its way from the mouth of Anaverde Creek to Lockheed Basin. Additionally, the developed areas in need of immediate protection in the City of Palmdale and the County would be the last to receive protection.

Excavation of the channel would result in relatively minor changes in topography along the length of the alignment which traverses the proposed site as compared to development of the proposed Anaverde Basin. Similar to the proposed project, seismically induced ground rupture or associated vertical displacement could damage the channel.

The channel would not provide any flood protection for U.S.A.F. Plant 42 and would actually decrease the effectiveness of the existing drainage facilities within the plant because storm runoff would be more quickly conveyed from the mouth of Anaverde Creek to these facilities. The existing retention basin along the south side of Avenue M within U.S.A.F. Plant 42 would overtop with flood waters sooner than presently anticipated and would inundate areas north of Avenue M in the City of Lancaster.

The channel alternative would require the permanent removal of approximately 68 acres of vegetation and wildlife habitat along the proposed alignment and temporary disturbance along the alignment during construction. Total removal would be 50 percent greater than that necessary on the project site for the basin project. This acreage does not include the five to ten acres that would be required if a sediment retention facility were judged necessary to maintain the effectiveness of this alternative. Because the channel would be concrete-lined, there would be no opportunity for the reestablishment of vegetation and wildlife habitat within the channel right-of-way or percolation for groundwater recharge.

Excavation of the channel alignment would require the removal of approximately 525,000 cubic yards of material, thus resulting in a substantial increase in truck trips over a long period of time as compared to the proposed project. This will also increase impacts to air resources and local noise levels during construction of the channel alternative.

Environmental impacts associated with the "Channel" Alternative would result in an increase in impacts as compared to the proposed basin/sports complex concept. This alternative would result in impacts to earth resources, water resources (down stream flooding and groundwater recharge), biological resources and aesthetic resources due to the loss of vegetation. In addition, this alternative would not provide recreation fields, which are identified in the General Plan as deficient. Therefore, the "Channel" Alternative is not considered the environmentally superior alternative.

Alternative 3 - "Reduced Scale Alternative"

The "Reduced Scale" Alternative would reduce the number of soccer fields by 50 percent. Only five lighted soccer fields in the southern portion of the project area would be developed along with the detention basin. This alternative would serve to reduce required grading, thus reduce the loss of biological resources. However, loss of riparian habitat would still occur as a result of construction of the drainage facilities.

With the construction of fewer soccer fields, impacts to the biological, geological, and aesthetic aspects of the site would be lessened through reduced slope grading and alteration of the site. In addition, traffic, noise, and parking impacts would also be reduced by 50% with this alternative.

Although implementation of the "Reduced Scale" Alternative could potentially reduce the significance of project-related impacts, reductions in the proposed number of soccer fields would not eliminate these impacts. In addition, with fewer fields available for use at any given time, flexibility as to the type of field use (i.e., games, practice, maintenance/repair of fields on a rotating basis) would be limited. Nonetheless, the "Reduced Density" Alternative is considered to be environmentally superior to the proposed project.

Alternative 4 - "Alternative Site" Alternative

According to the California Environmental Quality Act (CEQA) Guidelines Section 15126(d), a Lead Agency need only consider alternatives to a project that could reduce or avoid unavoidable significant impacts of the project, even if not fully meeting the applicant's objectives. Developing the project on a different site would not preclude development of this site in accordance with the existing General Plan. "Reasonable alternative sites" for flood control improvements along Anaverde Creek, such as the formerly proposed City Ranch Basin, were considered in other technical documents and determined not to be feasible. In addition, developing an alternative site would not realize positive effects of the project including the fact that the project increases the City's recreational opportunities and provides immediate and long-term flood control needs in the project area.

Therefore, it is not considered necessary to investigate alternative sites for the subject project.

H. Environmentally Superior Alternative

CEQA requires that an environmentally superior alternative be identified. In this case, Alternative 3, which would reduce the number of soccer fields from ten to five fields would be environmentally superior. This alternative would have the same development intensity as the proposed project but the traffic and glare related impacts would be incrementally reduced.

III. ANALYSIS OF SIGNIFICANT IMPACTS

CEQA Section 15091 states that no public agency shall approve or carry out a project for which an EIR has been completed which identifies one or more significant environmental impacts, unless the public agency makes one or more of three possible findings for each of those significant impacts. The findings for each significant impact must also be accompanied by a written explanation of the rationale for each finding. The three possible findings are:

1. Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effects as identified in the final EIR.

2. Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

3. Specific economic, social, or other considerations make infeasible the mitigation measures or project alternatives identified in the final EIR.

The following significant impacts that were identified in the EIR may satisfy the criteria contained in Finding No. 1, and are listed as follows:

1. **EARTH RESOURCES**

Construction

Grading activities would be required to make the basin functional and to prepare the site for recreational development, subsequently resulting in the exposure of soils to short-term erosion by wind and water.

Geology and Soils

Project grading could result in settlement and other unstable soil conditions, potentially resulting in a significant effect on the environment.

2. **DRAINAGE AND WATER QUALITY**

Sports Complex

Construction and maintenance of the ten soccer fields could affect water quality and/or hydrology.

3. **NOISE**

Short-Term Impacts

Project construction activities will temporarily increase local noise levels.

4. **TRAFFIC AN) CIRCULATION**

Short-Term (Construction Impacts)

Development of the proposed project would increase construction traffic on local streets.

Long-Term Traffic Impacts

Due to the lack of parking data for the proposed use, it is difficult to estimate the exact number of parking spaces which can adequately serve

the proposed use. Therefore, potential insufficient on-site parking may occur.

5. **AESTHETICS**

Short-Term

Construction of the flood control basin, soccer fields, and related improvements would create temporary aesthetic nuisances associated with project construction and grading activities for the adjacent residential neighborhood.

Long-Term

Long-term development impacts would be permanent and significantly alter views across the site.

6. **BIOLIGICAL RESOURCES**

Vegetation

Implementation of the proposed project would result in the loss of some existing plant communities and Joshua trees.

Wildlife

Implementation of the proposeo project could potentially affect wildlife in this habitat area.

Sensitive Species and Habitats

Implementation of the proposed project could potentially affect existing wetland habitats.

7. **CULTURAL RESOURCES**

Archaeology

Project construction and increase human disturbance on-site could impact existing archaeological resources.

Paleontology

Project construction and increased human disturbance on-site could impact existing paleontological resources.

Mitigation Measures have been incorporated by reference into the project. Application of the Mitigation Measures contained in the Mitigation Monitoring Program for the project would reduce these impacts to a level of non-significance.

The project's impacts which must be considered under Finding No. 3 are those impacts that are identified as significant and are not mitigatable to a level of non-significance. Under CEQA Section 15093, the decision maker is required to balance the benefits of a proposed project against its unavoidable environmental risks in determining whether to approve the project. According to CEQA, if the benefits of a proposed project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered "acceptable".

Where the decision of the public agency allows the occurrence of significant effects which are identified in the final EIR, but are not at least substantially mitigated, the agency shall state in writing the specific reasons to support its action based on the final EIR and/or other information in the record. These written justifications are commonly referred to as "Statements of Overriding Consideration". These should be included in the record of the project and in the Notice of Determination, and should be part of the Resolution to adopt the project. The EIR identified four significant adverse impacts that would occur from the project that cannot be mitigated to a level of non-significance. These are discussed in detail as follows:

1. **Change in Topography**

Implementation of the proposed project would result in modification of the existing topography which would occur during grading activities. Gradual

topographic change as project phasing progresses is a significant and unavoidable impact of basin excavation and dam construction. It should be noted that topographical alterations will alter the aesthetic character of the site.

Discussion. The ultimate project would require excavation (cut) of approximately 674,000 cubic yards of earth material and fill of approximately 635,000 cubic yards of earth material, resulting in an alteration of site topography. With an estimated 30,000 cubic yards of excess fill on the adjacent parcel the overall grading will be essentially balanced (only 9,000 cubic yards will require export). Placement of the excavated material to construct the dam and earthen levees of the basin and the soccer fields would alter the topography of the project site and those areas receiving this fill.

Gradual topographic change as project phasing progresses is a significant and unavoidable impact of basin excavation and dam construction. It should be noted that topographical alterations will alter the aesthetic character of the site. No mitigation measures have been identified which will reduce impacts associated with the physical modification of the project site's topography.

Consequently, if the Planning Commission desires to approve the project contained in CUP 96-14, it will be necessary to prepare findings that the project's specific economic, social or other considerations outweigh the identified significant impacts and that mitigation measures to eliminate the impact or the project alternatives are infeasible.

2. **Seismicity**

Due to the proximity of the San Andreas Fault Zone and the Little Rock fault to the project site, ground motion during seismic events could cause the dam embankment to fail.

Discussion. Because of its proximity to the San Andreas Fault Zone and the Little Rock fault, the proposed flood control basin and sports complex could be subject to ground shaking from earthquakes. Ground shaking during an earthquake or potential ground rupture from movement along

Little Rock fault may cause slope failures within the basin, thereby displacing water. The potential for ground rupture at the project site is considered to be high. Vertical displacement associated with ground rupture and/or strong ground shaking could cause failure of the dam or levees, or both. Since water levels would be above grade when the facility if filled with flood water, the possibility of catastrophic flooding by failure of the dam or levee caused by a seismic event must be considered significant. However, it should be noted that the proposed basin would hold water at a high level for a limited period of time and ground shaking could result in only some limited deformation of the slopes. In addition, considering that the basin is designed to empty even the maximum potential flood (MPF) within five days, the probability of concurrence of the peak ground acceleration with any flooding condition is extremely low (less than 0.0004 percent in 50 years).

Further soils investigations will be necessary both to establish the suitability of excavated materials for dam and levee construction, and to determine final design parameters which address seismic concerns. All appropriate means should be taken to ensure dam and levee survival during a seismic event. However, it may not be possible to fully mitigate against the possibility of failure of the dam for vertical displacements associated with ground rupture.

Mitigation Measure: The proposed project shall adhere to and be in strict compliance with the seismic design criteria of the Uniform Building Code and the City of Palmdale, as well as the California Department of Water Resources, Division of Safety of Dams Guidelines for the Design and Construction of Small Embankment Dams.

The proposed mitigation measure is that which is considered to be within the scope of developmental feasibility for the project. Consequently, if the Planning Commission desires to approve the project considered under CUP 96-14, it will be necessary to prepare findings that the project's specific economic, social, or other considerations outweigh the identified significant impacts, and that mitigation measures to eliminate the impact, or the project alternatives are infeasible.

3. **Air Resources**

Short-term Construction Impacts

Project implementation would result in significant fugitive dust (PM) and nitrogen oxide exhaust emissions from the construction equipment used on-site and the trucks to transport materials/excess fill to/from the site.

Development of the proposed project will occur over two phases, with Phase I consisting of a 29-acre sports complex (10 soccer fields and appurtenant facilities) and Phase II consisting of a 43-acre flood control basin and appurtenant facilities. Project implementation will involve an estimated 9,000 cubic yards requiring export to an off-site location. Each phase will occur over an estimated period of six months.

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:

- Exhaust emissions from the heavy-duty, diesel powered construction equipment used on-site as well as the vehicles used to transport materials to/from the site and to transport excess fill off-site.
- Particulate (fugitive dust) emissions from grading, excavation, and clearing activities on-site.
- Air pollutant emissions at the power plant serving the site, while temporary power lines are needed to operate construction equipment and provide lighting.

Discussion: Diesel-powered, earth-moving vehicles used during the excavation/construction phases would produce exhaust emissions. The impacts from the emissions would depend on climate conditions (wind dispersion of exhaust) and the number of vehicles working at the project site. During construction activities, the smell of diesel fumes would be the most noticeable impact directly downwind from the project site. Nitrogen oxide compounds (NO_x) and carbon monoxide (CO) are the main pollutants released by diesel-powered equipment. Calculations of on-site emissions indicate that all projected emissions fall below levels designated as significant thresholds, with the exception of nitrogen oxides.

Exhaust emissions from the heavy-duty construction equipment during the short-term construction phase are estimated to range from 70.60 pounds per day of reactive hydrocarbons to 681.83 pounds per day of nitrogen oxide emissions.

The heavy-duty, diesel powered vehicles used to transport excess fill off-site will generate exhaust emissions during transport. Approximately 9,000 cubic yards of excess fill will be transported to an off-site disposal site, which is assumed to be located approximately 15 miles north of the project site.

No definitive methodology by which to assess the significance of the project's impact directly upon air quality has been set forth to date by any regulatory agency, including the SCAQMD (which has jurisdiction over the project). However, the SCAQMD has suggested threshold values for air pollutant emissions as a means of generally assessing the potential significance upon ambient air quality of a proposed project's emissions. It should be noted that according to the SCAQMD *CEQA Air Quality Handbook*, the threshold values are considered to be suggestions only. The intent of the SCAQMD threshold values is to provide guidelines in order to generally determine the significance of the project's stationary and mobile source emissions. In accordance with the SCAQMD's recommendation, this analysis has utilized the threshold values as one of the criteria to determine the potential significance of the project's air pollutant emissions.

When the total daily exhaust emissions from the construction equipment are added to the estimated fugitive dust emissions, SCAQMD NSR threshold values are exceeded for fugitive dust and nitrogen oxides. Short-term impacts (based on threshold levels) for carbon monoxide, sulfur dioxide, and reactive hydrocarbons would not be considered significant.

Discussion: Fugitive dust poses two public health and safety concerns. The first concern is that of respiratory problems attributable to the suspended particulates in the air. The second concern is that of motor vehicle accidents caused by reduced visibility during severe wind conditions. Fugitive dust may also cause significant property damage

during strong wind storms by acting as an abrasive material agent, much like sandblasting activities.

The actual quantity of fugitive dust emissions generated is governed by the type and amount of work being done and the prevailing wind conditions. Site preparation, clearing, grading, excavation and heavy-duty equipment/truck use on unpaved surfaces can create large quantities of fugitive dust during the construction process. However, based on typical earth-moving operations and assuming that no mitigation measures are employed, an estimated 55 pounds of particulate matter will be discharged daily into the atmosphere per acre graded. It should be noted that the fugitive dust emissions represent particulate matter with diameters equal to, or less than, ten microns (PM). PM is a specific subset of total particulates and is monitored by the SCAQMD as one of several criteria air pollutants. Furthermore, most particulate matter settles out within a small distance from the Project site.

The entire 73-acre project site will not be subject to earth-moving operations on a daily basis. It is estimated that earth-moving activities will occur over an area of approximately 10 acres at one time. Applying the EPA factor to the relevant project surface area provides a dust emissions estimate of approximately 550 pounds per day per acre (before mitigation). The EPA has estimated that regular watering of the portions of a site under operation may reduce fugitive dust emissions by up to 50 percent. Therefore, with watering measures implemented, project fugitive dust (particulate) emissions are estimated to be approximately 275 pounds per day per acre for the duration of earth-moving operations, which is a significant impact.

Mitigation Measures: The project will implement the following mitigation for construction-related air emissions:

a. The Project Applicant shall obtain any and all permits as may be required by the South Coast Air Quality Management District ("SCAQMD") for the removal, transportation, and disposal of soil.
b. Ground wetting procedures and other dust palliative measures shall be followed during earth-moving operations and construction to minimize fugitive dust emissions.

c. Trucks importing or exporting earthen materials shall be covered and sprinkled prior to entering public streets.
d. Roadways shall be periodically swept or otherwise cleared of any spilled export material to assist in minimizing fugitive dust in accordance with SCAQMD Rule 403.
e. Construction equipment shall be maintained in proper tune.
f. Construction/grading activities shall be phased and/or scheduled to avoid high ozone days.

Further reduction in air emissions during grading and construction activities are considered to be impractical due to the scale of the project, the development plan, and the level of technology of grading and of construction equipment. Consequently, if the Planning Commission desires to approve the project considered under CUP 96-14, it will be necessary to prepare findings that the project's specific economic, social, or other considerations outweigh to eliminate the impact, or the project's alternatives are infeasible.

4. **Light and Glare, Long Term Aesthetics**

Implementation of the sports complex element of the proposed project would introduce a new light source into this rural setting.

Discussion: The illumination of all ten soccer fields and parking lots will introduce a new light source in this rural setting. The residential development north of Rayburn Road and motorists on adjacent roadways will be most affected by the lighted fields. As a potential mitigation, the direction and intensity of lighting will be controlled by state of the art control devices which will focus the light on the parking lots and soccer fields, which will minimize light spilling into adjacent areas. Light and glare will also be controlled by the hours of operation of the sports complex which will end no later than 10:00 p.m. It should be noted that lighting levels will also be reduced due to the fact that the playing surfaces will be located within the proposed flood control basin, approximately 20 to 25 feet below the top of the basin embankments. For security, parking lot lights will remain on beyond 10:00 p.m. until approximately 10:30 p.m.

Due to the fact that the project will introduce significant new light sources into a rural area, this will significantly alter the natural landscape and affect the aesthetic character of the project site, even following implementation of the available mitigation measures.

Mitigation Measures: During construction, the contractor shall keep the site clear of all trash, weeds, etc. Compliance with this measure is subject to periodic site inspection by City Staff.

During construction, the contractor shall provide screening of the site's northern perimeter, along Rayburn Road, in order to partially screen views of the site from residential lots to the north.

The contractor shall establish construction staging areas at least 500 feet from the nearest residential lot. The equipment stored in the staging area shall be kept in an orderly fashion. Compliance with this measure is subject to periodic site inspections by City Staff.

The City of Palmdale shall review and approve the project's landscape plans. The landscape plans should include the planting of native shrubs and California junipers along the northern, western, and eastern project boundaries in order to partially screen the basin from view of motorists traveling along Rayburn Road, Tierra Subida Avenue, and the Antelope Valley Freeway. Landscaping shall, at minimum, address the following:

- Use of native and/or drought-tolerant species;
- Proposed palette, size, and placement; and
- Irrigation requirements

All lights used to illuminate the parking areas and soccer fields 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, unless specifically permitted by a special event permit on a case-by-case basis.

The Sports Complex hours of operation shall conclude no later than 10:00 p.m. All lights, except for security lighting within parking lot areas, shall be turned off.

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 after implementation of available mitigation measures.

The proposed Mitigation Measures are those that are considered to be within the scope of feasibility for the project, while still achieving the project's development goals. Consequently, if the Planning Commission desires to approve the project contained in CUP 96-14, it will be necessary to prepare findings that the project's specific economic, social, or other considerations outweigh the identified significant impacts, and that mitigation measures to eliminate the impact, or the project alternatives are infeasible.

IV. RECOMMENDED REVISIONS TO THE EIR TEXT

Staff recommends that revisions be made to the draft Environmental Impact Report as follows:

Page 1-6 "Mitigation Measures 4.3-5a":

Add: Measures to minimize the amount of water for turf irrigation shall be incorporated in the final design and maintenance of sports fields. These measures shall include, but are not limited to, the following:

1. Lawn turfed areas shall consist of drought tolerant species, warm season grasses, or hybrid fescue or bermuda grasses.

2. All lawn turfed area irrigation systems shall consist of a Confinement/Desert system, or suitable equivalent, controlled by an automatic control system, employing industry standard Reasonably Available Technology (RAT) or superior technology.

3. In accordance with General Plan Environmental Resources Policy ER 4.3.1, the City shall assess the feasibility of

utilizing reclaimed water for landscape irrigation and shall participate in such regional programs when feasible and practical to do so.

Reason: Clarification of water resources requirements in response to comments of Palmdale Water District.

Page 1-9 "Mitigation Measures 4.5-3b":

Add: The City shall submit the required Congestion Management Plan debit/credit reporting information to the Los Angeles Metropolitan Transportation Authority, as required, prior to project operation.

Reason: Response to comments from Caltrans.

Page 3-10 "Section 3.4.1, Anaverde Flood Control Basin":

Add the following to end of first sentence in fifth paragraph:

...spillway and the outlet works. "DSOD requires that the spillway be placed within cut or soil cement backfill."

Reason: Clarification and consistency with DSOD comments.

Page 3-12 "Section 3.4.3, Utilities/Off-site Improvements":

Correct reference in last sentence of third paragraph of this section:

From: Exhibit 4.1-2
To: Exhibit 3-5, and delete "of Section 4.1, GEOLOGY AND SOILS".

Reason: Consistency with EIR pagination.

Page 3-13 "Section 3.4.4, Operation and Maintenance":

Modify second sentence in first paragraph on this page to read as follows:

> "Approximately 70 af of accumulated debris and sediment (from the 50-year storm) is anticipated and will need to be periodically removed from the basin."

Reason: Clarification of source of debris and sedimentation.

Page 3-15 "Responsible Agency":

From: City of Palmdale City Council
To: City of Palmdale Planning Commission

Reason: Consistency with Palmdale Zoning Ordinance, Article 22 (Conditional Use Permit) and CEQA Guidelines Section 15090.

Add the following under "Responsible Agency":

County Sanitation Districts of Los Angeles County	District Annexation (portion of site)
Caltrans District 7	Permit for Over-sized Transport Vehicles on State Highways (if necessary)

After "Building Permits" under "City of Palmdale" heading, Add; "Grading Permit".

Reason: Consistency with ministerial permit process.

Page 3-15 "Description of Permit Approval":

Final EIR Certification

From: City Council
To: Planning Commission

Project Approval

From: City Council
To: Planning Commission

Reason: Consistency with Palmdale Zoning Ordinance, Article 22 (Conditional Use Permit) and CEQA Guidelines Section 15090.

Page 4.3-5 "Impact 4.3-2 Discussion, Sedimentation", second sentence of first paragraph:

From: detain
To: maintain

Reason: Corrected error.

Page 4.3-6 "Impact 4.3-3 Discussion, Groundwater Recharge", fourth sentence of first paragraph:

From: (and parking spaces)
To: (and parking demand)

Reason: Corrected error.

Page 4.5-8 "Mitigation Measure 4.5-3b":

Add: The City shall submit the required Congestion Management Plan debit/credit reporting information to the Los Angeles Metropolitan Transportation Authority, as required, prior to project operation.

Reason: Response to comments from Caltrans.

Page 6-3 "Section 6.2, Channel Alternative":

Modify last sentence in third paragraph as follows:

"...inundate areas north of Avenue M in the City of Lancaster as well as inundate areas in the City of Palmdale."

Add the following to end of fourth paragraph:

"...percolation for groundwater recharge. "Potential reduction in groundwater recharge associated with this alternative could lead to legal challenges from local water purveyors, based on City experience with previous projects."

Reason: Clarification and consistency with project hydrology report.

Pages 7-2 to 7-3 "Section 7, Effects Found Not to be Significant":

Add the following to Item N:

Police and Fire Protection. The project would not significantly increase demand for police or fire protection services, and is in an area regularly patrolled by the Palmdale Recreation and Parks Department rangers.

Parks and Recreation. The project will be a beneficial impact by providing additional recreational facilities.

Public Facilities. The project will require maintenance activities typical of recreational facilities, which is not considered a significant environmental impact.

Other Governmental Services. There are no other anticipated significant environmental impacts to governmental services.

Add the following to Item P:

> Utilities. The project site will require water, sewer, electrical and telephone connections. The physical environmental impact of these connections is addressed in the Draft EIR, and the utility line extensions are described in Section 3.4.3 of the Draft EIR. The project will utilize water for landscaping. As requested by the Palmdale Water District (Comment letter dated September 13, 1996), the City has estimated that the project will require approximately 140 acre-feet of water per year (see Response No. 2 in the Comments and Responses packet for a more detailed discussion).

Reason: Clarification of impacts.

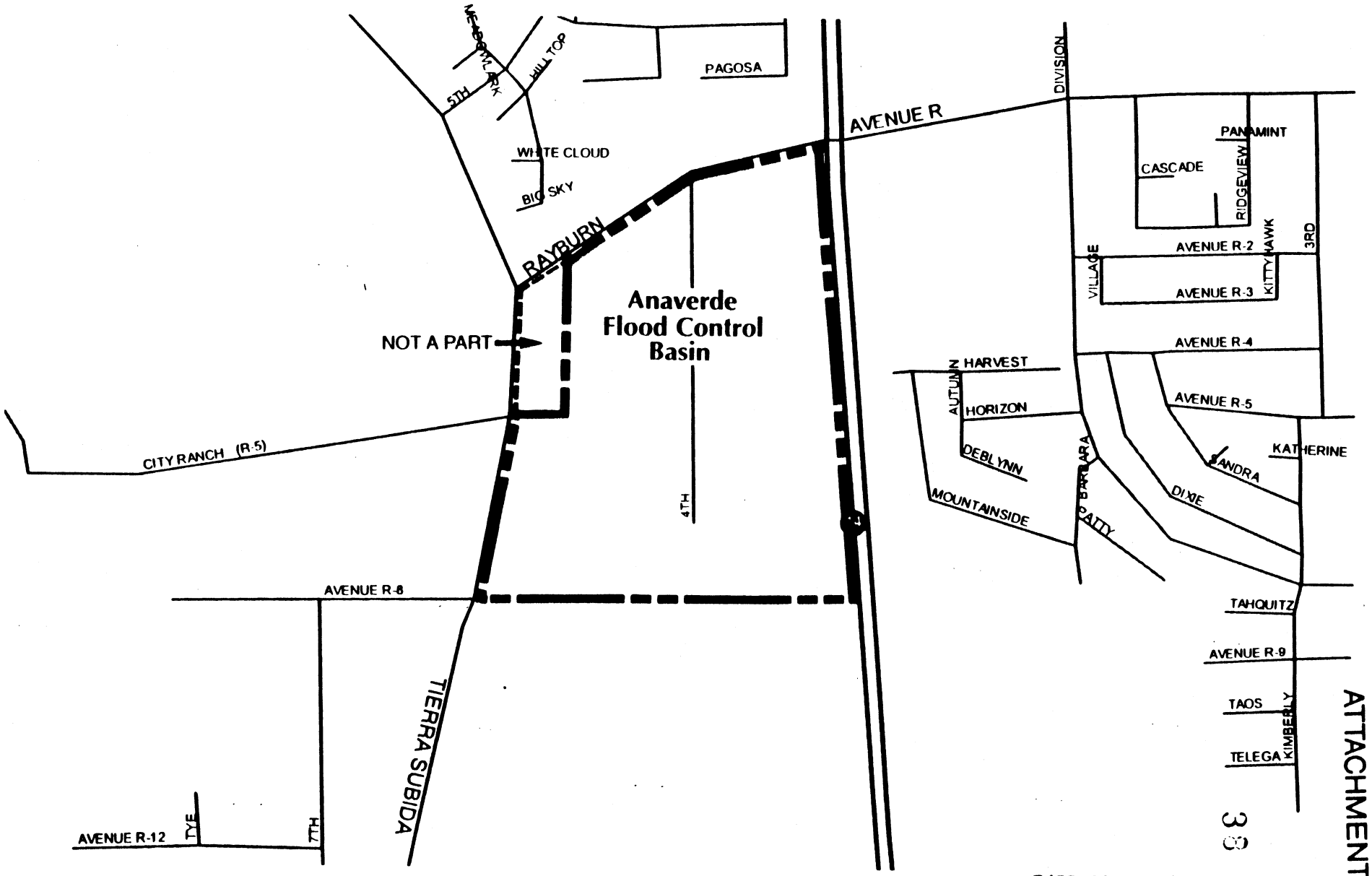
All of the above changes are considered to be minor. Therefore, there is no requirement for recirculation of the draft EIR, as prescribed by Section 15088.5 of the CEQA Guidelines.

CONCLUSION

The project will cause significant effects in several environmental categories. Specifically, the project will cause significant effects that cannot be further mitigated to a level of non-significance in the areas of topography, seismicity, and aesthetics due to light and glare nuisance. However, the project can be supported based on the potential benefits of the project. These benefits include compliance with the General Plan goals for drainage and flood control facilities and for recreational opportunities that the project will provide.

Attachments:

1. Vicinity Map
2. Project Site Plan
3. Comments Received
4. Resolution No.PC- 96-67



©1995 Thomas Bros. Maps

ATTACHMENT 1

38

Project Site

Not to Scale

ANAVERDE FLOOD CONTROL BASIN AND SPORTS COMPLEX EIR

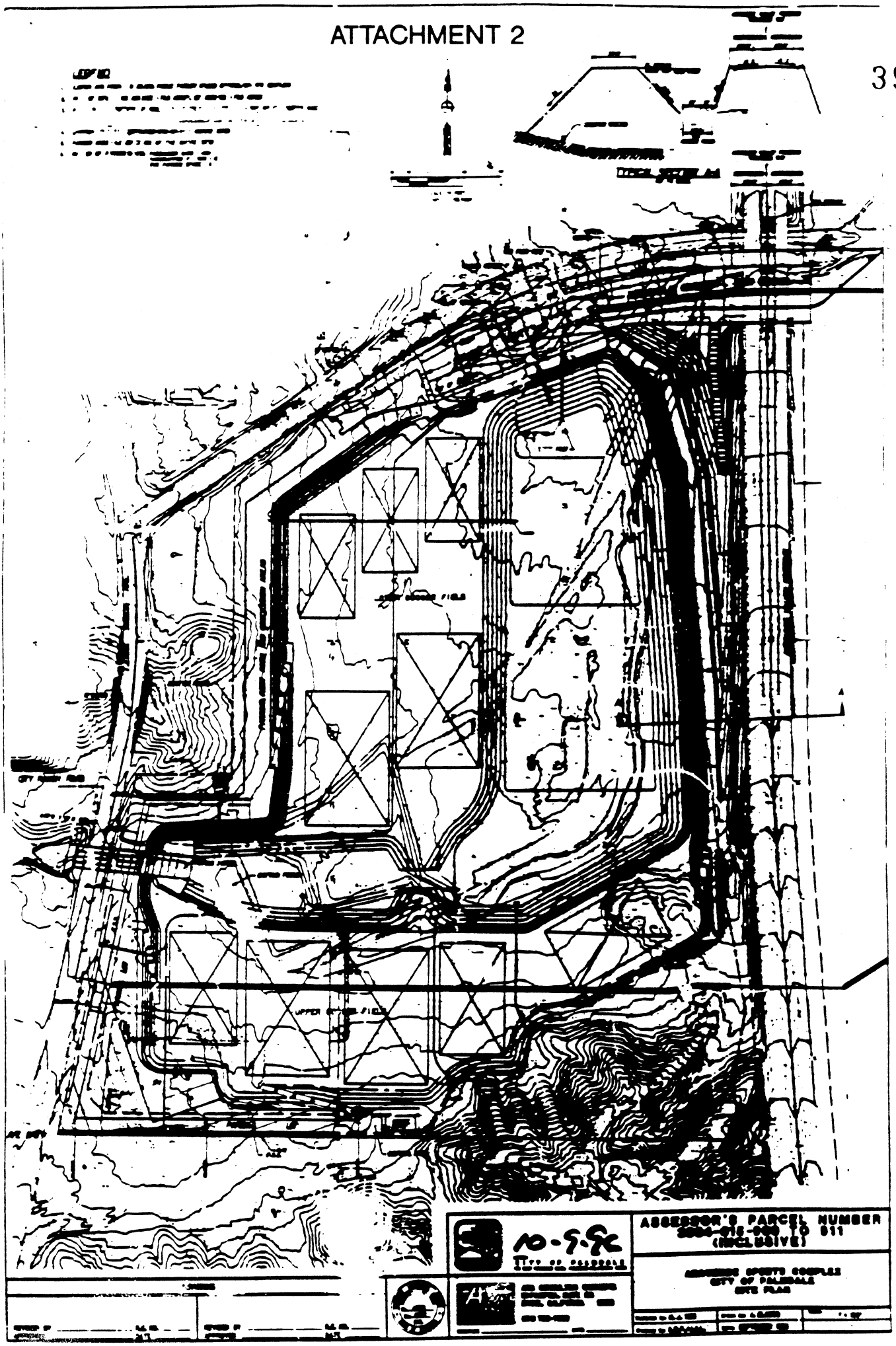
Site Vicinity

Robert Bein, William Frost & Associates

8/96 JN 3268

Exhibit 3-2

ATTACHMENT 2



ATTACHMENT 3

State of California

40

GOVERNOR'S OFFICE OF PLANNING AND RESEARCH

1400 TENTH STREET
SACRAMENTO 95814

PETE WILSON
GOVERNOR

LEE GRISSOM
DIRECTOR

RECEIVED
OCT 25 1996

October 21, 1996

PAUL SCHEIBEL
CITY OF PALMDALE
38306 9TH STREET EAST
PALMDALE, CA 93550

Subject: PALMDALE SPORTS COMPLEX SCH #: 96041093

Dear PAUL SCHEIBEL:

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 at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

ANTERO A. RIVASPLATA
Chief, State Clearinghouse

Enclosures
cc: Resources Agency

OCT 4 1996

1. Project Coordinator
   Resources Agency

2. Mr. Paul Scheibel, AICP
   City of Palmdale
   38306 Ninth Street East
   Palmdale, California 93550

SCH #96041093
DRAFT EIR, Anaverde Flood Control Basin and Sports Complex
Los Angeles County

We have reviewed the Draft EIR for the Anaverde Flood Control Basin and Sports Complex dated September 4, 1996.

The enclosed "Statutes and Regulations Pertaining to Supervision of Dams and Reservoirs 1995" defines dams under State jurisdiction. We have determined the proposed retention basin will be approximately 47 feet high and have a storage capacity of 1,100 acre-feet. Based on these dimensions, the facility will fall under the jurisdiction of the Division of Safety of Dams as defined by Division 3, Part 1 of the California Water Code.

An application for the approval of plans and specifications for the construction of a dam and reservoir must be filed with DSOD. All dam safety issues related to the proposed work must be resolved prior to approval of the application and start of construction.

Thank you for the opportunity to review and comment on the Draft Environmental Impact Report.

If you have any questions, please contact Design Engineer Ernesto Tapia at (916) 323-1438 or Project Engineer David Gutierrez at (916) 323-5385.

Original signed by
Vernon H. Persson

Vernon H. Persson, Chief
Division of Safety of Dams
(916) 445-7606

Enclosure

cc: (See attached.)

EMTapia:Edith Fong
a:\sch-anv
Spell Check: 10/9/96

David Wrightsman, Associate Land Agent
Division of Operations and Maintenance
Department of Water Resources
Post Office Box 942836
Sacramento, California 94236-0001

STATE OF CALIFORNIA—BUSINESS AND TRANSPORTATION AGENCY

PETE WILSON, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 7, 120 SO. SPRING ST.
LOS ANGELES, CA 90012-3606
TDD (213) 897-6610

10-21-96
e

October 10, 1996

IGR/CEQA #9033
DEIR
Anaverde Flood Control Basin
& Sports Complex
City of Palmdale
Vic. LA-014-39.80
SCH No. 96041093

PAUL SCHEIBEL, AICP
City of Palmdale Planning Department
38306 9th Street East
Palmdale, CA 93550

FILED
OCT 21 1996
CLEARINGHOUSE

Dear Mr. Scheibel:

Thank you for the opportunity to have been included in the environmental review of the above-named project. The Palmdale Sports Complex is a proposal for a sports field complex within a 73-acre site. At build-out, the project would consist of a flood control basin with an earthen dam, and a sports complex. The project is located at the southeast corner of Tierra Subida Avenue and Rayburn Road and is proposed to be developed in two phases.

We have the following comments:

The light and the glare to the adjacent roadways should be minimized by the help of the new state of the art light source, controlling direction and intensity as mentioned in the document.

As you are aware, pursuant to MTA's Congestion Management Plan, this project will need to comply with MTA's debit/credit reporting requirements.

Any transportation of heavy construction equipment which requires the use of oversized-transport vehicles on State highways will require a Caltrans transportation permit. We recommend that these large-sized trucks be limited to off-peak commute periods.

If you have any questions regarding this response, please call me at (213) 897-4429.

Original Signed By
STEPHEN J. BUSWELL
IGR/CEQA Coordinator
Transportation Planning Office

cc: Chris Belsky - SCH

Notice of Completion *Supplementary Document M*

Mail to State Clearinghouse, 1400 Tenth Street, Sacramento, CA 95814 916/445-0613

See NOTE below
SCH # 96041093

Project Title: Palmdale Sports Complex

Lead Agency: City of Palmdale — Contact Person: Paul Scheibel, AICP
Street Address: 38106 9th Street East — Phone: (805) 267-5207
City: Palmdale — Zip: 93550 — County: Los Angeles

Project Location

County: Los Angeles — City/Nearest Community: Palmdale
Cross Streets: Tierra Subida Ave/Rayburn Rd — Zip Code: — Total Acres: 73
Assessor's Parcel No.: Various — Section: 34 — Twp.: 6N — Range: 12W — Base: SBM
Within 2 Miles: State Hwy #: 14 — Waterways: Anaverdo Creek
Airports: — Railways: So. Pacific — Schools: --

Document Type

CEQA: ☐ NOP ☐ Early Cons ☐ Neg Dec ☒ Draft EIR ☐ Supplement/Subsequent ☐ EIR (Prior SCH No.) ☐ Other
NEPA: ☐ NOI ☐ EA ☐ Draft EIS ☐ FONSI
Other: ☐ Joint Document ☐ Final Document ☐ Other

SEP 6 1996

Local Action Type

☐ General Plan Update ☐ General Plan Amendment ☐ General Plan Element ☐ Community Plan
☐ Specific Plan ☐ Master Plan ☐ Planned Unit Development ☒ Site Plan
☐ Rezone ☐ Prezone ☒ Use Permit ☐ Land Division (Subdivision, Parcel Map, Tract Map, etc.)
☐ Annexation ☐ Redevelopment ☐ Coastal Permit ☐ Other

Development Type

☐ Residential: Units ____ Acres ____
☐ Office: Sq.ft. ____ Acres ____ Employees ____
☐ Commercial: Sq.ft. ____ Acres ____ Employees ____
☐ Industrial: Sq.ft. ____ Acres ____ Employees ____
☐ Educational
☒ Recreational: 10 lighted soccer fields
☐ Water Facilities: Type ____ MGD ____
☐ Transportation: Type
☐ Mining: Mineral
☐ Power: Type ____ Watts ____
☐ Waste Treatment: Type
☐ Hazardous Waste: Type
☒ Other: Earthen dam for control of storm water flows

Project Issues Discussed in Document

☒ Aesthetic/Visual ☐ Agricultural Land ☒ Air Quality ☒ Archeological/Historical ☐ Coastal Zone ☒ Drainage/Absorption ☐ Economic/Jobs ☐ Flood
☒ Flood Plain/Flooding ☐ Forest Land/Fire Hazard ☒ Geologic/Seismic ☒ Minerals ☒ Noise ☒ Population/Housing Balance ☒ Public Services/Facilities ☒ Recreation/Parks
☐ Schools/Universities ☐ Septic Systems ☐ Sewer Capacity ☒ Soil Erosion/Compaction/Grading ☐ Solid Waste ☐ Toxic/Hazardous ☒ Traffic/Circulation ☒ Vegetation
☐ Water Quality ☒ Water Supply/Groundwater ☒ Wetland/Riparian ☒ Wildlife ☒ Growth Inducing ☒ Landuse ☒ Cumulative Effects ☐ Other

Present Land Use/Zoning/General Plan Use

Vacant / PF (Public Facility) / PF (Public Facility)

Project Description The Palmdale Sports Complex is a proposal for a sports field complex within a 73 acre site. At buildout, the project would consist of a flood control basin with an earthen dam, and a sports complex, including 10 soccer fields (lighted for night time use), parking, restrooms, concession area, hiking trails, picnic and tot lot facilities, and maintenance facilities. The project site is located at the southeast corner of Tierra Subida Avenue and Rayburn Road. The project is proposed to be developed in two phases.

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 in it.

Revised October 1989

State Clearinghouse Contact: Mr. Chris Belsky (916) 445-0613

State Review Began: 9.6.96
Dept. Review to Agency: 10.15
Agency Rev to SCH: 10.18
SCH COMPLIANCE: 10.21

Please note SCH Number on all Comments
96041093
Please forward late comments directly to the Lead Agency

AQMD APCD 33 (Resources 9.7)

Project Sent to the following State Agencies

X Resources
___ Boating
___ Coastal Comm
___ Coastal Consv
___ Colorado Rvr Bd
___ Conservation
X Fish & Game # 5
___ Delta Protection
___ Forestry
X Parks & Rec/OHP
___ Reclamation
___ BCDC
X DWR
___ OES
Bus Transp Hous
___ Aeronautics
X CHP
X Caltrans # 7
___ Trans Planning
___ Housing & Devel
Health & Welfare
___ Drinking H20
___ Medical Waste

State/Consumer Svc
___ General Services
Cal/EPA
X ARB
___ CA Waste Mgmt Bd
___ SWRCB: Grants
___ SWRCB: Delta
___ SWRCB: Wtr Quality
___ SWRCB: Wtr Rights
X Reg. WQCB # 4
___ DTSC/CTC
Yth/Adlt Corrections
___ Corrections
Independent Comm
___ Energy Comm
X NAHC
___ PUC
___ Santa Mn Mtns
X State Lands Comm
___ Tahoe Rgl Plan
___ Other

44

City of Palmdale

JAMES C. LEDFORD, JR.
Mayor

TERENCE P. JUDGE
Mayor Pro Tem

JOSEPH P. DAVIES
Councilmember

DAVID J. MYERS
Councilmember

JAMES A. ROOT
Councilmember

October 25, 1996

Palmdale Water District
Attn: Mr. Dennis D. La Moreaux, General Manager
2029 East Avenue Q
Palmdale, CA 93550

Re: Response to Comments - Draft Environmental Impact Report, Palmdale Sports Complex (SCH #96041093)

Dear Respondent:

The enclosed response to your comments in review of the above-referenced draft Environmental Impact Report is provided to you in accordance with the procedures prescribed by Section 15088 of the California Environmental Quality Act (CEQA) Guidelines.

Please find enclosed with this letter a copy of your comments, the response to your comments, and the Notice of Public Hearing to review the project and the Draft EIR to be conducted on November 7, 1996. Please refer to the enclosed Notice of Public Hearing for further information regarding the public hearing.

Please feel free to contact project planner Paul Scheibel, AICP, at (805)267-5207 for any additional assistance we can provide you.

Sincerely,

Paul Scheibel, AICP
Associate Planner

Enclosures; as stated

38300 NORTH SIERRA HIGHWAY, PALMDALE, CALIFORNIA 93550-4798 • 805/267-5100 • FAX 805/267-5122
printed on recycled paper

Response to Letter From Palmdale Water District, Dated September 13, 1996 (Letter 1)

Thank you for your comments on the Draft Environmental Impact Report for the Palmdale Sports Complex. The coded responses are as follows:

1a. The project landscape architect, Lawrence R. Moss & Associates, has estimated that the project will require 140 acre-feet per year of water for turf and landscape irrigation. This would approximate the annual consumption of approximately 200 single-family residences in Palmdale. The irrigation requirements is based on using the standard irrigation technology and drought tolerant (warm-weather varieties) turf stocks (Case 2). By comparison, the worst-case scenario for irrigation (Case 1) would require over 207 acre-feet of water per year. Mitigation Measure #4.3-5 will be expanded as follows:

Significance: Less than significant <u>with mitigation</u>.

#4.3-5.a Measures to minimize the amount of water for turf irrigation shall be incorporated in the final design and maintenance of sports fields. These measures shall include, but are not limited to, the following:

1. Lawn turfed areas shall consist of drought tolerant species, warm season grasses, or hybrid fescue or bermuda grasses.

2. All lawn turfed area irrigation systems shall consist of a Confinement/Desert system, or suitable equivalent, controlled by an automatic control system, employing industry standard Reasonably Available Technology (RAT) or superior technology.

3. In accordance with General Plan Environmental Resources Policy ER 4.3.1, the City shall assess the feasibility of utilizing reclaimed water for landscape irrigation and shall participate in such regional programs when feasible and practical to.do so.

PALMDALE WATER DISTRICT

2029 East Avenue Q • Palmdale, California 93550 • Telephone (805) 947-4111
Fax (805) 947-8604

Board of Directors

LESLIE O. CARTER
Division 1

RONALD D. CUNNINGHAM
Division 2

JAY B. FREEMAN
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Division 4

NOLAN NEGAARD
Division 5

LAGERLOF, SENECAL, BRADLEY & SWIFT
Attorneys

ACWA

RECEIVED
SEP 16 1996

September 13, 1996

City of Palmdale, Planning Department
ATTN: Mr. Paul Scheibel
38306 9th Street East
Palmdale, CA 93550

RE: DRAFT EIR FOR THE PALMDALE SPORTS COMPLEX (EIR 96-1)
W.S.M. NO. 48 & 46-45

Dear Mr. Scheibel:

Thank you for the opportunity to comment on the subject Draft EIR. The report appears to be accurate in all the subjects it covers. However, it does not address water usage and any related impacts.

1a. As a minimum, the document should include projected water demands based on the proposed project's turf and irrigation methods. The Initial Study identified a potentially significant impact under P.3; Utilities/Water. It stated; ". . . water use for sports fields could be considered significant, depending on the type and quantity of turf and landscaping proposed, and the proposed method of irrigating turf and plant stocks. Therefore, . . . [it] will be analyzed in the EIR." There is not a discussion about water use in the body of the document nor is it listed in Section 7, Effects Found Not To Be Significant. Mitigation measures 4.3-7 and 4.7-1c do relate to landscaping. However, they do not address actual water demand and irrigation methods.

Thank you for the opportunity to comment on this draft. Palmdale Water District has provided your department with projected water demand and supply information in the 1996 Water System Master Plan that may be useful. Please let me know if you have any questions about the comments.

Very truly yours,

Dennis D. LaMoreaux

DENNIS D. LaMOREAUX, General Manager
DDL/dtd

48

LAWRENCE R MOSS ASLA
& ASSOCIATES INC

3460 OCEAN VIEW BLVD
GLENDALE, CA 91208
818 248-5300
FAX 818 248-6574
CALIF. LICENSE #1201

October 15, 1995

Paul Scheibel
Planning Department
Associate Planner
38308 Ninth Street
Palmdale, California 93550

Re: E.I.R Report for the calculation of projected water usage at Anaverde Flood Control Basin and Sports Complex.

Dear Mr. Scheibel:

The data was based upon a preliminary planting plan at 100' scale. Planting types were separated by zone. The report consists of three different projected water requirements. Case 1 uses standard equipment and the minimal managed system. Case 2 & 3 projections consist of the potential demand of water needed through the loss of Evaporation Transpiration rates on a average per month in Palmdale, the plant factor (K_c), and the total area in square feet per zone (See Attached). The difference between the two is that in Case 2 is derived with conventual technology, and Case 3 uses the highest available technology and low water usage plant material.

The following is a list of the Projected Water Requirements:

Case 1-The run times where established based on the information provided by the Palmdale Maintenance Department and a average irrigation head precipitation rate of .75in/hr.
Total Acre Feet Requirement per year 207.72

Case 2-Baseline Projected Water Requirement using Standard Irrigation Technology. Using a cool season turf.(Fescue)
Total Acre Feet Requirement per Year 139.89.

Case 3-Projected Water Requirement using the Best Available Irrigation Technology. Using a warm season turf.(Hybrid Bermuda):
Total Acre Feet Requirement per Year 111.56

Please review and give me a call if you have any questions.

Very truly yours,

Bren Ruf, Associate
LAWRENCE R. MOSS AND ASSOCIATES

LANDSCAPE
ARCHITECTURE

3

Anaverde Flood Control Basin and Sports Complex

Projected Water Requirements

Site data			ETo data (inches/month)											
Type	Kc	Sq. Ft.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Turf (coo = 1.00)	[redacted]	990,400	1.62	2.21	3.49	4.34	6.46	7.23	8.42	8.33	5.70	3.49	2.21	1.45
Turf (warm = 0.73)	[redacted]	990,400	1.18	1.61	2.54	3.16	4.72	5.27	6.14	6.08	4.16	2.54	1.61	1.05
Slopes	[redacted]	573,300	0.57	0.78	1.23	1.53	2.28	2.55	2.97	2.94	2.01	1.23	0.78	0.51
Flat (non-turf)	[redacted]	93,600	0.57	0.78	1.23	1.53	2.28	2.55	2.97	2.94	2.01	1.23	0.78	0.51
Drip eff. factor	[redacted]													

Case 2 - Baseline Projected Water Requirements

	Cubic feet/month												acre/ft.
Turf (cool season variety)	133291	182399	287629	357782	533165	596303	694518	687503	478027	287629	182399	119261	104.04
Slopes	41482	56765	89513	111346	165927	185576	216142	213959	148278	89513	56765	37115	32.38
Flat (non-turf)	4446	6084	9594	11934	17784	19890	23186	22932	15678	9594	6084	3978	3.47
Case 2 - Total acre/ft. requirement													[redacted]

Case 3 - Projected Water Requirements using Best Available Irrigation Technology

	Cubic feet/month												acre/ft.
Turf (warm season variety)	97303	133151	209989	261181	389211	435301	506996	501877	343120	209989	133151	87060	75.95
Slopes	41482	56765	89513	111346	165927	185576	216142	213959	148278	89513	56765	37115	32.38
Flat (drip)	4144	5671	8942	11123	16576	18539	21592	21374	14613	8942	5671	3708	3.23
Case 3 - Total acre/ft. requirement													[redacted]

44265\04.XLS/2

MOSS LAWRENCE MOSS

Anaverde Flood Control Basin and Sports Complex

Projected Water Requirements

Site data			Estimated Run Time (minutes/day)											
Type	RTf	Sq. Ft.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Turf (all)	[redacted]	990,400	10.00	10.00	20.00	20.00	20.00	20.00	30.00	30.00	20.00	20.00	10.00	10.00
Slopes	[redacted]	873,300	3.30	3.30	6.60	6.60	6.60	6.60	9.90	9.90	6.60	6.60	3.30	3.30
Flat (non-turf)	[redacted]	93,600	1.50	1.50	3.00	3.00	3.00	3.00	4.50	4.50	3.00	3.00	1.50	1.50
Days in Month			31	28	31	30	31	30	31	31	30	31	30	31
Precip Rate	[redacted]													

Case 1 - Standard, minimally managed system

	Cubic feet/month												acre/ft.
Turf	319817	288867	639633	619000	639633	619000	959450	959450	619000	639633	309500	319817	159.16
Slopes	93061	84055	186122	180118	186122	180118	279183	279183	180118	186122	90059	93061	46.31
Flat (non-turf)	4534	4095	9068	8775	9068	8775	13601	13601	8775	9068	4388	4534	2.26

Case 1 - Total acre/ft. requirement [redacted]

4426SI04 XLS/I

50

LAWRENCE MOSS

NOTICE OF PUBLIC HEARING
BY THE PLANNING COMMISSION OF THE CITY OF PALMDALE

A Public Hearing will be held by the Planning Commission of the City of Palmdale in the City Hall Council Chambers, 708 East Palmdale Boulevard, Palmdale, California, on Thursday, November 7, 1996, at 7:00 p.m. The Planning Commission will review and consider the following items:

1) CUP 96-14 and EIR 96-1, an application of the City of Palmdale to establish a sports complex within a 73 acre site, to be built in two phases. At buildout, the project would consist of a flood control basin with an earthen dam, and a sports complex, including ten soccer fields (lighted for night time use), parking, restrooms, concession area, hiking trails, picnic and tot lot facilities, and maintenance facilities zoned PC (Public Facility); and consideration of the associated draft Environmental Impact Report (EIR). The project is located generally on the southeast corner of Tierra Subida Avenue and Rayburn Road. Planner: Paul Scheibel, AICP.

   A draft Environmental Impact Report has been completed on the project, which identified potentially significant impacts with respect to the following issues: Earth Resources, Air Resources, Drainage and Water Quality, Noise Traffic and Circulation, Long Term Traffic Impacts, Aesthetics, Biological Resources, and Cultural Resources. The Planning Commission will be considering a Statement of Overriding consideration for those impacts that can not be mitigated to a level of insignificance.

Copies of the applications, maps, plans, environmental documents, and other pertinent materials related to these applications are available for public review at the Planning Department (38306 9th Street East, Palmdale, CA 93550) and at the Public Library (700 East Palmdale Boulevard, Palmdale, CA 93550). Prior to the Hearing, the public is invited to submit written comments on these matters to the Planning Department 805/267-5200. Please refer to the Case Numbers listed above and address correspondence to the Project Planner.

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Molly Bogh
DIRECTOR OF PLANNING
Legal Ad #96-55

City of Palmdale

CITY OF PALMDALE
INCORPORATED AUGUST 24 1962
FIRST CITY OF ANTELOPE VALLEY

JAMES C. LEDFORD, JR.
Mayor

TERENCE P. JUDGE
Mayor Pro Tem

JOSEPH P. DAVIES
Councilmember

DAVID J. MYERS
Councilmember

JAMES A. ROOT
Councilmember

October 25, 1996

County Sanitation Districts of Los Angeles County
Attn: Marie L. Pagenkopp
P. O. Box 4996
Whittier, CA 90607-4998

Re: Response to Comments - Draft Environmental Impact Report, Palmdale Sports Complex (SCH #96041093)

Dear Respondent:

The enclosed response to your comments in review of the above-referenced draft Environmental Impact Report is provided to you in accordance with the procedures prescribed by Section 15088 of the California Environmental Quality Act (CEQA) Guidelines.

Please find enclosed with this letter a copy of your comments, the response to your comments, and the Notice of Public Hearing to review the project and the Draft EIR to be conducted on November 7, 1996. Please refer to the enclosed Notice of Public Hearing for further information regarding the public hearing.

Please feel free to contact project planner Paul Scheibel, AICP, at (805)267-5207 for any additional assistance we can provide you.

Sincerely,

Paul Scheibel, AICP
Associate Planner

Enclosures; as stated

38300 NORTH SIERRA HIGHWAY, PALMDALE, CALIFORNIA 93550-4798 • 805/267-5100 • FAX 805/267-5122
printed on recycled paper

Response to Letter From County Sanitation Districts of Los Angeles County, Dated October 3, 1996 (Letter 2)

Thank you for your comments on the Draft Environmental Impact Report for the Palmdale Sports Complex. The coded response is as follows:

2a. The Preliminary Final EIR (Section 3.7) will be revised to note that a Sanitation District Annexation will be required for the project. The Notice of Preparation response provided by the District is included in Appendix 10.1 (page 10.1-50) of the Draft EIR, and will be considered by the City during the project review process.

WASTEWATER RECLAMATION
SOLID WASTE MANAGEMENT

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (310) 699-7411, FAX: (310) 695-6139

CHARLES W. CARRY
Chief Engineer and General Manager

October 3, 1996

File No: 20-00.04-00

Mr. Paul Scheibel, AICP
City of Palmdale
Planning Department
38306 9th Street East
Palmdale, CA 93550

Dear Mr. Scheibel:

Palmdale Sports Complex

The County Sanitation Districts of the Los Angeles County (Districts) received a Draft Environmental Impact Report (Draft EIR) for the subject project on September 10, 1996. We offer the following additions to the Draft EIR.

3.4.3 Utilities/Off-Site Improvements, page 3-12

2a.

- This section of the Draft EIR address the location of the local sewer line. The local sewer line will convey wastewater to a Districts trunk sewer. Therefore, previous comments regarding Districts' facilities submitted by the Districts in correspondence dated May 16, 1996 (enclosed) to your agency, still apply to the subject project and should be included.

- It should also be noted that a small portion of the area in question is outside the jurisdictional boundaries of the 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. Margarita Cabrera, extension 2708.

If you have any questions, please contact the undersigned at (310) 699-7411, extension 2717.

RECEIVED
OCT - 7 1996
PS

Very truly yours,

Charles W. Carry

Marie L. Pagenkopp
Engineering Technician
Planning & Property Management Section

MLP:eg

Enclosure

L:\WILLSERV\WP60\LETTERS\SPORTCOM.LTR

55

COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (310) 699-7411, FAX: (310) 695-6139

CHARLES W. CARRY
Chief Engineer and General Manager

May 16, 1996

File No: 20-00.04-00

Mr. Paul Scheibel, AICP
City of Palmdale
Planning Department
38306 9th Street East
Palmdale, CA 93550

Dear Mr. Scheibel:

Palmdale Sports Complex Project

The County Sanitation Districts of the Los Angeles County (Districts) received a Notice of Preparation of a Draft Environmental Impact Report for the subject project on April 29, 1996. We offer the following comments regarding sewerage service:

1. A portion of the area in question is outside the jurisdictional boundaries of the Districts and will require annexation into District No. 20 before sewerage service can be provided to the proposed developement. For specific information regarding the annexation procedure and fees, please contact Ms. Margarita Cabrera, extension 2708.

2. The wastewater flow originating from the proposed project will discharge to a local sewer line, which is not maintained by the Districts, for conveyance to the Districts' 5th Street West Trunk Sewer, located in 5th Street West between Avenue Q-8 and Palmdale Boulevard. This 10-inch diameter trunk sewer has a peak capacity of 2.4 million gallons per day (mgd) and conveyed a peak flow of 0.2 mgd when last measured in 1994.

3. The wastewater generated by the proposed project will be treated at the Palmdale Water Reclamation Plant (WRP). The Palmdale WRP has a design capacity of 8.0 mgd and currently treats 7.7 mgd. In order to meet the projected service demand, the 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 1996.

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 Districts are empowered by the California Health and Safety Code to charge a fee for the privilege of connecting (directly or indirectly) to the Districts' Sewerage System or **increasing the existing strength and/or quantity of wastewater attributable to a particular parcel or operation already connected.** This connection fee is required to construct an incremental expansion of the Sewerage System to accommodate the proposed project which will mitigate the impact of this project on the present Sewerage System. Payment of a connection fee will be required before a permit to connect to the sewer is issued.

6. The design capacities of the Districts' wastewater treatment facilities are based on population forecasts adopted in the Southern California Association of Governments' (SCAG) 1994 Regional Comprehensive Plan and Guide (RCPG). The RCPG is part of the 1994 South Coast Air Quality Management Plan (AQMP). The AQMP and RCPG are jointly prepared by the South Coast Air Quality Management District (SCAQMD) and 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 will be consistent with the Growth Management Element of the RCPG. The Growth Management Element contains 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 RCPG which deal with the management of growth will be incorporated into the AQMP strategies to improve air quality in the South Coast Air Basin. The available capacity of the Districts' treatment facilities will, therefore, be limited to levels associated with approved growth identified in the RCPG. As such, this letter does not constitute a guarantee of wastewater service, but is to advise you that the Districts intend 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 the 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
Planning & Property Management Section

MLP:bes

Enclosure

NOTICE OF PUBLIC HEARING
BY THE PLANNING COMMISSION OF THE CITY OF PALMDALE

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1) CUP 96-14 and EIR 96-1, an application of the City of Palmdale to establish a sports complex within a 73 acre site, to be built in two phases. At buildout, the project would consist of a flood control basin with an earthen dam, and a sports complex, including ten soccer fields (lighted for night time use), parking, restrooms, concession area, hiking trails, picnic and tot lot facilities, and maintenance facilities zoned PC (Public Facility); and consideration of the associated draft Environmental Impact Report (EIR). The project is located generally on the southeast corner of Tierra Subida Avenue and Rayburn Road. Planner: Paul Scheibel, AICP.

   A draft Environmental Impact Report has been completed on the project, which identified potentially significant impacts with respect to the following issues: Earth Resources, Air Resources, Drainage and Water Quality, Noise Traffic and Circulation, Long Term Traffic Impacts, Aesthetics, Biological Resources, and Cultural Resources. The Planning Commission will be considering a Statement of Overriding consideration for those impacts that can not be mitigated to a level of insignificance.

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Molly Bogh
DIRECTOR OF PLANNING
Legal Ad #96-55

City of Palmdale

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JOSEPH P. DAVIES
Councilmember

DAVID J. MYERS
Councilmember

JAMES A. ROOT
Councilmember

October 25, 1996

State of California
Department of Water Resources
Attn: Vernon H. Persson
P. O. Box 942836
Sacramento, CA 94236-0001

Re: Response to Comments - Draft Environmental Impact Report, Palmdale Sports Complex (SCH #96041093)

Dear Respondent:

The enclosed response to your comments in review of the above-referenced draft Environmental Impact Report is provided to you in accordance with the procedures prescribed by Section 15088 of the California Environmental Quality Act (CEQA) Guidelines.

Please find enclosed with this letter a copy of your comments, the response to your comments, and the Notice of Public Hearing to review the project and the Draft EIR to be conducted on November 7, 1996. Please refer to the enclosed Notice of Public Hearing for further information regarding the public hearing.

Please feel free to contact project planner Paul Scheibel, AICP, at (805)267-5207 for any additional assistance we can provide you.

Sincerely,

Paul Scheibel, AICP
Associate Planner

Enclosures: as stated

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printed on recycled paper

Response to Letter From California Department of Water Resources, Division of Safety of Dams, Dated October 4, 1996 (Letter 3)

Thank you for your comments on the Draft Environmental Impact Report for the Palmdale Sports Complex. The coded response is as follows:

3a. This information is noted in the Draft EIR, and will be considered by the City during the project review process.

State of California | The Resources Agency

Memorandum

60

Date : OCT 4 1996

To : 1. Project Coordinator
Resources Agency
2. Mr. Paul Scheibel, AICP
City of Palmdale
38306 Ninth Street East
Palmdale, California 93550

From : **Department of Water Resources**

RECEIVED OCT 10 1996

Subject : SCH #96041093
DRAFT EIR, Anaverde Flood Control Basin and Sports Complex
Los Angeles County

We have reviewed the Draft EIR for the Anaverde Flood Control Basin and Sports Complex dated September 4, 1996.

3a. The enclosed "Statutes and Regulations Pertaining to Supervision of Dams and Reservoirs 1995" defines dams under State jurisdiction. We have determined the proposed retention basin will be approximately 47 feet high and have a storage capacity of 1,100 acre-feet. Based on these dimensions, the facility will fall under the jurisdiction of the Division of Safety of Dams as defined by Division 3, Part 1 of the California Water Code.

An application for the approval of plans and specifications for the construction of a dam and reservoir must be filed with DSOD. All dam safety issues related to the proposed work must be resolved prior to approval of the application and start of construction.

Thank you for the opportunity to review and comment on the Draft Environmental Impact Report.

If you have any questions, please contact Design Engineer Ernesto Tapia at (916) 323-1435 or Project Engineer David Gutierrez at (916) 323-5385.

Vernon H. Persson

Vernon H. Persson, Chief
Division of Safety of Dams
(916) 445-7606

Enclosure

cc: (See attached.)

David Wrightsman, Associate Land Agent
Division of Operations and Maintenance
Department of Water Resources
Post Office Box 942836
Sacramento, California 94236-0001

NOTICE OF PUBLIC HEARING
BY THE PLANNING COMMISSION OF THE CITY OF PALMDALE

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1) CUP 96-14 and EIR 96-1, an application of the City of Palmdale to establish a sports complex within a 73 acre site, to be built in two phases. At buildout, the project would consist of a flood control basin with an earthen dam, and a sports complex, including ten soccer fields (lighted for night time use), parking, restrooms, concession area, hiking trails, picnic and tot lot facilities, and maintenance facilities zoned PC (Public Facility); and consideration of the associated draft Environmental Impact Report (EIR). The project is located generally on the southeast corner of Tierra Subida Avenue and Rayburn Road. Planner: Paul Scheibel, AICP.

   A draft Environmental Impact Report has been completed on the project, which identified potentially significant impacts with respect to the following issues: Earth Resources, Air Resources, Drainage and Water Quality, Noise Traffic and Circulation, Long Term Traffic Impacts, Aesthetics, Biological Resources, and Cultural Resources. The Planning Commission will be considering a Statement of Overriding consideration for those impacts that can not be mitigated to a level of insignificance.

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Molly Bogh
DIRECTOR OF PLANNING
Legal Ad #96-55

City of Palmdale

JAMES C. LEDFORD JR
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JOSEPH P. DAVIES
Councilmember

DAVID J. MYERS
Councilmember

JAMES A. ROOT
Councilmember

October 25, 1996

State of California
Caltrans, District 7
Attn: Stephen J. Buswell
120 S. Spring Street
Los Angeles, CA 90012-3606

Re: Response to Comments - Draft Environmental Impact Report, Palmdale Sports Complex (SCH #96041093)

Dear Respondent:

The enclosed response to your comments in review of the above-referenced draft Environmental Impact Report is provided to you in accordance with the procedures prescribed by Section 15088 of the California Environmental Quality Act (CEQA) Guidelines.

Please find enclosed with this letter a copy of your comments, the response to your comments, and the Notice of Public Hearing to review the project and the Draft EIR to be conducted on November 7, 1996. Please refer to the enclosed Notice of Public Hearing for further information regarding the public hearing.

Please feel free to contact project planner Paul Scheibel, AICP, at (805)267-5207 for any additional assistance we can provide you.

Sincerely,

Paul Scheibel, AICP
Associate Planner

Enclosures; as stated

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Response to Letter From California Department of Transportation, District 7, Dated October 10, 1996 (Letter 4)

Thank you for your comments on the Draft Environmental Impact Report for the Palmdale Sports Complex. The coded responses are as follows:

4a. Section 4.6 of the Draft EIR addresses light and glare issues.

4b. The City participates in the program through the annual reporting process. The project will be included in the reporting process, as applicable.

4c. Section 3.7 of the Preliminary Final EIR (Agreements, Permits and Approvals) will indicate the requirement for a Caltrans transportation permit for the use of over-sized transport vehicles or state highways, if necessary.

STATE OF CALIFORNIA—BUSINESS AND TRANSPORTATION AGENCY

PETE WILSON, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 7, 120 SO. SPRING ST.
LOS ANGELES, CA 90012-3606
TDD (213) 897-6610

October 10, 1996

OCT 18 1996

IGR/CEQA #9033
DEIR
Anaverde Flood Control Basin
& Sports Complex
City of Palmdale
Vic. LA-014-59.80
SCH No. 96041093

PAUL SCHEIBEL, AICP
City of Palmdale Planning Department
38306 9th Street East
Palmdale, CA 93550

Dear Mr. Scheibel:

Thank you for the opportunity to have been included in the environmental review of the above-named project. The Palmdale Sports Complex is a proposal for a sports field complex within a 73-acre site. At build-out, the project would consist of a flood control basin with an earthen dam, and a sports complex. The project is located at the southeast corner of Tierra Subida Avenue and Rayburn Road and is proposed to be developed in two phases.

We have the following comments:

4a. The light and the glare to the adjacent roadways should be minimized by the help of the new state of the art light source, controlling direction and intensity as mentioned in the document.

4b. As you are aware, pursuant to MTA's Congestion Management Plan, this project will need to comply with MTA's debit/credit reporting requirements.

4c. Any transpo tation of heavy construction equipment which requires the use of oversized-transport vehicles on State highways will require a Caltrans transportation permit. We recommend that these large-sized trucks be limited to off-peak commute periods.

If you have any questions regarding this response, please call me at (213) 897-4429.

STEPHEN J. BUSWELL
IGR/CEQA Coordinator
Transportation Planning Office

cc: Chris Belsky - SCH

NOTICE OF PUBLIC HEARING
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Molly Bogh
DIRECTOR OF PLANNING
Legal Ad #96-55

City of Palmdale

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Councilmember

October 25, 1996

Southern California Association of Governments
Attn: Viviane Doche-Boulos
818 W. Seventh Street
Los Angeles, CA 90017-3435

Re: Response to Comments - Draft Environmental Impact Report, Palmdale Sports Complex (SCH #96041093)

Dear Respondent:

Thank you for your comments in review of the above-referenced project. The 45-day review period closed on October 20, 1996. Your letter was received by this office on October 21, 1996. Consequently, the City has elected to not respond to your comments in review of the above-referenced draft Environmental Impact Report, in accordance with the procedures prescribed by Section 15088 of the California Environmental Quality Act (CEQA) Guidelines.

Please find enclosed with this letter a copy of your comments and the Notice of Public Hearing to review the project and the Draft EIR to be conducted on November 7, 1996. Please refer to the enclosed Notice of Public Hearing for further information regarding the public hearing.

Please feel free to contact project planner Paul Scheibel, AICP, at (805)267-5207 for any additional assistance we can provide you.

Sincerely,

Paul Scheibel, AICP
Associate Planner

Enclosures; as stated

38300 NORTH SIERRA HIGHWAY, PALMDALE, CALIFORNIA 93550-4798 • 805/267-5100 • FAX 805/267-5122
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SOUTHERN CALIFORNIA

ASSOCIATION of GOVERNMENTS

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County of Ventura: Judy Mikels, Ventura County • Andrew Fox, Thousand Oaks • Stan Daily, Camarillo • John Mentor, Santa Paula

October 17, 1996

Mr. Paul Scheibel, AICP
City of Palmdale
38306 9th Street, East
Palmdale, CA 93650

RE: **Comments on the Draft EIR for the Anaverde Flood Control Basin and Palmdale Sports Complex - SCAG No. I 9600309**

Dear Mr. Scheibel:

Thank you for the opportunity to review and comment on the Draft Environmental Impact Report (EIR) for the **Anaverde Flood Control Basin and Palmdale Sports Complex**. As areawide clearinghouse for regionally significant projects, SCAG assists cities, counties and other agencies to review projects and plans for consistency with regional plans.

The attached comments are meant to provide guidance for considering the proposed project within the context of our regional goals and policies which are based in part upon state and federal mandates, as noted herein. If you have any questions about these comments, please contact Bill Boyd (213) 236-1960.

Sincerely,

VIVIANE DOCHE-BOULOS
Intergovernmental Review

H:\PALMDALE.SPT

RECEIVED
OCT 21 1996

I. INTRODUCTION TO COMMENTS RE: DRAFT EIR FOR THE ANAVERDE FLOOD CONTROL BASIN AND PALMDALE SPORTS COMPLEX

Project Description

The proposed Anaverde Flood Control Basin and Palmdale Sports Complex encompasses approximately 73 acres and is located in northern Los Angeles County on the southern edge of the Antelope Valley. The project site is bounded by the Antelope Valley Freeway (State Route 14) to the east, Rayburn Road to the north, Tierra Subida Avenue to the west, and unimproved Avenue R-8 to the south. The proposal is to build an earthen dam at the lowest point of the site usung fill material from the property. Ultimately, the project would consist of a flood control basin and the sports complex, including 10 soccer fields (lighted for night time use), parking, restrooms, concession area, hiking trails, picnic and lot facilities, and maintenance facilities.

The Anaverde Detention Basin is planned as a "flow-through" detention basin that will significantly attenuate the peak flow from various frequency storms. The maximum water surface elevation of the basin is 2,787.5 feet above mean sea level, with a corresponding storage volume of 1,106 acre-feet. The project would result in approximately 9,000 cubic yards of material being hauled off-site.

II. INTRODUCTION TO SCAG REVIEW PROCESS

The document that provides the primary reference for SCAG's project review activity is the Regional Comprehensive Plan and Guide (RCPG)[1]. The RCPG chapters fall into three categories: core, ancillary, and bridge. The Growth Management, Regional Mobility (being a summary of the 1994 Regional Mobility Element), policies in the Air Quality chapter, along with the Hazardous Waste Management and Water Quality chapters constitute the core chapters. These core chapters respond directly to federal and state planning requirements. The core chapters constitute the base on which local governments ensure consistency of their plans with applicable regional plans under CEQA. The Air Quality and Growth Management chapters contain both core and ancillary policies, which are differentiated in the comment portion of this letter.

Ancillary chapters are those on the Economy, Housing, Human Resources and Services, Finance, Open Space and Conservation, Water Resources, Energy, and Integrated Solid Waste Management and portions of the Air Quality chapter. These chapters address important issues facing the region and may reflect other regional plans. Ancillary chapters, however, do not contain actions or policies required of local government. Hence, they are entirely advisory and establish no new mandates or policies for the region.

Bridge chapters include the Strategy and Implementation chapters, functioning as links between the Core and Ancillary chapters of the RCPG.

Each of the applicable policies related to the proposed project are identified by number and reproduced below in italics followed by SCAG staff comments regarding the consistency of the project with those

---

[1] See Endnote.

policies.

III. CONSISTENCY WITH THE CORE CHAPTERS OF THE REGIONAL COMPREHENSIVE PLAN AND GUIDE

A. The Growth Management Chapter (GMC) includes both core and ancillary policies that are particularly applicable to this project. The GMC policies relate to the three RCPG goals: to improve the regional standard of living, to maintain the regional quality of life, and to provide social, political, and cultural equity. To achieve these goals, SCAG encourages the development of urban forms that enable individuals to spend less income on housing, minimize public and private development costs, and that enable the private sector to be more competitive, thereby strengthening the regional economy. Attaining mobility and clean air goals is also critical in enhancing the quality of life in the region and can be achieved through the development of urban forms that accommodate a diversity of lifestyles, that preserve open space and natural resources, and that are aesthetically pleasing and preserve the character of communities. Lastly, SCAG encourages the development of urban forms that avoid economic and social polarization and of reaching equity among all segments of society. The evaluation of the proposed project in relation to the following policies is intended to guide efforts toward achievement of such goals and does not infer regional interference with local land use powers.

1. *Core Growth Management Policies*

3.01 *The population, housing, and jobs forecasts, which are adopted by SCAG's Regional Council and that reflect local plans and policies, shall be used by SCAG in all phases of implementation and review.*

SCAG staff comments: SCAG is unable to determine whether the forecasts used to design the flood control basin are consistent with regional growth forecasts. SCAG has worked with the City of Palmdale to assure the consistency of the city's General Plan with the Regional Comprehensive plan and Guide. If the forecasts used to develop the hydrologic calculations for the design of the flood control basin are consistent with the City of Palmdale General Plan, they in turn would be consistent with the Regional Comprehensive Plan and Guide.

2. *Ancillary Growth Management Policies*

3.21 *Encourage the implementation of measures aimed at the preservation and protection of recorded and unrecorded cultural resources and archaeological sites.*

SCAG staff comments: The project has identified appropriate mitigation measures to preserve archaeological and paleontological resources on the site. These actions would be consistent with this RCPG policy.

3.20 *Support the protection of vital resources such as wetlands, groundwater recharge areas, woodlands, production lands, and land containing unique and endangered plants and animals.*

SCAG staff comments: The project protects vital wetlands, groundwater recharge areas and lands

containing Joshua Tree woodlands. In areas of the site where wetlands and Joshua Tree habitat are disturbed by grading for the flood control basin, appropriate mitigation measures are proposed to restore and protect these resources. These actions would be consistent with this RCPG policy.

3.23 *Encourage mitigation measures that reduce noise in certain locations, measures aimed at preservation of biological and ecological resources, measures that would reduce exposure to seismic hazards, minimize earthquake damage and to develop emergency response and recovery plans.*

SCAG staff comments. As noted previously, the project has identified appropriate mitigation measures to reduce noise, protect and restore native Joshua Tree species and protect wildlife habitats. These actions would be consistent with this RCPG policy.

B. The Water Quality Chapter includes core recommendations and policy options that are particularly applicable to this project. The recommendations and policy options relate to the two water quality goals: to restore and maintain the chemical, physical and biological integrity of the nation's water; and, to achieve and maintain water quality objectives that are necessary to protect all beneficial uses of all waters:

11.02 *Encourage "watershed management" programs and strategies, recognizing the primary role of local governments in such efforts.*

SCAG staff comments. The proposed project is a necessary flood control facility consistent with the concept of participatory "watershed management" embodied in this RCPG policy.

11.03 *Coordinate watershed management planning at the subregional level by (1) providing consistent regional data; (2) serving as a liaison between affected local, state, and federal watershed management agencies; and (3) ensuring that watershed planning is consistent with other planning objectives (e.g., transportation, air quality, water supply).*

SCAG staff comments. The proposed project is consistent with a coordinated watershed planning activity at the subregional level. The EIR appropriately documents that the watershed planning is consistent with regional data embodied in regional transportation and air quality planning programs.

11.05 *Support regional efforts to identify and cooperatively plan for wetlands to facilitate both sustaining the amount and quality of wetlands in the region and expediting the process for obtaining wetlands permits.*

SCAG staff comments. As noted previously, the proposed project identifies mitigation measures to protect wetlands and is therefore consistent with this RCPG policy.

CONCLUSIONS AND RECOMMENDATIONS

As noted in the above comments, the proposed project is consistent with the pertinent policies in the Regional Comprehensive Plan and Guide.

- - -

ENDNOTE

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

Roles and Authorities

SCAG is a ***Joint Powers Agency*** established under California Government Code Section 6502 et seq. Under federal and state law, SCAG is designated as a Council of Governments (COG), a Regional Transportation Planning Agency (RTPA), and a Metropolitan Planning Organization (MPO). SCAG's mandated roles and responsibilities include the following:

SCAG is designated by the federal government as the Region's ***Metropolitan Planning Organization*** and mandated to maintain a continuing, cooperative, and comprehensive transportation planning process resulting in a Regional Transportation Plan and a Regional Transportation Improvement Program pursuant to 23 U.S.C. §134(g)-(h), 49 U.S.C. §1607(f)-(g) et seq., 23 C.F.R. §450, and 49 C.F.R. §613. SCAG is also the designated ***Regional Transportation Planning Agency***, and as such is responsible for both preparation of the Regional Transportation Plan (RTP) and Regional Transportation Improvement Program (RTIP) under California Government Code Section 65080.

SCAG is responsible for developing the demographic projections and the integrated land use, housing, employment, and transportation programs, measures, and strategies portions of the ***South Coast Air Quality Management Plan***, pursuant to California Health and Safety Code Section 40460(b)-(c). SCAG is also designated under 42 U.S.C. §7504(a) as a ***Co-Lead Agency*** for air quality planning for the Central Coast and Southeast Desert Air Basin District.

SCAG is responsible under the Federal Clean Air Act for determining ***Conformity*** of Projects, Plans and Programs to the Air Plan, pursuant to 42 U.S.C. §7506.

Pursuant to California Government Code Section 65089.2, SCAG is responsible for ***reviewing all Congestion Management Plans (CMPs) for consistency with regional transportation plans*** required by Section 65080 of the Government Code. SCAG must also evaluate the consistency and compatibility of such programs within the region.

SCAG is the authorized regional agency for ***Inter-Governmental Review*** of Programs proposed for federal financial assistance and direct development activities, pursuant to Presidential Executive Order 12,372 (replacing A-95 Review).

SCAG reviews, pursuant to Public Resources Code Sections 21083 and 21087, ***Environmental Impact Reports*** of projects of regional significance for consistency with regional plans [California Environmental Quality Act Guidelines Sections 15206 and 15125(b)].

Pursuant to 33 U.S.C. §1288(a)(2) (Section 208 of the Federal Water Pollution Control Act), SCAG is the authorized ***Areawide Waste Treatment Management Planning Agency***.

SCAG is responsible for preparation of the ***Regional Housing Needs Assessment***, pursuant to California Government Code Section 65584(a).

SCAG is responsible (with the San Diego Association of Governments and the Santa Barbara County/Cities Area Planning Council) for preparing the ***Southern California Hazardous Waste Management Plan*** pursuant to California Health and Safety Code Section 25135.3.

NOTICE OF PUBLIC HEARING
BY THE PLANNING COMMISSION OF THE CITY OF PALMDALE

A Public Hearing will be held by the Planning Commission of the City of Palmdale in the City Hall Council Chambers, 708 East Palmdale Boulevard, Palmdale, California, on Thursday, November 7, 1996, at 7:00 p.m. The Planning Commission will review and consider the following items:

1) CUP 96-14 and EIR 96-1, an application of the City of Palmdale to establish a sports complex within a 73 acre site, to be built in two phases. At buildout, the project would consist of a flood control basin with an earthen dam, and a sports complex, including ten soccer fields (lighted for night time use), parking, restrooms, concession area, hiking trails, picnic and tot lot facilities, and maintenance facilities zoned PC (Public Facility); and consideration of the associated draft Environmental Impact Report (EIR). The project is located generally on the southeast corner of Tierra Subida Avenue and Rayburn Road. Planner: Paul Scheibel, AICP.

   A draft Environmental Impact Report has been completed on the project, which identified potentially significant impacts with respect to the following issues: Earth Resources, Air Resources, Drainage and Water Quality, Noise Traffic and Circulation, Long Term Traffic Impacts, Aesthetics, Biological Resources, and Cultural Resources. The Planning Commission will be considering a Statement of Overriding consideration for those impacts that can not be mitigated to a level of insignificance.

Copies of the applications, maps, plans, environmental documents, and other pertinent materials related to these applications are available for public review at the Planning Department (38306 9th Street East, Palmdale, CA 93550) and at the Public Library (700 East Palmdale Boulevard, Palmdale, CA 93550). Prior to the Hearing, the public is invited to submit written comments on these matters to the Planning Department 805/267-5200. Please refer to the Case Numbers listed above and address correspondence to the Project Planner.

If you challenge the Planning Commission decision in court, you may be limited to raising only those issues you or someone else raised at the Public Hearing described in this Notice, or in written correspondence delivered to the Planning Department prior to the Public Hearing.

Any interested person is welcome to attend the Hearing and be heard on these matters. This meeting is accessible by the disabled. Requests by the disabled for special aids must be made a minimum of 72 hours prior to the meeting.

Molly Bogh
DIRECTOR OF PLANNING
Legal Ad #96-55

ATTACHMENT 4

CITY OF PALMDALE
LOS ANGELES COUNTY, CALIFORNIA
RESOLUTION NO. PC-96-67

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF PALMDALE, CALIFORNIA, CERTIFYING ENVIRONMENTAL IMPACT REPORT NUMBER 96-1 FOR THE PALMDALE SPORTS COMPLEX

THE PLANNING COMMISSION OF THE CITY OF PALMDALE HEREBY FINDS, RESOLVES, AND ORDERS AS FOLLOWS:

Section 1. An application was duly filed by the City of Palmdale, hereinafter referred to as the Applicant, requesting certification of an EIR for a regional drainage and recreational facility, known as the Palmdale Sports Complex, Conditional Use Permit (CUP) 96-14, and hereinafter referred to as the project. The project proposes to create a 73 acre development to be built in two phases. The project area is generally bounded by Rayburn Road to the north, State Route 14 to the east, Avenue R-8 to the south, and Tierra Subida Avenue to the west. The project site is legally described on Attachment 1 and shown on Attachment II.

Section 2. An Environmental Initial Study was prepared for the project by the Planning Department staff, pursuant to Section 15063 of the State CEQA Guidelines. The initial study, which was completed on April 25, 1996, identified that there was substantial evidence that the project may have a significant environmental impact on several environmental resources and governmental services. Pursuant to State CEQA Guidelines 15064 and 15081, a decision was made to prepare an Environmental Impact Report ("EIR") for the project.

Section 3. On April 25, 1996, a Notice of Preparation for the EIR was prepared and sent to the State Clearinghouse in the Office of Planning and Research for the State of California and to other responsible agencies.

Section 4. On April 10, 1996, a contract was entered into between the City and RBF Consultants, Inc., of Irvine, California, whereby RBF agreed to be the lead consultant for the preparation of the EIR for the project. Thereafter, a screencheck version of the Draft EIR was presented to the City on August 5, 1996. A preliminary draft of the EIR was presented to the City on August 25, 1996.

Section 5. On September 4, 1996, the Draft EIR was completed. Pursuant to State CEQA Guidelines Section 15085, the City prepared a Notice of Completion of the Draft EIR which was filed with the State Office of Planning and Research on September 4, 1996. The EIR was circulated to interested agencies between

September 4, 1996 and October 21, 1996 for a 45-day comment period, pursuant to State CEQA Guidelines Section 15087. Comments were received and responses prepared and incorporated into the EIR. A copy of the EIR is on file in the office of the Planning Department.

Section 6. The Planning Commission held a public hearing on the Draft EIR on November 7, 1996, and received testimony regarding the EIR. Notice of the time, place, and subject matter of the public hearing was published in the Antelope Valley Press on October 8, 1996, in accordance with the requirements of Public Resources Code Section 21092 and a copy of such notice was filed with the Los Angeles County Clerk, in accordance with the requirements of Public Resources Code Section 21092.3.

Section 7. The Planning Commission hereby finds that the EIR, the comments to the EIR, and the responses to those comments have been received by the Commission, that the Commission has reviewed and considered those documents prior to acting on the applications, and finds, pursuant to State CEQA Guidelines Section 15090, that the Final EIR has been completed in compliance with CEQA, the State CEQA Guidelines, and the City's CEQA Guidelines.

Section 8. The Planning Commission hereby certifies Final EIR 96-1, which consists of the Draft EIR, any comments received, any responses by the City to the comments received, and other materials as set forth in the staff report dated November 7, 1996, and exhibits thereto, which EIR was prepared for the Palmdale Sports Complex (CUP 96-14). The Planning Commission's certification is subject to the text changes contained in Exhibit "A" to this Resolution.

Section 9. The Planning Commission has also reviewed and considered the Mitigation Monitoring Program for the EIR that has been prepared pursuant to the requirements of Public Resources Code Section 21081.6 and finds that such Program is designed to ensure compliance with the mitigation measures during project implementation. The Planning Commission therefore adopts the Mitigation Monitoring

Program for EIR 96-1, as contained in Exhibit "B" of this Resolution.

ADOPTED AND APPROVED this 7th day of November, 1996.

AYES: _____

NOES: _____

ABSENT: _____ ABSTAIN: _____

_____
John Mayfield, Chairman
Planning Commission

ATTEST:

_____
Kathy Inman, Deputy City Clerk

MEB:PS:kmi

ATTACHMENT I

ANAVERDE RETENTION BASIN P-1EX
Includes P-2EX, P-3EX, P-4EX,
P-6EX and P-8EX
C.I. 309-237
698-RW 1.1 and 1.2
Fifth District
T.G. 183 (A1) Old
4285 (J2,H3) New
A.M.B. 3004-015-900 to 911 (Inclusive)

DESCRIPTION

PARCEL NO. P-1EX (Quitclaim of fee):

That portion of the northeast quarter of Section 34, Township 6 North, Range 12 West, S.B.M., lying westerly of the westerly line of that certain parcel of land described in deed to the State of California, recorded in Book D1991, page 416, of Official Records, in the office of the Recorder of the County of Los Angeles and lying southerly of the centerline of that certain 100-foot-wide strip of land described in Easement Deeds to said county for Rayburn Road, recorded on March 18, 1968, as Instrument Nos. 3200 and 3201, of said Official Records.

The area of the above-described PARCEL NO. P-1EX is 64.31 acres, more or less.

PARCEL NO. P-2EX (Quitclaim of fee):

The southeast quarter of the northeast quarter of the southeast quarter of the northwest quarter of above-mentioned Section 34.

The area of the above-described PARCEL NO. P-2EX is 2.54 acres, more or less.

PARCEL NO. P-3EX (Quitclaim of fee):

The northeast quarter of the southeast quarter of the southeast quarter of the northwest quarter of above-mentioned Section 34.

The area of the above-described PARCEL NO. P-3EX is 2.54 acres, more or less.

PARCEL NO. P-4EX (Quitclaim of fee):

The southeast quarter of the southeast quarter of the southeast quarter of the northwest quarter of above-mentioned Section 34.

The area of the above-described PARCEL NO. P-4EX is 2.54 acres, more or less.

PARCEL NO. P-6EX (Quitclaim of fee):

That portion of the southwest quarter of the southeast quarter of the southeast quarter of the northwest quarter of above-mentioned Section 34, lying easterly of that certain course in the centerline of Tierra Subida Avenue, 100 feet wide, described as having a length of 2,634.33 feet in Road Deed to the County of Los Angeles, recorded on December 19, 1967, as Instrument No. 3191, in Book D3863, page 290, of above-mentioned Official Records.

The area of the above-described PARCEL NO. P-6EX is 1.08 acres, more or less.

PARCEL NO. P-8EX (Quitclaim of fee):

The northwest quarter of the southeast quarter of the southeast quarter the northwest quarter of above-mentioned Section 34, lying easterly of the above-mentioned certain course in the centerline of Tierra Subida Avenue, described as having a length of 2,634.33 feet.

The area of the above-described PARCEL NO. P-8EX is 24,483 square feet, more or less.

EXHIBIT A

APPROVED AS TO DESCRIPTION
August 20, 1996
COUNTY OF LOS ANGELES
BY [signature]
SUPERVISING CADASTRAL ENGINEER I
Mapping and Property Management Division

ATTACHMENT II

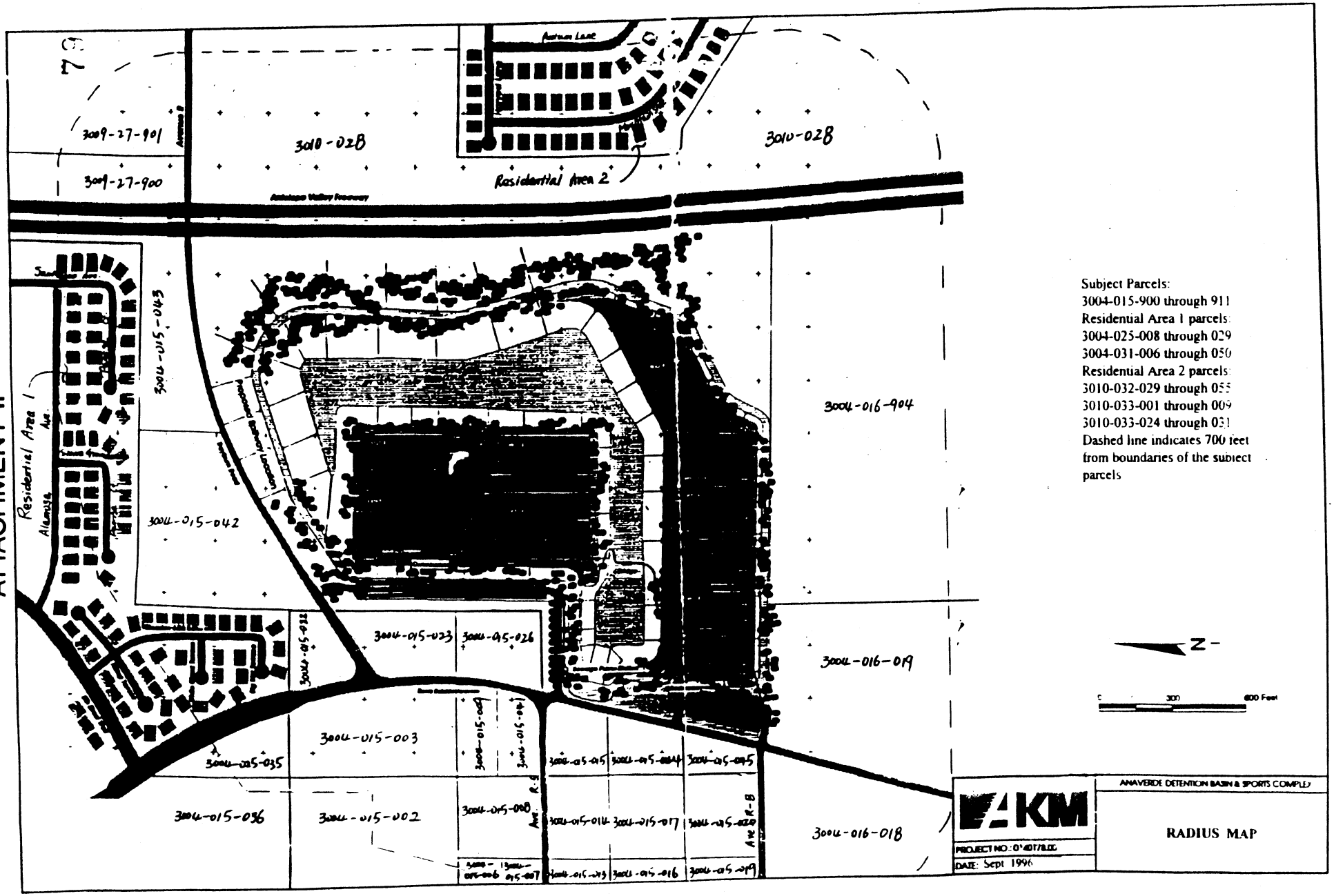

Exhibit A

RECOMMENDED REVISIONS TO THE EIR TEXT

Staff recommends that revisions be made to the Environmental Impact Report as follows:

Page 1-6 "Mitigation Measures 4.3-5a":

Add: Measures to minimize the amount of water for turf irrigation shall be incorporated in the final design and maintenance of sports fields. These measures shall include, but are not limited to, the following:

1. Lawn turfed areas shall consist of drought tolerant species, warm season grasses, or hybrid fescue or bermuda grasses.

2. All lawn turfed area irrigation systems shall consist of a Confinement/Desert system, or suitable equivalent, controlled by an automatic control system, employing industry standard Reasonably Available Technology (RAT) or superior technology.

3. In accordance with General Plan Environmental Resources Policy ER 4.3.1, the City shall assess the feasibility of utilizing reclaimed water for landscape irrigation and shall participate in such regional programs when feasible and practical to do so.

Reason: Clarification of water resources requirements in response to comments of Palmdale Water District.

Page 1-9 "Mitigation Measures 4.5-3b":

Add: The City shall submit the required Congestion Management Plan debit/credit reporting information to the Los Angeles Metropolitan Transportation Authority, as required, prior to project operation.

Reason: Response to comments from Caltrans.

Page 3-10 "Section 3.4.1, Anaverde Flood Control Basin":

Add the following to end of first sentence in fifth paragraph:

> ...spillway and the outlet works. "DSOD requires that the spillway be placed within cut or soil cement backfill."

Reason: Clarification and consistency with DSOD comments.

Page 3-12 "Section 3.4.3, Utilities/Off-site Improvements":

Correct reference in last sentence of third paragraph of this section:

From: Exhibit 4.1-2
To: Exhibit 3-5, and delete "of Section 4.1, GEOLOGY AND SOILS".

Reason: Consistency with EIR pagination.

Page 3-13 "Section 3.4.4, Operation and Maintenance":

Modify second sentence in first paragraph on this page to read as follows:

> "Approximately 70 af of accumulated debris and sediment (from the 50-year storm) is anticipated and will need to be periodically removed from the basin."

Reason: Clarification of source of debris and sedimentation.

Page 3-15 "Responsible Agency":

From: City of Palmdale City Council
To: City of Palmdale Planning Commission

Reason: Consistency with Palmdale Zoning Ordinance, Article 22 (Conditional Use Permit) and CEQA Guidelines Section 15090.

Add the following under "Responsible Agency":

County Sanitation Districts of Los Angeles County	District Annexation (portion of site)

Caltrans District 7	Permit for Over-sized Transport Vehicles on State Highways (if necessary)

After "Building Permits" under "City of Palmdale" heading, Add; "Grading Permit".

"Building Permits" under "City of Palmdale" heading, Add; "Grading Permit".

Reason: Consistency with ministerial permit procedures.

Page 3-15 "Description of Permit Approval":

Final EIR Certification

From: City Council
To: Planning Commission

Project Approval

From: City Council
To: Planning Commission

Reason: Consistency with Palmdale Zoning Ordinance, Article 22 (Conditional Use Permit) and CEQA Guidelines Section 15090.

Page 4.3-5 "Impact 4.3-2 Discussion, Sedimentation", second sentence of first paragraph:

From: detain
To: maintain

Reason: Corrected error.

Page 4.3-6 "Impact 4.3-3 Discussion, Groundwater Recharge", fourth sentence of first paragraph:

From: (and parking spaces)
To: (and parking demand)

Page 4.5-8 "Mitigation Measure 4.5-3b":

Add: The City shall submit the required Congestion Management Plan debit/credit reporting information to the Los Angeles Metropolitan Transportation Authority, as required, prior to project operation.

Reason: Response to comments from Caltrans.

Page 6-3 "Section 6.2, Channel Alternative":

Modify last sentence in third paragraph as follows:

"...inundate areas north of Avenue M in the City of Lancaster as well as inundate areas in the City of Palmdale."

Add the following to end of fourth paragraph:

"...percolation for groundwater recharge. "Potential reduction in groundwater recharge associated with this alternative could lead to legal challenges from local water purveyors, based on City experience with previous projects."

Reason: Clarification and consistency with project hydrology report.

Pages 7-2 to 7-3 "Section 7, Effects Found Not to be Significant":

Add the following to Item N:

<u>Police and Fire Protection.</u> The project would not significantly increase demand for police or fire protection services, and is in an area regularly patrolled by the Palmdale Recreation and Parks Department rangers.

<u>Parks and Recreation.</u> The project will be a beneficial impact by providing additional recreational facilities.

<u>Public Facilities.</u> The project will require maintenance activities typical of recreational facilities, which is not considered a significant environmental impact.

Other Governmental Services. There are no other anticipated significant environmental impacts to governmental services.

Add the following to Item P:

Utilities. The project site will require water, sewer, electrical and telephone connections. The physical environmental impact of these connections is addressed in the Draft EIR, and the utility line extensions are described in Section 3.4.3 of the Draft EIR. The project will utilize water for landscaping. As requested by the Palmdale Water District (Comment letter dated September 13, 1996), the City has estimated that the project will require approximately 140 acre-feet of water per year (see Response No. 2 in the Comments and Responses packet for a more detailed discussion).

Reason: Clarification of impacts.

All of the above changes are considered to be minor. Therefore, there is no requirement for recirculation of the draft EIR, as prescribed by Section 15088.5 of the CEQA Guidelines.

ANAVERDE FLOOD CONTROL BASIN AND SPORTS COMPLEX

MITIGATION MONITORING AND REPORTING CHECKLIST

Mit./ Cond. No.	Mitigation Measure/Conditions of Approval	Monitoring and Reporting Process	Monitoring Milestone	Party Responsible for Monitoring	VERIFICATION OF COMPLIANCE Initials	Date	Remarks
	GEOLOGY AND SOILS						
4.1-1	**Construction** An Erosion Control Plan shall be developed and approved by the City of Palmdale prior to issuance of a grading permit. The erosion control plan shall outline methods that shall be implemented to control erosion from graded or cleared portions of the site.	Review and Approval of Erosion Control Plan	Prior to Issuance of Grading Permit	City Engineer			
4.1-2	**Topography** No mitigation measure(s) feasible.						
4.1-3a	**Geology and Soils** The applicant shall comply with detailed geotechnical recommendations as set forth in Appendix H of the "Preliminary Report of Geotechnical Investigation for Anaverde Flood Control Facility and Sports Complex," prepared by Leighton & Associates, dated June 1996. Measures shall be reflected in the grading plans, subject to review and approval by the City Engineer.	Compliance with Geotechnical Recommendations; Review and Approval of Grading Plans	Prior to Issuance of Grading Permit	City Engineer			
4.1-3b	Refer to Mitigation Measure 4.1-1.						
4.1-4	Refer to Mitigation Measure 4.1-3a.						
4.1-5a	**Seismicity** The proposed project shall adhere to and be in strict compliance with the seismic design criteria of the Uniform Building Code and the City of Palmdale, as well as the California Department of Water Resources, Division of Safety of Dams Guidelines for the Design and Construction of Small Embankment Dams.	Design Plan Checks	Prior to Final Design Plan Approval	City Engineer			
4.1-5b	Refer to Mitigation Measure 4.1-3a.						

EXHIBIT B

Mit./ Cond. No.	Mitigation Measure/Conditions of Approval	Monitoring and Reporting Process	Monitoring Milestone	Party Responsible for Monitoring	VERIFICATION OF COMPLIANCE Initials	Date	Remarks
	AIR RESOURCES						
4.2-1&2	**Short-term Emissions** The project will implement the following mitigation for construction-related air emissions: a. The Project Applicant shall obtain any and all permits as may be required by the South Coast Air Quality Management District ("SCAQMD") for the removal, transportation and disposal of soil. b. Ground wetting procedures and other dust palliative measures shall be followed during earth-moving operations and construction to minimize fugitive dust emissions. c. Trucks importing or exporting earthen materials shall be covered and sprinkled prior to entering public streets. d. Roadways shall be periodically swept or otherwise cleared of any spilled export material to assist in minimizing fugitive dust in accordance with SCAQMD Rule 403. e. Construction equipment shall be maintained in proper tune. f. Construction/grading activities shall be phased and/or scheduled to avoid high ozone days.	Issuance of SCAQMD Permit; Periodic Site Inspection	Prior to Issuance of Grading Permit; During Construction	SCAQMD			
4.2-3	**Long-term Emissions** 4.2-3 None are required.						
4.2-4	**Consistency with Regional Plans** None are required.						

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Mit./ Cond. No.	Mitigation Measure/Conditions of Approval	Monitoring and Reporting Process	Monitoring Milestone	Party Responsible for Monitoring	VERIFICATION OF COMPLIANCE Initials	Date	Remarks
	DRAINAGE/WATER QUALITY						
4.3-1	**Drainage/Flooding** No mitigation is required.						
4.3-2	**Sedimentation** No mitigation is required.						
4.-3-3	**Groundwater Recharge** No mitigation is required.						
4.3-4	**Water Quality** No mitigation is required.						
4.3-5a	**Sports Complex** Measures to minimize the amount of water for turf irrigation shall be incorporated in the final design and maintenance of sports fields. These measures shall include, but not limited to, the following: 1. Lawn turfed areas shall consist of drought tolerant species, warm season grasses, or hybrid fescue or bermuda grasses. 2. All lawn turfed area irrigation systems shall consist of a Confinement/Desert system, or suitable equivalent, controlled by an automatic control system, employing industry standard Reasonably Available Technology (RAT) or superior technology. 3. In accordance with General Plan Environmental Resources Policy ER 4.3.1, the City shall assess the feasibility of utilizing reclaimed water for landscape irrigation and shall participate in such regional programs when feasible and practical to do so.	Final Design Plan Check	Prior to Final Design Plan Approval	Planning Department and City Landscape Architect			

Mit./ Cond. No.	Mitigation Measure/Conditions of Approval	Monitoring and Reporting Process	Monitoring Milestone	Party Responsible for Monitoring	VERIFICATION OF COMPLIANCE Initials	Date	Remarks
4.3-5b	Controlled use of pesticides and fertilizers within common areas shall be enforced through provision in the Landscape Management Program, including frequency and type of fertilizers/pesticides to be used, and application by qualified persons.	Review and Approval of Landscape Management Program	Prior to Issuance of Grading Permit and On-going thereafter	City Landscape Architect			
	NOISE						
4.4-1a	**Short-Term Construction** Construction activities shall comply with City of Palmdale Municipal Code Section 8.28.030 relating to construction noise. If problems arise from construction noise, enforcement of the City's Municipal Code relating to construction-related noise discernable at residential boundaries will help minimize any potential noise impacts. Such noise is permitted between the hours of 6:30 a.m. and 8:00 p.m. Monday through Saturday.	Periodic Site Inspection; Conformance with City Code	During Construction; Ongoing	City Engineer			
4.41b	All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers, to the satisfaction of the City Inspector.	Periodic Site Inspection	During Construction	City Inspector			
4.4-1c	Stationary construction equipment, if necessary, shall be placed such that emitted noise is directed away from sensitive noise receivers, to the satisfaction of the City Inspector.	Periodic Site Inspection	During Construction	City Inspector			
4.4-1d	Stockpiling and vehicle staging areas shall be located as far as practical from noise sensitive receptors during construction activities, to the satisfaction of the City Inspector.	Periodic Site Inspection	During Construction	City Inspector			
4.4-2	**Long-Term Stationary Sources** No mitigation required.						
4.4-3	Development of the proposed project shall adhere to the City of Palmdale and California State Noise Insulation Standards (California Administrative Code, title 25, Chapter 1, Subchapter 1, Article 4).	Adherence to City and State Noise Insulation Standards	During Construction; Ongoing	Planning Department			

Mit./ Cond. No.	Mitigation Measure/Conditions of Approval	Monitoring and Reporting Process	Monitoring Milestone	Party Responsible for Monitoring	VERIFICATION OF COMPLIANCE Initials	Date	Remarks
	TRAFFIC AND CIRCULATION						
4.5-1a	**Short-Term** Traffic specifications shall be submitted along with project plans and specifications for City approval prior to construction of each phase. Proper traffic management procedures should be employed during construction activities.	Review and Approval of Traffic Specifications and Project Plans; Periodic Site Inspection	Prior to Issuance of Grading Permit; During Construction	City Traffic/ Transportation Engineer			
4.5-1b	To minimize impacts to traffic along Rayburn Road from trucks entering or exiting the project site during construction, the access road entrance should be of sufficient width to accommodate at least two trucks. Traffic management procedures (e.g., flagmen, signs) should be employed as needed. On-site parking should be provided for construction vehicles.	Plan Check; Periodic Site Inspection	Prior to Issuance of Grading Permit; During Construction	City Traffic/ Transportation Engineer			
4.5-1c	Complete closure of streets should be avoided during construction.	Periodic Site Inspection	During Construction	City Traffic/ Transportation Engineer			
4.5-1d	Consideration should be given to the provision of deceleration lane(s) at driveways along Tierra Subida Avenue and Rayburn Road near the project site during project construction. Implementation of this mitigation would reduce potential safety problems between vehicles and trucks. Coordination of this mitigation would be the responsibility of both the City of Palmdale and the County of Los Angeles.	Construction Circulation Plan Check	During Construction	City Traffic/ Transportation Engineer			
4.5-2	**Long-Term** Prior to issuance of grading permits, the City shall revise the site plan to address detailed circulation improvements, to the satisfaction of the City Traffic Engineer, as discussed in a May 22, 1996 memo, including: • Signage • Turning Lane Provisions • Driveway Provision • Right-of-Way Requirements	Review and Approval of Site Plan	Prior to Issuance of Grading Permit	City Traffic/ Transportation Engineer			

Mit./ Cond. No.	Mitigation Measure/Conditions of Approval	Monitoring and Reporting Process	Monitoring Milestone	Party Responsible for Monitoring	VERIFICATION OF COMPLIANCE Initials	Date	Remarks
4.5-3a	The City should develop a monitoring program to evaluate the parking situation upon operation of Phase I of the sports complex. This program would identify future parking concerns if any, and develop plans and/or strategies to mitigate such concerns as appropriate. Examples of mitigation plans and/or strategies may include but are not limited to: (1) limit the number of fields in use at the same time, (2) provide a minimum of one hour between when one game ends on a field until the next game on that same field begins, (3) utilize the existing Avenue S Park and Ride lots for the sports complex parking and provide shuttle service between the lots and the complex as appropriate, (4) provide additional on-site parking by means of acquiring additional land and/or achieving the same via developing fewer soccer fields than proposed, and (5) provide unimproved over-flow parking area on-site to accommodate unusual parking peaks (e.g. championship games). It is of critical importance to understand that strategy (4) "reducing the number of fields and providing adequate on-site parking" can have the effect of maximizing total hours of field use than can strategy (2) "provide a minimum of one hour between games."	Preparation and Adoption of Parking Monitoring Program	Upon Operation of Phase I of the Sports Complex	City Traffic/ Transportation Engineer			
	AESTHETICS						
	Short-Term						
4.6-1a	During construction, the contractor shall keep the site clear of all trash, weeds, etc. Compliance with this measure is subject to periodic site inspections by City Staff.	Periodic Site Inspection	During Construction	City Inspector			
4.6-1b	During construction, the contractor shall provide screening of the site's northern perimeter, along Rayburn Road, in order to partially screen views of the site from residential lots to the north.	Periodic Site Inspection	During Construction	Planning Department			
4.6-1c	The contractor shall establish construction staging areas at least 500 feet from the nearest residential lot. The equipment stored in the staging area shall be kept in a orderly fashion. Compliance with this measure is subject to periodic site inspections by City Staff.	Periodic Site Inspection	During Construction	City Inspector			

Mit./ Cond. No.	Mitigation Measure/Conditions of Approval	Monitoring and Reporting Process	Monitoring Milestone	Party Responsible for Monitoring	VERIFICATION OF COMPLIANCE Initials	Date	Remarks
4.6-2	**Long-term** The City of Palmdale shall review and approve the project's landscape plans. The landscape plans should include the planting of Native shrubs and California junipers along the northern, western and eastern project boundaries in order to partially screen the basin from view of motorists traveling along Rayburn Road, Tierra Subida Avenue and the Antelope Valley Freeway. Landscaping shall, at minimum, address the following: • Use of native and/or drought-tolerant species; • Proposed palette, size and placement; and • Irrigation requirements.	Review and Approval of Project Landscape Plans	Prior to Issuance of Grading Permit	City Landscape Architect			
4.6-3a	**Light and Glare** All lights used to illuminate the parking areas and soccer fields 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, unless specifically permitted by a special event permit on a case-by-case basis.	Lighting Plan Check; Periodic Site Inspection	Prior to Issuance of Building Permit; Ongoing	Building and Safety Department and Planning Department			
4.6-3b	The Sports Complex hours of operation shall conclude no later than 10:00 p.m. All lights, except for security lighting within parking lot areas, shall be turned off.	Compliance with Operation Guidelines; Periodic Site Inspection	Ongoing	Parks and Recreation Department			
	BIOLOGICAL RESOURCES						
4.7-1a	**Plant Communities and Wildlife** Prior to grading activities, project limits shall be fenced or otherwise clearly marked to avoid potential encroachment outside of the designated project impact area.	Periodic Site Inspection	Prior to Grading Activities	Planning Department			
4.7-1b	Basin slopes and similar areas outside of active recreation areas shall be revegetated with native plant materials upon completion of grading. Native species should be specified in landscaping plans wherever possible. Landscaping should be designed to be consistent, and blend with, natural vegetation patterns.	Review and Approval of Project Landscaping Plans	Prior to Issuance of Grading Permit	Landscape Architect			

Mit./ Cond. No.	Mitigation Measure/Conditions of Approval	Monitoring and Reporting Process	Monitoring Milestone	Party Responsible for Monitoring	VERIFICATION OF COMPLIANCE Initials	Date	Remarks
4.7-1c	A habitat restoration specialist shall participate in the development of the landscaping plans. Landscape plans and specifications shall address the following elements, designed to enhance the successful restoration of natural plant communities. • Topsoil preservation and reapplication • Site preparation including soil decompaction • Weed control • Use of fertilizers, herbicides, and pesticides • Plant palettes • Sources for plant materials • Performance standards	Review and Approval of Project Landscape Plans	Prior to Grading Activities	Planning Department			
4.7-1d	Impacts to Joshua tree woodlands shall be mitigated by protection of Joshua tree woodland habitat on the site, or, at the option of the City, acquisition of off-site habitat within the City sphere of influence. Prior to project grading, Joshua trees within the project area shall be accurately counted and evaluated, and a management plan developed to offset the loss of this regionally sensitive habitat. Mitigation measures shall include transplanting of individual trees to preserved habitat areas and/or replacement with nursery-grown trees at an appropriate ratio (e.g., 5:1).	Inventory of Existing Joshua Trees; Preparation and Implementation of Joshua Tree Management Plan	Prior to Project Grading; Ongoing	City Landscape Architect			
	Wildlife						
4.7-2a	Construction shall be limited to the hours of 6:30 a.m. to 8:00 p.m. to minimize indirect impacts to crepuscular (active at dusk/dawn) and nocturnal wildlife. Any night lighting used for security purposes shall be confined to project impact areas.	Periodic Site Inspection	During Construction; Ongoing	Planning Department			
4.7-2b	Night lighting shall be designed to be non-intrusive into adjacent, off-site areas to the maximum extent possible, per City of Palmdale standards.	Periodic Site Inspection; Compliance with City Standards	During Construction; Ongoing	Building and Safety Department and Planning Department			

Permit/ Cond. No.	Mitigation Measure/Conditions of Approval	Monitoring and Reporting Process	Monitoring Milestone	Party Responsible for Monitoring	VERIFICATION OF COMPLIANCE Initials	Date	Remarks
1.7-2c	Focused spring surveys shall be conducted to confirm the absence of the least Bell's vireo and southwestern willow flycatcher prior to grading in riparian areas. If these species are identified within project impact areas, work shall be deferred in these areas and appropriate mitigation measures shall be developed and implemented in consultation with USFWS and CDFG.	Implementation of Focused Spring Surveys; Consultation with USFWS and CDFG	Prior to Grading in Riparian Areas; During Grading Activities	USFWS; CDFG; and Planning Department			
1.7-2d	Focused spring surveys shall be conducted to confirm the absence of the arroyo toad and red-legged frog prior to grading in aquatic and marsh areas. If these species are identified within project impact areas, work shall be deferred in these areas and appropriate mitigation measures shall be developed and implemented in consultation with USFWS and CDFG.	Implementation of Focused Spring Surveys; Consultation with USFWS and CDFG	Prior to Grading in Aquatic and Marsh Areas; During Grading Activities	USFWS; CDFG			
1.7-2e	Prior to grading activities between the months of February and August, focused surveys shall be conducted to determine the presence of nesting burrowing owls. If burrowing owls are detected, potential impacts on burrowing owls (*Speotyto cunicularia*) shall be mitigated as follows: (1) have a qualified biologist conduct pre-construction surveys; and (2) if burrowing owls are present on the site, and impacts cannot be avoided by project modifications, relocate the owls passively. The methodology discussed below follows techniques for passive relocation of burrowing owls described in *Staff Report on Burrowing Owl Mitigation* (CDFG, October 1995). Passive relocation consists of encouraging burrowing owls to move from occupied burrows to alternate burrows. The owls are moved passively by placing one-way doors, such as modified clothes dryer vents, on the burrow entrances that allow owls to leave the occupied burrows, but not return. The one-way doors should be left in place for a minimum of 48 hours to insure that the owls have left the burrow. The burrows should then be excavated carefully by use of hand tools and refilled to prevent reoccupation. During excavation, sections of flexible plastic pipe should be inserted into the tunnels to maintain an escape route for any animals inside the burrow.	Implementation of Focused Surveys; Implementation of Burrowing Owl Mitigation	Prior to Grading Activities between February and August; Ongoing	CDFG			

Mit./ Cond. No.	Mitigation Measure/Conditions of Approval	Monitoring and Reporting Process	Monitoring Milestone	Party Responsible for Monitoring	VERIFICATION OF COMPLIANCE Initials	Date	Remarks
	Two natural or artificial burrows should be provided for each burrow excavated in the project area and must be within an adjacent area of sufficient size to meet the owl's foraging requirements (6.5 acres). The natural burrows used by burrowing owls are usually abandoned ground squirrel burrows. Specifications for building artificial burrows are available from CDFG. Burrowing owls should not be relocated during the breeding and nesting season (February 1 - August 31) unless a qualified biologist verifies that either the birds have not begun egg-laying and incubation, or that juveniles from the occupied burrows are foraging independently and capable of independent survival. In the event of delays in the start-up of construction activities, any new burrows that are constructed by ground squirrels should be excavated immediately to prevent their occupation by burrowing owls.						
4.7-3a	**Sensitive Species and Habitat** An Army Corps of Engineers Section 404 Permit and/or California Department of Fish and Game Section 1603 Streambed Alteration Agreement shall be obtained, as appropriate, for any proposed alterations to stream channels and/or wetland areas.	Issuance of Army Corps of Engineers Section 404 Permit and/or CDFG Section 1603 Streambed Alteration Agreement	Prior to Issuance of Grading Permits	Army Corps of Engineers; CDFG; and Planning Department			
4.7-3b	Any impacts to wetland areas shall be mitigated in kind and within the same watershed at a minimum 1:1 replacement ratio. If it is not possible to perform in kind mitigation within the same watershed, a higher mitigation ratio may be required. A wetland mitigation plan shall be developed in conformance with Corps Habitat Mitigation and Monitoring Proposal Guidelines.	Preparation and Implementation of Wetland Mitigation Plan	Prior to Phase II Grading	Army Corps of Engineers; and Planning Department			

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Mit./ Cond. No.	Mitigation Measure/Conditions of Approval	Monitoring and Reporting Process	Monitoring Milestone	Party Responsible for Monitoring	VERIFICATION OF COMPLIANCE Initials	Date	Remarks
	CULTURAL RESOURCES						
	Archaeology						
4.8-1a	A qualified archaeologist shall be retained to attend the pre-grade meeting and to monitor grading activities for evidence of buried cultural resource sites. During grading activities, the archaeologist shall conduct limited monitoring to observe and retrieve any buried artifacts that may be uncovered.	Retainment of Qualified Archaeologist; Archaeological Monitoring	Prior to and During Grading Activities	Planning Department and Archaeologist			
4.8-1b	If buried remains are encountered, the archaeological monitor shall have the authority to temporarily divert or direct grading to allow time to evaluate any exposed prehistoric material, and the Archaeological Survey at UCLA or some other public agency shall be contacted so that appropriate action may be taken to stabilize or salvage the remains.	Archaeological Monitoring	During Grading Activities	Archaeologic Monitor; and Planning Department			
4.8-1c	A final monitoring report, including an itemized inventory and pertinent field data, shall be sent to the Director of Planning, City of Palmdale as well as copies of the report to the Archaeological Information Center at the University of California, Los Angeles.	Preparation of Final Monitoring Report	Upon Completion of Grading Activities	Planning Department			
	Paleontology The following recommendations are provided to identify and evaluate any significant prehistoric remains within Anaverde Flood Control Basin and to reduce any adverse impacts to these resources to a level of insignificance. These mitigation measures shall meet the requirements of CEQA and the City of Palmdale concerning protection of paleontological resources.						
4.8-2a	A qualified paleontologist shall be retained to produce a mitigation plan for the proposed project.	Retainment of Qualified Paleontologist; Preparation of Mitigation Plan	Prior to Grading Activities	Planning Department			
4.8-2b	The paleontologist shall attend the pre-grade meeting to discuss the monitoring, collecting, and safety procedures for the project and shall supervise the paleontological monitoring during earth moving activities in the area.	Paleontological Monitoring	Prior to and During Grading Activities	Paleontological Monitor; and Planning Department			

VERIFICATION OF COMPLIANCE

Mit./ Cond. No.	Mitigation Measure/Conditions of Approval	Monitoring and Reporting Process	Monitoring Milestone	Party Responsible for Monitoring	Initials	Date	Remarks
4.8-2c	Full time monitoring shall be conducted during earth moving activities in the clay shale member (Tac) of the Anaverde Formation. Half-time monitoring shall be conducted during earth moving activities within the moderate sensitivity units (Tar, Tab) of the Anaverde Formation and the Nadeau Gravel. The Recent Alluvium shall be monitored at depths below three feet on a half-time basis until the presence or absence of the high sensitivity Pleistocene alluvium has been determined. Any Pleistocene Alluvium, if present on the project area, shall be monitored on a full-time basis. Igneous rocks, artificial fill, disturbed soils, and slopewash would not require monitoring.	Paleontological Monitoring	During Earth Moving Activities	Paleontological Monitor; City of Palmdale			
4.8-2d	Screening of sediments shall also be conducted under the supervision of the paleontologist during monitoring because many significant vertebrate remains are small. Up to a six thousand pound matrix sample can be processed for any single locality as recommended by the Guidelines in the Society of Vertebrate Paleontologists Bulletin.	Paleontological Monitoring	During Earth Moving Activities	Paleontological Monitor			
4.8-2e	The paleontological monitor shall have the authority to temporarily divert or redirect grading to allow time to evaluate any exposed fossil material.	Paleontological Monitoring	During Earth Moving Activities	Paleontological Monitor			
4.8-2f	During monitoring, any scientifically significant specimens shall be properly salvaged after evaluation by, and under the supervision of, the paleontologist. During fossil salvage, contextual stratigraphic data shall also be collected. This will include lithologic descriptions, localities plotted on a USGS 7.5' Series topographic quadrangle, photographs, and field notes.	Paleontological Monitoring; Salvage and Evaluation of Specimens	During Earth Moving Activities; During Fossil Salvage	Paleontological Monitor			
4.8-2g	Specimens shall be prepared to the point of identification, stabilized, identified, and curated on a long-term loan basis in a suitable repository that has a retrievable storage system, such as the San Bernardino County Museum or the Los Angeles County Museum of Natural History.	Identification and Curation of Specimens	Upon Completion of Fossil Salvage	Paleontologist; City of Palmdale			
4.8-2h	A final report shall be prepared at the end of earth moving activity, and shall include an itemized inventory of recovered fossils, an appropriate stratigraphic and locality data. This report shall be sent to the Lead Agency, signifying the end of mitigation. Another copy shall accompany any recovered fossils, along with field logs and photographs, to the designated repository.	Preparation of Final Monitoring Report	Upon Completion of Earth Moving Activities	City of Palmdale			

CITY OF PALMDALE
OFFICE OF THE
PLANNING DEPARTMENT

MEMORANDUM

TO: Members of the Planning Commission

FROM: Molly Bogh, Director of Planning MB

PREPARED BY: Paul Scheibel, AICP, Associate Planner

SUBJECT: **Palmdale Sports Complex (CUP 96-14)**

DATE: November 7, 1996

RECOMMENDATION

Staff recommends that the Planning Commission take the following actions regarding the above-referenced Conditional Use Permit: 1) Adopt Resolution No. PC-96-68 approving the Palmdale Sports Complex based on the findings and Conditions of Approval for the project; 2) find that the project is consistent with EIR 96-1 and adopt a Statement of Overriding Considerations for environmental effects that can not be mitigated to a level of non-significance; 3) adopt the Mitigation Monitoring Program for the project, as recommended for revision; and 4) file a Notice of Determination.

PROJECT DESCRIPTION

Project Location and Setting

The proposed 73-acre Anaverde Basin site is located in the southwest portion of the City of Palmdale. The site is bounded by Rayburn Road to the north, the Antelope Valley Freeway (State Route 14) to the east, the unimproved Avenue R-8 to the south, and Tierra Subida Avenue to the west (excluding the privately held property).

The project site lies in depressed ground approximately twenty-five feet below the adjacent roads. The project site is relatively flat, except for the Anaverde Creek channel which bisects the site from the southwest to the northeast. The existing channel contains a depression that was created in 1988 by the County of Los Angeles as part of initial construction of a previously approved detention basin project. The project was halted because bedrock was reached after less than twenty-five feet of

excavation. There is a small graded area which contains approximately 100 cubic yards of concrete rubble of unknown origin in the northern portion of the project site. Following creation of the initial detention basin in 1988, the Anaverde Creek flow shifted south to its present location, and riparian vegetation emerged as a result of the ponding water and reduced stream flow caused by the new basin.

Vegetation consists of relatively undisturbed desert scrub, stands of mature Juniper bushes and sparsely placed mature Joshua trees which appear to be in a healthy state. The entire project site is surrounded by a six foot high chain link fence. Consequently, the area is relatively undisturbed by human encroachment, except for the previously noted excavation and concrete rubble.

The San Andreas Fault is located approximately one-half mile to the south of the site, and the Little Rock Fault extends across the approximate center of the site. The California Aqueduct is located approximately one mile to the south of the site.

Across the freeway from the project site, to the east, are undeveloped parcels of land and residential neighborhoods. Beyond the southern boundary, the project site is ringed by low (less than 100 feet from the toe to crest), steep hills. The area adjacent to the west is vacant and designated for office commercial development. The area farther to the west of Tierra Subida Avenue is hilly terrain designated for low density residential development. To the north of Rayburn Road is vacant land designated for office commercial development, and two single-family residential subdivisions are located farther to the north.

The Anaverde Creek extends northerly and easterly from the Sierra Pelonas to the Antelope Valley Freeway, and then northerly through he Cities of Palmdale and Lancaster. The portion of the Anaverde Creek that is west of the Antelope Valley Freeway contains 10,200 acres. This is nearly half of the tributary watershed of the Anaverde Creek. The Anaverde Creek crosses State Route 14 just south of Rayburn Road. At this point the runoff splits with a portion flowing north generally along Division Street and another portion flowing east along Avenue R to the existing channel between the railroad tracks at Sierra Highway and 6th Street East. It then moves northerly parallel to the railroad tracks to United States Air Force (U.S.A.F.) Plant 42.

Background and History

The Anaverde Detention Basin has been in planning since the mid 1980's to provide flood protection for the watershed downstream of the Antelope Valley Freeway (the lower watershed). Ultimate flows entering the basin site (following build-out of upstream areas) are projected at 9,065 cubic feet per second (cfs). The basin was originally proposed by the Los Angeles County Department of Public Works (LACDPW) as the second of two retention basins that would capture and retain the entire volume of a 4-day 50-year storm from the 15.94-square mile (10,200 acre) watershed upstream of the Antelope Valley Freeway.

The currently proposed project is for a sports field complex within the 73 acre site. At buildout, the project would consist of a flood control basin with an earthen dam, and a sports complex, including 10 soccer fields (lighted for night time use), parking, restrooms, concession area, hiking trails, picnic and tot lot facilities, and maintenance facilities.

Project Characteristics

Anaverde Flood Control Basin

The Anaverde Detention Basin is planned as a "flow-through" detention basin that will significantly attenuate the peak flow from various frequency storms. The City of Palmdale's Drainage Management Plan requires protection from the Capital Flood, which is the runoff resulting from a 4-day 50-year capital storm event.

Anaverde Basin will have a storage volume of 1,106 acre-feet. This places the basin under the jurisdiction of the State of California Department of Water Resources, Division of Safety of Dams (DSOD). Therefore, the basin is designed in accordance with the guidelines, statutes, and regulations of the DSOD and will require permit approval by the DSOD.

The objective of the proposed flood control basin project is to provide major flood control improvement for the flood waters from Anaverde Creek. The purpose of these improvements is to substantially increase the level of flood protection provided to those portions of the City of Palmdale and unincorporated county territory downstream of Anaverde Creek (reducing flows at SR-14 from approximately 3,730 cfs to 811 cfs).

Development of the proposed sports complex would also satisfy a second project objective which is to provide active recreational opportunities for the residents of Palmdale, as well as to offset the unavoidable impacts associated with construction of the flood control basin, including wind and water erosion.

Project Phasing

Phase I of the proposed project will involve the construction of the southerly soccer field complex, including five lighted soccer fields, parking, restrooms, concession stands, and maintenance building. No grading or activities that could disturb the riparian habitat, and which would require streambed alteration permits from state and federal authorities, will be undertaken in Phase I. The second phase associated with the proposed project will involve the construction of the flood control basin including all fill and excavation, channelization, inlet/outlet structures, spillway and grading; and construction of the northerly soccer field complex. The soccer field complex in Phase II will include five lighted soccer fields, additional parking, concession stand and restrooms. In addition, off-site improvements will include the minor realignment of the intersection of City Ranch Road (Avenue R-5) at Tierra Subida Avenue, and improvements within Anaverde Creek, west of Tierra Subida Avenue. Finally, implementation of Phase II will require the City to obtain state and federal permits for disturbance of the riparian habitat on the project site.

DISCUSSION

Phase I Southern Recreational Field and Facilities

Access to the Phase I area will be provided by one permanent entry point at approximately Avenue R-8 and a second temporary access point approximately 530 feet to the north. The eastern edge of Tierra Subida Avenue will be improved with curb, gutter, sidewalk, and parkway landscaping. Parking for the Phase I portion of the project will include 174 parking spaces which will be constructed to City standards, including landscaping, lighting, and drive aisle widths. The total number of parking spaces provided by the project is 369 spaces. This is eight percent over the City standard for similar park and sports field facilities. Pedestrian access features will include a looped multi-purpose trail and both ramped and stairway paths from the parking area to the sports fields.

The sports fields will be turfed with warm weather grass mix to maximize drought tolerance, and they will be irrigated using the reasonably available irrigation control technology. This is intended to limit water consumption to an average of 10 acre feet per field per year. The project area will also contain shade trees distributed throughout the park area. Slope areas will be landscaped using drought tolerant shrubbery and ground cover.

Lighting is proposed to be provided for all facilities on the site. Parking lot lighting will be installed in accordance with the standards contained in Zoning Ordinance Section 87.05H (Lighting). Lighting for sports field uses are permitted to be no higher than 45 feet. Lighting will also be provided for the multi-purpose trail. All lighting will require separate detailed plans to be submitted to verify compliance with all Zoning Ordinance and General Plan standards, as well as for compliance with the Environmental Impact Report (EIR) certified for the project. These standards are intended to ensure that nuisance effects of light glare will not adversely impact off-site properties and roadways.

Phase I will include the provision of all utilities, including domestic water for both domestic consumption and for irrigation purposes. The site lies in the Palmdale Water District service area. The entire site, including Phase I, will be serviced by sanitary sewer. The sewer infrastructure includes a proposed lift station located off-site and several hundred feet to the north of Phase I.

Phase II Northern Recreational Field and Facilities and Regional Drainage Facilities

As noted in the project description, Phase II is to contain the majority of the regional drainage facilities, including channelization of the Anaverde Creek, the earthen dam, spillway, and inlet/outlet drainage control structures. Additionally, the remainder of recreational facilities planned for the project will be located in the Phase II portion of the site.

Access to the Phase II area will be provided from an entrance that is essentially aligned with the current alignment of City Ranch Road. City Ranch Road was the subject of an alignment study that was completed by Civic Engineering in January, 1991. The study concluded that the current alignment of City Ranch Road with very slight modification, would remain the preferred alignment and interface with Tierra Subida Avenue for the future. The portion of Tierra Subida Avenue and Rayburn Road that are fronted by the project will also be improved during Phase II. One access point will be placed on

Rayburn Road. Phase II access improvements will also include completion of the looped multi-purpose trail from the Phase I area. The trail will also function as the Class 1 bike path for the portion of Rayburn Road that is coincidental with the project. All other site design features described in the discussion of Phase I improvements also apply to all Phase II site design features. In addition, the manufactured berm that will form the earthen dam is intended to be hydro-seeded with native ground cover to help restore the natural characteristics of the site.

Encroachment or alteration of the Anaverde Creek channel will not occur until grading of Phase II is initiated. Consequently, the riparian habitat associated with the channel will remain undisturbed until Phase II is developed. However, before any actions are initiated to alter the channel, the City must conduct focused spring studies for certain bird and animal species, and it must receive environmental permits from the U.S. Army Corps of Engineers and from the State Department of Fish and Game. It is anticipated that these permits will require the City to replace or restore other suitable habitat to mitigate the loss of riparian habitat that will occur as a result of Phase II development. This aspect of the project is discussed in detail in the EIR document.

ANALYSIS

Staff recommends approval of the project. This recommendation is made in consideration of the advantages that implementation of the project will provide to the City. These advantages may be considered to outweigh the significant impacts the project would create, which have been discussed in this report and in the EIR document.

General Plan Consistency

The project is consistent with the PF (Public Facility) land use designation of the project site. The PF land use designation for various types of public facilities including but not limited to parks. Specifically, the General Plan identifies the need to develop flood control facilities in accordance with the City's Master Plan of Drainage. As noted previously, the Anaverde Creek is one of two regional drainage courses in the City and controlling downstream flows from the creek at the Anaverde Basin is an integral element of the plan. Public Services Goals PS3 states "Develop and maintain adequate storm drainage and flood control facilities". Policies PS3.2.1 and PS3.2.4 set

standards for the City to develop facilities that can provide for ground water recharge and to combine drainage facilities with recreational facilities.

The project satisfies these goals and policies. The channel will be controlled by use of rip rap materials which will allow for percolation of drainage. Additionally, by designing the basin to detain collected water and to allow it to flow downstream in a controlled manner, the water will be less prone to perch at surface level and to evaporate into the atmosphere.

The selection of the soccer fields for the concurrent recreational use has been made based on the General Plan Parks, Recreation and Trails Element Park Standards Table PRT-1. This standard calls for a sports complex to be provided for each 150,000 population. Additionally, soccer and football fields are recommended for each 5,000 persons. Presently, the City has fewer than 10 soccer fields, but it requires at least 20 such fields based on current population. This deficiency has been noted by significant overcrowding of facilities at peak use periods, and by unresolved demands for field use by competing youth soccer leagues.

OTHER

Parking - As noted in the discussion section, the 369 parking spaces that have been designed into both Phase I and Phase II of the site plan exceeds the City's minimum standards by twenty-seven parking spaces or eight percent over the required minimum. The City's parking standards require ten parking spaces for each acre of active recreational area, and five spaces for each acre of passive recreational area. The fields were assigned the higher parking standard. There are no specific parking standards for soccer fields. Consequently, the soccer fields were assigned the higher parking standard. However, experience with Desert Sands Park and Marie Kerr Park have demonstrated that potential parking deficiencies could occur in the event of a worst-case scenario where all ten fields were in use for back-to-back events. This event could result in a parking demand of over 1,400 spaces. This quantity of parking would not fit on the project site, nor could it be justified given the more modest routine parking demands of the site. Condition of Approval No. 68 would require the City to monitor parking demands and to adjust the scheduling of soccer league events and usage to avoid overlapping schedules, among other parking control measures. This condition also coincides with Mitigation Measure No. 4.5-3a, which is discussed in detail in the EIR document.

Water Usage for Turfed Lawn Irrigation - The irrigation requirements for the project have been calculated based on three case models for carpooling purposes. The first case would involve the use of high water consumption turf standards and inefficient watering schedule. The estimated total usage would be 207.7 acre feet of water per year. Case 2 represents the baseline project landscape plan, using reasonable available control technology for irrigation management and using drought tolerant turf stocks. The estimated usage is 140 acre feet per year. Case 3 would use the most costly control technology and would require the use of warm season variety turf. This would result in the use of only 112 acre feet of water per year. Staff has prepared Conditions of Approval and Mitigation Measures that would limit water consumption to the Case 2 model.

It is staff's determination that these measures represent a reasonable balance of exercising prudent water management with controlling project costs. This determination is also based on the benefits of the project, which include satisfying the recreational facilities needs of over 50,000 persons in over 14,800 households. Additionally, the Mitigation Monitoring Program includes a provision for the City's participation in a region-wide water recycling program, when such a program is established in the Antelope Valley.

Drainage Facilities East of the Project Site. The Palmdale School District commented in review of the Conditional Use Permit application in a letter dated September 19, 1996. In its letter, the District expressed concern that the project may have a significant effect on a proposed school site the District owns at the northwest corner of Avenue R and Division Street. Staff has determined that since the project is proposed to control drainage and flood waters, including the area around Division Street the project will not adversely affect the District's property. No subsequent written communication on the subject has been received by City staff.

ENVIRONMENTAL ANALYSIS

Unavoidable Significant Impacts of the Project

The Environmental Impact Report prepared for the project identified four impacts in three environmental categories that cannot be mitigated to less than significant levels

that would occur as a result of the project. These impacts are discussed in greater detail in the EIR document, and are identified as follows:

Earth Resources

Topography - Development of the project site would result in permanent modification of the natural topography of the project site. Changes to the site's topography would occur as the basin area is excavated and leveled, and the earthen dam would be constructed to size up the forty feet above the natural grade of the site. This would alter the natural aesthetic character of the site. No mitigation measures for alteration to topography are deemed feasible.

Seismicity - The earthen dam could rupture by a significant seismic event, thus releasing any stored runoff. The probability of a combined occurrence of a magnitude 8.0 earthquake along the San Andreas fault (which could cause up to 10 feet of horizontal displacement of the earthen dam) at the same time the basin was filled with water (within five days after a 50 year storm event) is less than .0004 percent. However, even after the application of all seismic design criteria of the Uniform Building Code, the California Department of Water Resources, Division of Safety of Dams, and the geotechnic recommendation contained in the Geotechnical report for the project, the risks of dam failure can not be eliminated. Lesser seismic events, such as individual rupture of the Little Rock Fault, a lesser seismic event along the San Andreas Fault, or an earthquake that occurs when the basin is not filled with water, could cause significant damage to the dam structure, but would not constitute dam failure. The mitigation measures include strict compliance with these codes and guidelines. Additionally, the earthen dam requires permit approval from the Department of Water Resources, Division of Safety of Dams.

Air Resources

Short-term Construction Impacts - The project would create significant exhaust emissions from the construction equipment used on-site. This includes significant levels of fugitive dust (PM10) and nitrogen oxide emissions from diesel engines. Mitigation measures include standard grading practices such as periodic ground watering of roads and grading sites, use of properly tuned diesel equipment, and phased grading activities to avoid high ozone days. However, even after application of these mitigation measures, the impacts will be significant on a short-term basis.

Aesthetics

Light and Glare - Implementation of the lighted sports field complex element of the project would introduce a new light source to the area. The parking area will contain light standards up to 14 feet in height. However, the lights for the soccer fields could reach heights up to 45 feet. Even after application of the City's standards to preclude nuisance effects of exterior lights, the area will generally contain significant illumination which would alter the rural nature of the project site.

Other Environmental Impacts

In addition, the EIR identified thirteen potentially significant impacts of the project in six environmental categories. These include: potential short-term wind and water erosion of the site due to grading, soil settlement, impact on water resources and water quality, the creation of unstable soil conditions, local noise impacts during construction, potential traffic circulation interruption during construction, potential inadequacy of on-site parking, potential short-term aesthetic nuisances during construction, potential for long-term view obstruction, potential for loss of native plant communities, potential for loss of wetland habitat, potential loss of archaeological resources, and potential loss of paleontological resources. However, with modification of the project and with implementation of the Mitigation Monitoring Program, these potential impacts can be reduced to a level of non-significance. These are discussed in detail in the EIR document. Additionally, the EIR identified eight environmental categories for which the project would incur no significant impacts, or less than significant impacts. These categories include: long-term erosion of slopes, long-term emissions, consistency with regional plans, alteration of drainage patterns, sedimentation, groundwater recharge, long-term noise impacts, and long-term traffic impacts.

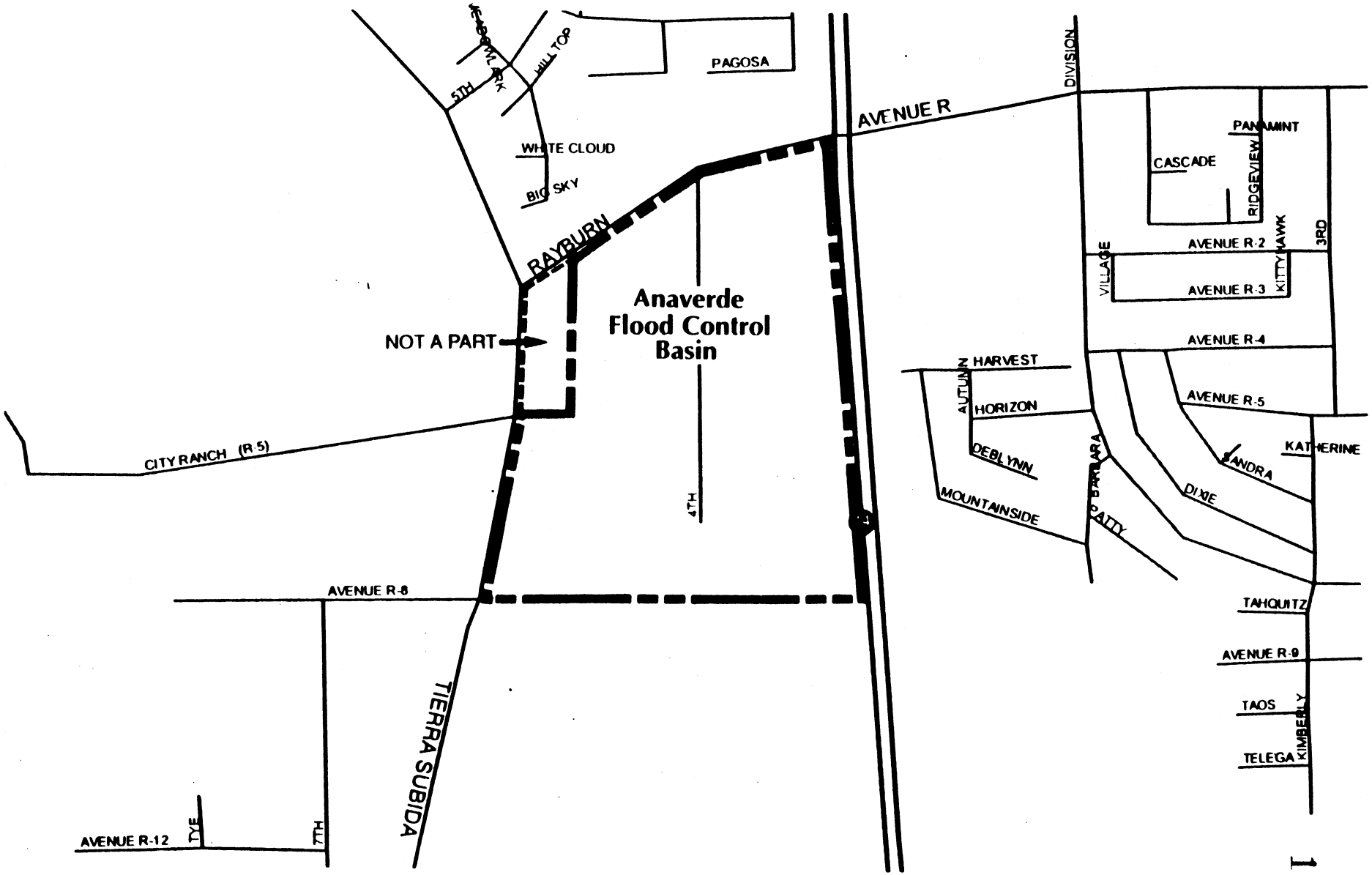
CEQA Section 15093 requires that the approving public agency, the Planning Commission in this case, balance the benefits of the project against its unavoidable environmental issues in determining whether to approve the project. If the benefits of the project outweigh the unavoidable adverse environmental effects, the adverse effects may be considered "acceptable". The specific reasons to support its determination must be included in the record of approval for the project. The Resolution to approve the project contains these required findings for the Commission's consideration.

CONCLUSION

Staff recommends approval of the project because both the regional flood control facilities and the sports complex will be key community assets that are needed to support the public safety and the quality of life for the City's residents and property owners.

Attachments:

1. Vicinity Map
2. Site Plan
3. Letter from the Palmdale School District, dated September 19, 1996
4. Resolution No. PC-96-68



ATTACHMENT 1

108

©1995 Thomas Bros. Maps

Project Site

Not to Scale

ANAVERDE FLOOD CONTROL BASIN AND SPORTS COMPLEX EIR

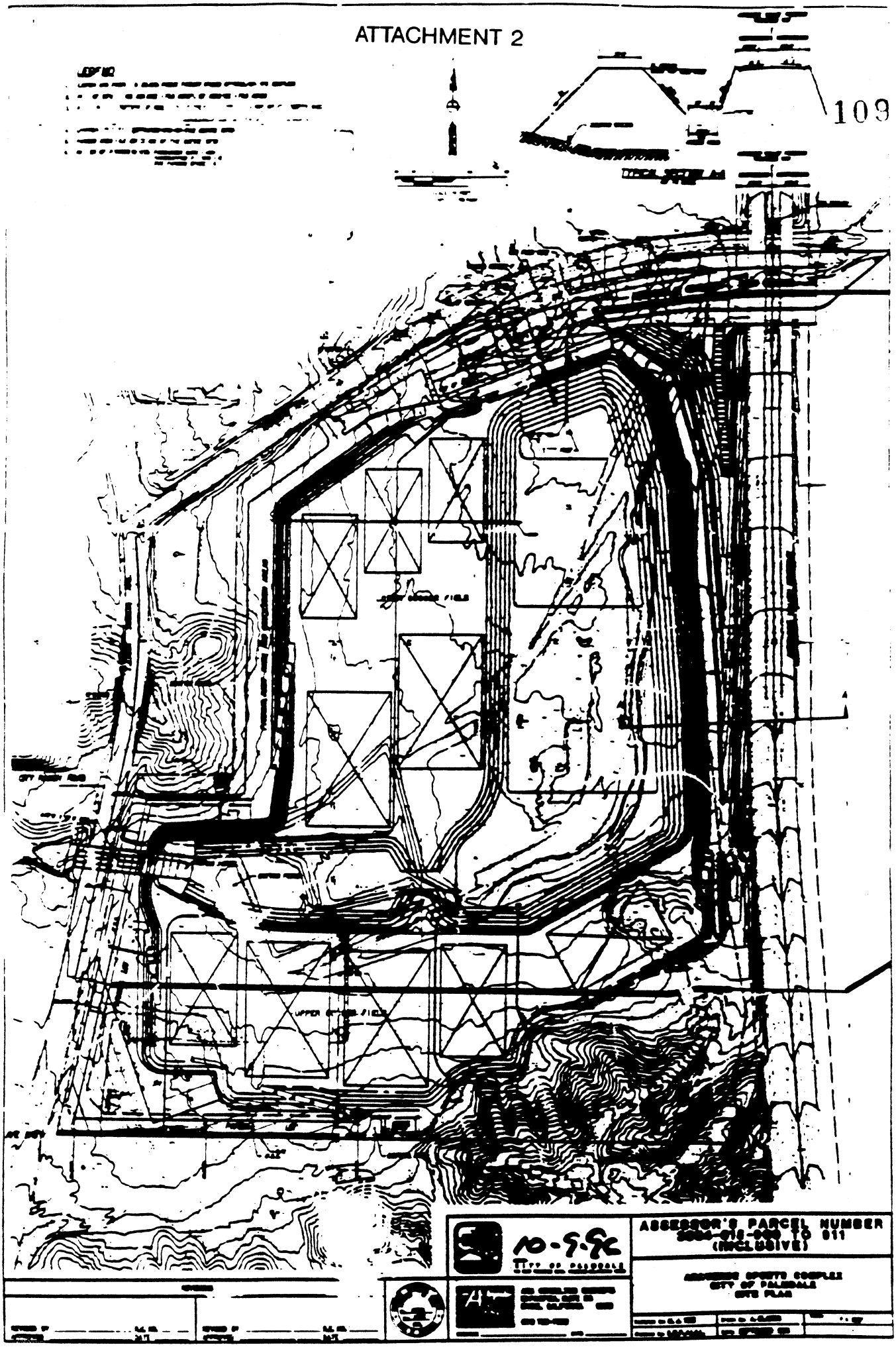
Site Vicinity

Robert Bein, William Frost & Associates

8/96 JN 32168

Exhibit 3-2

ATTACHMENT 2



ATTACHMENT 3

Palmdale School District

110

ROY R. MARYOTT EDUCATION CENTER
39139-49 NORTH TENTH STREET EAST
PALMDALE, CALIFORNIA 93550
PHONE (805) 947-7191
FAX (805) 272-0515

September 19, 1996

City of Palmdale
Planning Department
38306 9th. Street East
Palmdale, CA 93550

RE: Conditional Use Permit 96-14
Flood Control/Sports Complex

The construction of a sports complex at Tierra Subida and Rayburn Road for the intent of creating a flood control/public facility is exempt from the normal school fees usually imposed on commercial permits.

The proposed construction will have no impact on current school facilities; however, it may have a significant effect on a proposed school site the District owns at the corner of Ave R and Division. We may have additional comments after a thorough review of the proposed plans.

Sincerely,

Carolyr C. Hansen
Assistant Superintendent
Business Services

RECEIVED
SEP 23 1996

ATTACHMENT 4

CITY OF PALMDALE
LOS ANGELES COUNTY, CALIFORNIA
RESOLUTION NO. PC-96-68

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF PALMDALE, CALIFORNIA, APPROVING CONDITIONAL USE PERMIT (CUP) 96-14 FOR THE PALMDALE SPORTS COMPLEX

THE PLANNING COMMISSION OF THE CITY OF PALMDALE HEREBY FINDS, RESOLVES, AND ORDERS AS FOLLOWS:

Section 1. An application was duly filed by the City of Palmdale, hereinafter referred to as the Applicant, requesting approval of a regional drainage and recreational facility, known as the Palmdale Sports Complex, Conditional Use Permit (CUP) 96-14, and hereinafter referred to as the project. The project proposes to establish a regional drainage facility and sports complex on 73 acres to be built in two phases. The project area is generally bounded by Rayburn Road to the north, State Route 14 to the east, Avenue R-8 to the south, and Tierra Subida Avenue to the west. The project site is legally described on Attachment I and shown on Attachment II.

Section 2. The project area is generally absent of prior human encroachment. The site is zoned PF (Public Facility) on the Zoning map and General Plan Land Use map of the City of Palmdale.

Section 3. The adjacent land use to the north along Rayburn Road is vacant, with single-family residences farther to the north. The Zoning and General Plan designations for the area along Rayburn Road is C-3 (General Commercial) and CC (Community Commercial), respectively. The residential subdivision farther to the north is zoned R-1 (Single Family Residential) and designated SFR-3 (Single Family, 3.1-6.0 DU/AC). The land use to the east, across SR-14 is undeveloped parcels and residential neighborhoods. The Zoning and General Plan designations for this area are R-1-7,000 and SFR-3, respectively. The area to the south is vacant and is zoned R-1-1 (Single Family Residential, 1 acre minimum lot size), and has a General Plan Land Use designation of SD (Special Development). The seven acre area adjacent to the west at the southeast corner of Rayburn Road and Tierra Subida Avenue, as well as the vacant land farther to the west is zoned and designated as C-2 (Office Commercial) and OC (Office Commercial), respectively.

Section 4. An Environmental Impact Report ("EIR") was prepared for the project by RBF Consultants, Inc. The EIR was circulated to interested agencies between September 4, 1996 and October 21, 1996. Comments were received and responses

prepared and incorporated into the EIR. A copy of the EIR is on file in the office of the Planning Department.

Section 5. The Planning Commission conducted a public hearing on Conditional Use Permit 96-14 on November 7, 1996, at 7:00 p.m. at City Hall Council Chambers, 708 E. Palmdale Blvd., Palmdale, California. Notices of the time, place, and purpose of the aforesaid meetings were duly provided in accordance with California Government Code Sections 65355 and 65090, and Public Resources Code Section 21092.

Section 6. Evidence, both written and oral, was duly presented to and considered by the Planning Commission at the aforesaid public hearing, including but not limited to the staff report dated November 7, 1996, along with testimony by the applicant and other members of the public.

Section 7. The Planning Commission adopted Resolution No. PC-96-67 on November 7, 1996, certifying the EIR, with certain amendments thereto as contained in Exhibit "A", attached to said Resolution, and with the Mitigation Monitoring Program for the project as contained in Exhibit "B", attached to said Resolution.

Section 8. CEQA Section 15091 states that no public agency shall approve or carry out a project for which an EIR has been completed which identifies one or more significant environmental impacts, unless the public agency makes one or more of three possible findings for each of those significant impacts as follows:

1. Changes or alterations have been required in, or incorporated into the project which avoid or substantially lessen the significant environmental effect as identified in the final EIR.

2. Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

3. Specific economic, social, or other considerations make infeasible the mitigation measures or project alternatives identified in the final EIR.

Section 9. With respect to the potentially significant environmental effects for which changes or alterations have been required in, or incorporated into the project

which avoid or substantially lessen the significant environmental effects as identified in the EIR, the Planning Commission finds as follows:

A. **EARTH RESOURCES**

Construction

Grading activities would be required to make the basin functional and to prepare the site for recreational development, subsequently resulting in the exposure of soils to short-term erosion by wind and water.

Geology and Soils

Project grading could result in settlement and other unstable soil conditions, potentially resulting in a significant effect on the environment.

B. **DRAINAGE AND WATER QUALITY**

Sports Complex

Construction and maintenance of the ten soccer fields could affect water quality and/or hydrology.

C. **NOISE**

Short-Term Impacts

Project construction activities will temporarily increase local noise levels.

D. **TRAFFIC AND CIRCULATION**

Short-Term (Construction Impacts)

Development of the proposed project would increase construction traffic on local streets.

Long-Term Traffic Impacts

Due to the lack of parking data for the proposed use, it is difficult to estimate the exact number of parking spaces which can adequately serve the proposed use. Therefore, potential insufficient on-site parking may occur.

E. **AESTHETICS**

Short-Term

Construction of the flood control basin, soccer fields, and related improvements would create temporary aesthetic nuisances associated with project construction and grading activities for the adjacent residential neighborhood.

Long-Term

Long-term development impacts would be permanent and significantly alter views across the site.

F. **BIOLIGICAL RESOURCES**

Vegetation

Implementation of the proposed project would result in the loss of some existing plant communities and Joshua trees.

Wildlife

Implementation of the proposed project could potentially affect wildlife in this habitat area.

Sensitive Species and Habitats

Implementation of the proposed project could potentially affect existing wetland habitats.

G. **CULTURAL RESOURCES**

Archaeology

Project construction and increase human disturbance on-site could impact existing archaeological resources.

Paleontology

Project construction and increased human disturbance on-site could impact existing paleontological resources.

Section 10. With respect to the potentially significant environmental effects for which specific economic, social, or other considerations make infeasible the mitigation measure or project alternatives identified in the EIR, CEQA Section 15093 requires the decision maker to balance the benefits of the project against its unavoidable environmental risks in determining whether to approve the project. According to CEQA, if the benefits of the project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered "acceptable". With respect to these significant and unavoidable impacts which cannot be further mitigated to a level of non-significance, the Planning Commission finds as follows:

A. **Change in Topography**

Implementation of the proposed project would result in modification of the existing topography which would occur during grading activities. Gradual topographic change as project phasing progresses is a significant and unavoidable impact of basin excavation and dam construction. It should be noted that topographical alterations will alter the aesthetic character of the site.

Discussion. The ultimate project would require excavation (cut) of approximately 674,000 cubic yards of earth material and fill of approximately 635,000 cubic yards of earth material, resulting in an alteration of site topography. With an estimated 30,000 cubic yards of excess fill on the adjacent parcel the overall grading will be essentially balanced (only 9,000 cubic yards will require export). Placement of the excavated material to construct the dame and earthen levees of the basin

and the soccer fields would alter the topography of the project site and those areas receiving this fill.

Gradual topographic change as project phasing progresses is a significant and unavoidable impact of basin excavation and dam construction. It should be noted that topographical alterations will alter the aesthetic character of the site. No mitigation measures have been identified which will reduce impacts associated with the physical modification of the project site's topography.

CONCLUSION: Changes in topography as a result of the project reduction in PM10 are considered to be impractical given the purpose and design of the project. However, the project's specific economic, social, or other considerations outweigh the identified significant impacts. This effect is determined to be acceptable because there are potentially significant benefits of the project. These include consistency with the area's General Plan requirements for drainage and flood control facilities and recreational facilities.

B. **Seismicity**

Due to the proximity of the San Andreas Fault Zone and the Little Rock fault to the project site, ground motion during seismic events could cause the dam embankment to fail.

Discussion. Because of its proximity to the San Andreas Fault Zone and the Little Rock fault, the proposed flood control basin and sports complex could be subject to ground shaking from earthquakes. Ground shaking during an earthquake or potential ground rupture from movement along Little Rock fault may cause slope failures within the basin, thereby displacing water. The potential for ground rupture at the project site is considered to be high. Vertical displacement associated with ground rupture and/or strong ground shaking could cause failure of the dam or levees, or both. Since water levels would be above grade when the facility if filled with flood water, the possibility of catastrophic flooding by failure of the dam or levee caused by a seismic event must be considered significant. However, it should be noted that the proposed basin would hold water at a high level for a limited period of time and ground shaking could result in only some limited deformation of the slopes. In addition,

considering that the basin is designed to empty even the maximum potential flood (MPF) within five days, the probability of concurrence of the peak ground acceleration with any flooding condition is extremely low (less than 0.0004 percent in 50 years).

Further soils investigations will be necessary both to establish the suitability of excavated materials for dam and levee construction, and to determine final design parameters which address seismic concerns. All appropriate means should be taken to ensure dame and levee survival during a seismic event. However, it may not be possible to fully mitigate against the possibility of failure of the dam for vertical displacements associated with ground rupture.

Mitigation Measure: The proposed project shall adhere to and be in strict compliance with the seismic design criteria of the Uniform Building Code and the City of Palmdale, as well as the California Department of Water Resources, Division of Safety of Dams Guidelines for the Design and Construction of Small Embankment Dams.

CONCLUSION: Further reductions in the level of risk of dam failure emissions are considered to be impractical given the location of the project. However, the project's specific economic, social, or other considerations outweigh the identified significant impacts. This effect is determined to be acceptable because there are potentially significant benefits of the project. These include consistency with the area's General Plan requirements for drainage and flood control facilities and recreational facilities.

C. **Air Resources**

Short-term Construction Impacts

Project implementation would result in significant fugitive dust (PM) and nitrogen oxide exhaust emissions from the construction equipment used on-site and the trucks to transport materials/excess fill to/from the site.

Development of the proposed project will occur over two phases, with Phase I consisting of a 29-acre sports complex (10 soccer fields and appurtenant facilities) and Phase II consisting of a 43-acre flood control

basin and appurtenant facilities. Project implementation will involve an estimated 9,000 cubic yards requiring export to an off-site location. Each phase will occur over an estimated period of six months.

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:

- Exhaust emissions from the heavy-duty, diesel powered construction equipment used on-site as well as the vehicles used to transport materials to/from the site and to transport excess fill off-site.
- Particulate (fugitive dust) emissions from grading, excavation, and clearing activities on-site.
- Air pollutant emissions at the power plan serving the site, while temporary power lines are needed to operate construction equipment and provide lighting.

Discussion: Diesel-powered, earth-moving vehicles used during the excavation/construction phases would produce exhaust emissions. The impacts from the emissions would depend on climate conditions (wind dispersion of exhaust) and the number of vehicles working at the project site. During construction activities, the smell of diesel fumes would be the most noticeable impact directly downwind from the project site. Nitrogen oxide compounds (NO_x) and carbon monoxide (CO) are the main pollutants released by diesel-powered equipment. Calculations of on-site emissions indicate that all projected emissions fall below levels designated as significant thresholds, with the exception of nitrogen oxides. Exhaust emissions from the heavy-duty construction equipment during the short-term construction phase are estimated to range from 70.60 pounds per day of reactive hydrocarbons to 681.83 pounds per day of nitrogen oxide emissions.

The heavy-duty, diesel powered vehicles used to transport excess fill off-site will generate exhaust emissions during transport. Approximately 9,000 cubic yards of excess fill will be transported to an off-site disposal site, which is assumed to be located approximately 15 miles north of the project site.

No definitive methodology by which to assess the significance of the project's impact directly upon air quality has been set forth to date by any regulatory agency, including the SCAQMD (which has jurisdiction over the project). However, the SCAQMD has suggested threshold values for air pollutant emissions as a means of generally assessing the potential significance upon ambient air quality of a proposed project's emissions. It should be noted that according to the SCAQMD *CEQA Air Quality Handbook*, the threshold values are considered to be suggestions only. The intent of the SCAQMD threshold values is to provide guidelines in order to generally determine the significance of the project's stationary and mobile source emissions. In accordance with the SCAQMD's recommendation, this analysis has utilized the threshold values as one of the criteria to determine the potential significance of the project's air pollutant emissions.

When the total daily exhaust emissions from the construction equipment are added to the estimated fugitive dust emissions, SCAQMD NSR threshold values are exceeded for fugitive dust and nitrogen oxides. Short-term impacts (based on threshold levels) for carbon monoxide, sulfur dioxide, and reactive hydrocarbons would not be considered significant.

Discussion: Fugitive dust poses two public health and safety concerns. The first concern is that of respiratory problems attributable to the suspended particulates in the air. The second concern is that of motor vehicle accidents caused by reduced visibility during severe wind conditions. Fugitive dust may also cause significant property damage during strong wind storms by acting as an abrasive material agent, much like sandblasting activities.

The actual quantity of fugitive dust emissions generated is governed by the type and amount of work being done and the prevailing wind conditions. Site preparation, clearing, grading, excavation and heavy-duty equipment/truck use on unpaved surfaces can create large quantities of fugitive dust during the construction process. However, based on typical earth-moving operations and assuming that no mitigation measures are employed, an estimated 55 pounds of particulate matter will be discharged daily into the atmosphere per acre graded. It should be noted that the fugitive dust emissions represent particulate matter with

diameters equal to, or less than, ten microns (PM). PM is a specific subset of total particulates and is monitored by the SCAQMD as one of several criteria air pollutants. Furthermore, most particulate matter settles out within a small distance from the Project site.

The entire 73-acre project site will not be subject to earth-moving operations on a daily basis. It is estimated that earth-moving activities will occur over an area of approximately 10 acres at one time. Applying the EPA factor to the relevant project surface area provides a dust emissions estimate of approximately 550 pounds per day per acre (before mitigation). The EPA has estimated that regular watering of the portions of a site under operation may reduce fugitive dust emissions by up to 50 percent. Therefore, with watering measures implemented, project fugitive dust (particulate) emissions are estimated to be approximately 275 pounds per day per acre for the duration of earth-moving operations, which is a significant impact.

Mitigation Measures: The project will implement the following mitigation for construction-related air emissions:

a. The Project Applicant shall obtain any and all permits as may be required by the South Coast Air Quality Management District ("SCAQMD") for the removal, transportation, and disposal of soil.
b. Ground wetting procedures and other dust palliative measures shall be followed during earth-moving operations and construction to minimize fugitive dust emissions.
c. Trucks importing or exporting earthen materials shall be covered and sprinkled prior to entering public streets.
d. Roadways shall be periodically swept or otherwise cleared of any spilled export material to assist in minimizing fugitive dust in accordance with SCAQMD Rule 403.
e. Construction equipment shall be maintained in proper tune.
f. Construction/grading activities shall be phased and/or scheduled to avoid high ozone days.

CONCLUSION: Further reductions in air emissions during construction activities are considered to be impractical given the scale of the project, the development plan and the foreseeable level of technology and standard practices that can be applied to large scale grading activities.

However, the project's specific economic, social, or other considerations outweigh the identified significant impacts. This effect is determined to be acceptable because there are potentially significant benefits of the project. These include consistency with the area's General Plan requirements for drainage and flood control facilities and recreational facilities.

D. **Light and Glare**

Implementation of the sports complex element of the proposed project would introduce a new light source into this rural setting.

Discussion: The illumination of all ten soccer fields and parking lots will introduce a new light source in this rural setting. The residential development north of Rayburn Road and motorists on adjacent roadways will be most affected by the lighted fields. As a potential mitigation, the direction and intensity of lighting will be controlled by state of the art control devices which will focus the light on the parking lots and soccer fields, which will minimize light spilling into adjacent areas. Light and glare will also be controlled by the hours of operation of the sports complex which will end no later than 10:00 p.m. It should be noted that lighting levels will also be reduced due to the fact that the playing surfaces will be located within the proposed flood control basin, approximately 20 to 25 feet below the top of the basin embankments. For security, parking lot lights will remain on beyond 10:00 p.m. until approximately 10:30 p.m.

Due to the fact that the project will introduce significant new light sources into a rural area, this will significantly alter the natural landscape and affect the aesthetic character of the project site, even following implementation of the available mitigation measures.

Mitigation Measures: During construction, the contractor shall keep the site clear of all trash, weeds, etc. Compliance with this measure is subject to periodic site inspection by City Staff.

During construction, the contractor shall provide screening of the site's northern perimeter, along Rayburn Road, in order to partially screen views of the site from residential lots to the north.

The contractor shall establish construction staging areas at least 500 feet from the nearest residential lot. The equipment stored in the staging area shall be kept in an orderly fashion. Compliance with this measure is subject to periodic site inspections by City Staff.

The City of Palmdale shall review and approve the project's landscape plans. The landscape plans should include the planting of native shrubs and California junipers along the northern, western, and eastern project boundaries in order to partially screen the basin from view of motorists traveling along Rayburn Road, Tierra Subida Avenue, and the Antelope Valley Freeway. Landscaping shall, at minimum, address the following:

- Use of native and/or drought-tolerant species;
- Proposed palette, size, and placement; and
- Irrigation requirements

All lights used to illuminate the parking areas and soccer fields 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, unless specifically permitted by a special event permit on a case-by-case basis.

The Sports Complex hours of operation shall conclude no later than 10:00 p.m. All lights, except for security lighting within parking lot areas, shall be turned off.

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.

CONCLUSION: Further reductions in light emissions are considered to be impractical given the scale and purpose of the project and the level of technology for large area lighting. However, the project's specific economic, social, or other considerations outweigh the identified significant impacts. This effect is determined to be acceptable because there are potentially significant benefits of the project. These include consistency with the area's General Plan requirements for recreational facilities as part of co-located drainage and flood control facilities.

Section 11. The Planning Commission recognizes that during build-out of the Palmdale Sports Complex project, substantial changes may occur with respect to the circumstances under which the project is undertaken or that new information of substantial importance may become available which shows that the project may have substantially more and/or severe environmental effects than were identified in the EIR. The Planning Commission therefore expresses its intent to reserve the City's authority to require additional environmental review of the project under those and other circumstances pursuant to State CEQA Guidelines Sections 15162 and 15163 and any other applicable laws and regulations, with regard to one or several of the environmental and public resources discussed in Section 9 and 10 of this Resolution.

Section 12. With respect to Conditional Use Permit (CUP) 96-14, the Planning Commission of the City of Palmdale, finds as follows:

A. The Planning Commission hereby specifically finds that all of the facts set forth in Sections 1 through 11 of this Resolution, are true and correct.

B. The proposed use is consistent with the goals, policies, and objectives of the General Plan because the project will provide for a regional drainage control facility for the Anaverde Creek in accordance with General Plan Public Services Goal PS3 which states, "Develop and maintain adequate storm drainage and flood control facilities". The use also satisfies General Plan Parks, Recreation and Trails Element Goal PRT1 which states, "Provide adequate parks to meet the needs of existing and future residents". The proposed use is not inconsistent with any other goals, policies, or objectives in the Palmdale General Plan.

C. The proposed use is beneficial and desi ɔus to the community and is consistent with the purpose, intent, and standards of the Zoning Ordinance and other applicable ordinances and codes adopted by the City of Palmdale because the project will provide for required flood control facilities for properties that are presently affected by flooding of the Anaverde Creek and the project will provide recreational facilities to residents City-wide. Both of these uses are permitted by the PF (Public Facilities) land use designation of the property.

D. The site for the proposed use is adequate in size and shape to accommodate all yards, open spaces, setbacks, walls and fences, parking areas, fire and building code considerations pertaining to the application,

or as required by the Commission as a condition. Evidence supporting this finding is contained in the submitted plans and application materials for the project, including the phased site plan for the project, the preliminary soils and hydrology report, and the Environmental Impact Report prepared for the project.

E. The proposed use and the on-going operation of the use will not have a substantial adverse effect on abutting property or the permitted use thereof, and will not generate excessive noise, vibration, traffic, or other disturbances, nuisances, or hazards because the project design and the Conditions of Approval prepared for the project, and the Mitigation Monitoring Program for the project has identified certain resources to include the allowance of such nuisance effects. The exception to this is the potential significant effects from air resources during construction activity and light and glare effects during operation of the facilities. However, these effects have been found to be acceptable, as evidenced by the Statement of Overriding Considerations adopted for the project.

F. The site for the proposed use has adequate access, meaning that the site design incorporates street and highway limitations because Tierra Subida Avenue and Rayburn Road are both paved arterial roadways which will be improved as part of the project.

Section 13. The Planning Commission has reviewed and considered the EIR for the project and finds that the EIR has been completed in compliance with CEQA. The Planning Commission has also reviewed and considered the Mitigation Monitoring Program for the EIR that has been prepared pursuant to the requirements of Public Resources Code Section 21081.6 and finds that such Program is designed to ensure compliance with the mitigation measures during project implementation.

Section 14. Based upon the aforementioned findings, the Planning Commission adopts Resolution No. PC-96-68, approving Conditional Use Permit (CUP) 96-14, subject to the conditions contained in Attachment III.

Section 15. The Deputy City Clerk shall certify to the adoption of this Resolution.

PASSED, APPROVED, AND ADOPTED this 7th day of November, 1996.

AYES: _____

NOES: _____

ABSENT: _____ ABSTAIN: _____

_____
John Mayfield, Chairman
Planning Commission

ATTEST:

_____
Kathy Inman, Deputy City Clerk

MEB:PS:kmi

ATTACHMENT I

126

ANAVERDE RETENTION BASIN P-1EX
Includes P-2EX, P-3EX, P-4EX,
P-6EX and P-8EX
C.I. 309-237
698-RW 1.1 and 1.2
Fifth District
T.G. 183 (A1) Old
4285 (J2,H3) New
A.M.B. 3004-015-900 to 911 (Inclusive)

DESCRIPTION

PARCEL NO. P-1EX (Quitclaim of fee):

That portion of the northeast quarter of Section 34, Township 6 North, Range 12 West, S.B.M., lying westerly of the westerly line of that certain parcel of land described in deed to the State of California, recorded in Book D1991, page 416, of Official Records, in the office of the Recorder of the County of Los Angeles and lying southerly of the centerline of that certain 100-foot-wide strip of land described in Easement Deeds to said county for Rayburn Road, recorded on March 18, 1968, as Instrument Nos. 3200 and 3201, of said Official Records.

The area of the above-described PARCEL NO. P-1EX is 64.31 acres, more or less.

PARCEL NO. P-2EX (Quitclaim of fee):

The southeast quarter of the northeast quarter of the southeast quarter of the northwest quarter of above-mentioned Section 34.

The area of the above-described PARCEL NO. P-2EX is 2.54 acres, more or less.

PARCEL NO. P-3EX (Quitclaim of fee):

The northeast quarter of the southeast quarter of the southeast quarter of the northwest quarter of above-mentioned Section 34.

The area of the above-described PARCEL NO. P-3EX is 2.54 acres, more or less.

PARCEL NO. P-4EX (Quitclaim of fee):

The southeast quarter of the southeast quarter of the southeast quarter of the northwest quarter of above-mentioned Section 34.

The area of the above-described PARCEL NO. P-4EX is 2.54 acres, more or less.

PARCEL NO. P-6EX (Quitclaim of fee):

That portion of the southwest quarter of the southeast quarter of the southeast quarter of the northwest quarter of above-mentioned Section 34, lying easterly of that certain course in the centerline of Tierra Subida Avenue, 100 feet wide, described as having a length of 2,634.33 feet in Road Deed to the County of Los Angeles, recorded on December 19, 1967, as Instrument No. 3191, in Book D3863, page 290, of above-mentioned Official Records.

The area of the above-described PARCEL NO. P-6EX is 1.08 acres, more or less.

PARCEL NO. P-8EX (Quitclaim of fee):

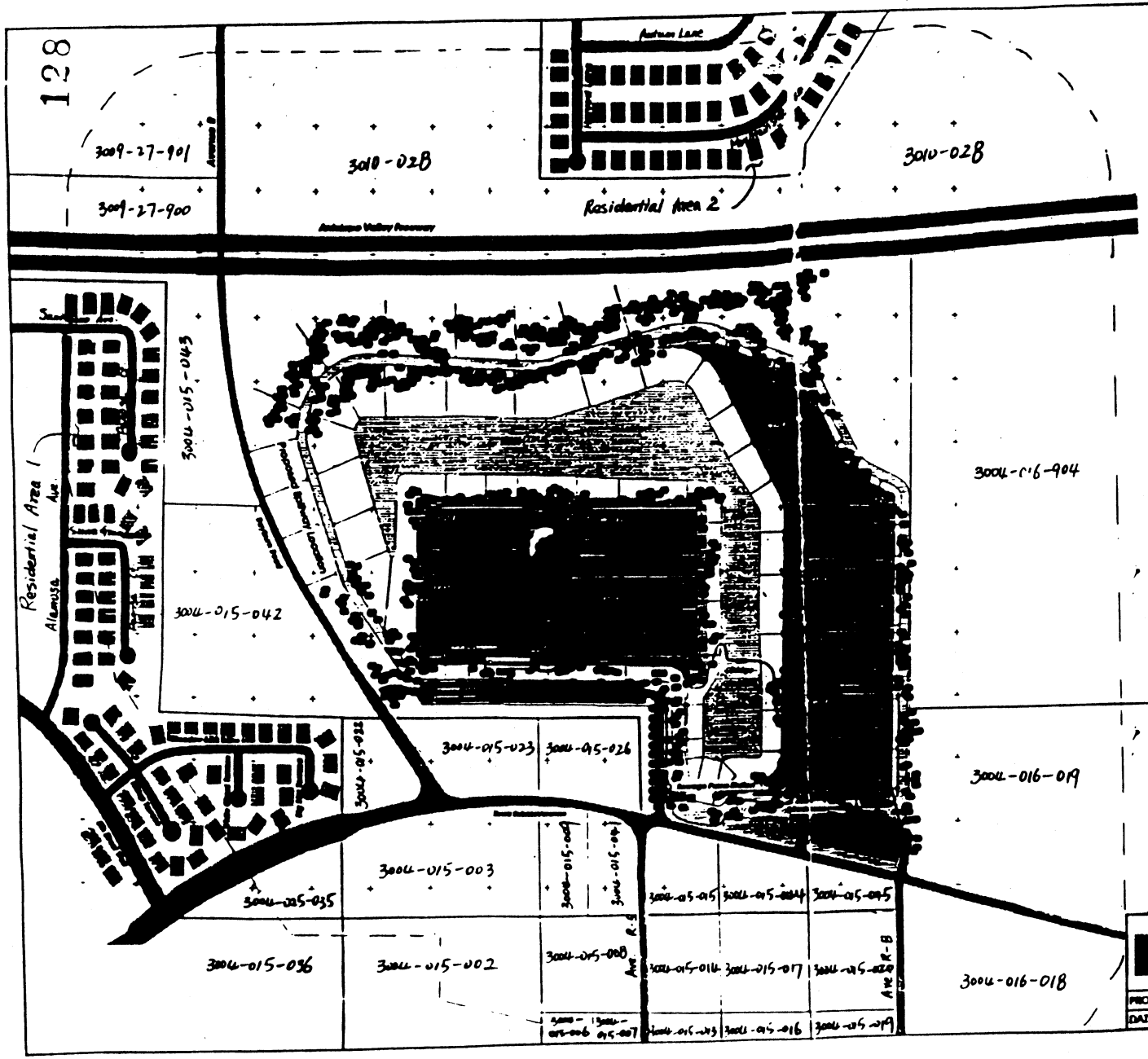
The northwest quarter of the southeast quarter of the southeast quarter the northwest quarter of above-mentioned Section 34, lying easterly of the above-mentioned certain course in the centerline of Tierra Subida Avenue, described as having a length of 2,634.33 feet.

The area of the above-described PARCEL NO. P-8EX is 24,483 square feet, more or less.

EXHIBIT A

APPROVED AS TO DESCRIPTION
August 20, 1996
COUNTY OF LOS ANGELES
BY [signature]
SUPERVISING CADASTRAL ENGINEER I
Mapping and Property Management Division

ATTACHMENT II



Subject Parcels:
3004-015-900 through 911
Residential Area 1 parcels:
3004-025-008 through 029
3004-031-006 through 050
Residential Area 2 parcels
3010-032-029 through 055
3010-033-001 through 009
3010-033-024 through 031
Dashed line indicates 700 feet from boundaries of the subject parcels

N

0 300 600 Feet

AKM

PROJECT NO.: 0140T/B.00

DATE: Sept 1996

ANAVERDE DETENTION BASIN & SPORTS COMPLEX

RADIUS MAP

ATTACHMENT III

DRAFT

CONDITIONS OF APPROVAL FOR CONDITIONAL USE PERMIT 96-14

APPROVAL DATE: November 7, 1996
EFFECTIVE DATE: November 19, 1996
EXPIRATION DATE: N/A per Zoning Ordinance Section 20.12C

These conditions of approval apply to Conditional Use Permit 96-14 to construct a sports complex and regional drainage facility on 73 acres zoned PF (Public Facility) located generally at the southeast corner of Tierra Subida Avenue and Rayburn Road. Any proposed change of use or expansion of the area, or modifications to the site plan or structures shall be submitted to the City Planning Department for review. For the purpose of these conditions, the term "applicant" shall also mean the developer, the owner or any successor(s) in interest to the terms of this approval.

GENERAL CONDITIONS:

1 Conditional Use Permit 96-14 approval is based on the site plan labeled Exhibit A, dated 10-9-96. (P)

2 The applicant shall comply with the requirements contained in the Mitigation Monitoring Program (MMP) prepared for the project in conjunction with Environmental Impact Report (EIR) 96-1. Compliance shall occur at the time and to the performance standards contained in the Mitigation Monitoring Program. (P)

3 Sign approval for the project is a separate process requiring the issuance of a sign permit and building permits, and is subject to review and approval by the Planning Department and Building and Safety Department. (P)(B&S)

4 Pursuant to Fish and Game Code Section 711.4, within five days after approval of this project, the applicant shall remit to the City a check, payable to the County Clerk, in the amount of $850, plus $25 for the County Clerk's documentary handling fee. (P)

5 The applicant shall be responsible for informing all subcontractors, consultants, engineers, or other business entities providing services related to the project of their responsibilities to comply with all pertinent requirements in the Palmdale Municipal code, including the requirement that a business license be obtained by all entities doing business in the City. (P)

6 The use shall meet the standards and shall be developed within the limits established by the Municipal Code as related to emissions of noise, odor, dust, vibration, wastes, fumes, or any public nuisances arising or occurring incidental to the establishment or operation. (P)

7 The applicant shall be responsible for the on-going maintenance and upkeep of undeveloped portions of the site, in accordance with the City of Palmdale's Property Maintenance Ordinance No. 1028. (P)

8 When exhibits and written conditions of approval are inconsistent, the written conditions shall prevail. (P)(E)

9 Off-site public improvements may be necessary to adequately serve this development. If off-site public easements are required, this Conditional use Permit approval is subject to the applicant's acceptance of the City of Palmdale requirements for acquisition of off-site easements including applicant's financial responsibility. (E)

10 The applicant shall participate in such on-site and off-site water service improvements as may be required by the serving water purveyor. (E)

11 Coordination with utility companies by the applicant's engineer during design shall be required in order to ensure that required public improvements are not in conflict with existing or proposed utilities. (E)

12 The applicant shall comply with all requirements of the Congestion Management Program for the County of Los Angeles and any related City of Palmdale requirements. These shall include, but are not limited to: trip reduction, deficiency plan, traffic and public transportation requirements and improvements, and impact fee requirements. (TE)

13 Left-turn ingress and/or egress at all access locations is subject to approval of the Traffic/Transportation Engineer and may be restricted in the future due to traffic operational or safety concerns. Alternatives to such restrictions may be considered. (TE)

14 All plans, specifications, studies, reports, calculations, maps, notes, legal documents, and designs, shall be prepared, signed, and stamped (when

required) only by those individuals legally authorized to do so. Plans for public improvements must be prepared, signed, and stamped by a California Registered Civil Engineer. (E)

THE FOLLOWING CONDITIONS SHALL BE ADDRESSED WITH THE SUBMITTAL OF GRADING PLANS OR PRIOR TO ISSUANCE OF A GRADING PERMIT:

15 The applicant shall submit four (4) sets of final site plans, floor plans, building elevation(s), and photometric lighting plans to the Planning Department for review and approval along with required fee(s) for plan check review. Such plans shall be fully dimensioned and in substantial conformance with those approved by the Planning Commission/Director of Planning. Plans shall address the following: (P)

15.1 A 30 foot building setback along with a 20 foot landscaped area shall be provided along all project frontages. Said setbacks shall be measured from the ultimate property lines.

15.2 Location and enclosure details of refuse containment areas. Such areas are to be enclosed by a six foot (6') decorative masonry block wall/material compatible with the main structure(s). A self closing gate constructed of solid metal materials and attached to metal posts embedded in concrete and a decorative roof and side treatment shall be provided. Refuse enclosures shall be designed to meet or exceed the minimum capacity requirements of the development as determined by the Building & Safety Department and shall be located to provide unobstructed 24 hour access to refuse vehicles.

15.3 Location and screening materials for all utility and transformer boxes, backflow devices, and other similar equipment. Such facilities shall be placed underground, unless otherwise specified and approved. Screening shall be compatible with main structures and include landscaping where appropriate.

15.4 Location and method of screening for all equipment shall be demonstrated, including but not limited to air conditioning and heating units. All equipment shall be screened from public view. No push-through

air conditioning units are permitted. All roof mounted equipment shall be screened from view by parapet walls or other architectural means. The applicant shall demonstrate to the satisfaction of the Director of Planning that no roof mounted equipment will be visible from the public right-of-way.

15.5 Location of all devices required by the water district shall be shown on the site plan; all such devices must be screened with a low-profile wall to match the building, or other method as approved by the Planning Director.

15.6 Site plan shall identify interior traffic flow pattern. Said markers shall be designed as low profile and small in square footage to complement the project landscaping theme.

15.7 Site plan shall identify all pedestrian access ways and traffic crossings. Crossings shall be clearly marked, lighted and identified throughout the interior of the project. Design of these areas shall be reviewed and approved by the applicable City departments and shall comply with Title 24 Handicapped Accessibility Standards and City Building Codes. (Adopted codes are the 1996 Los Angeles County Codes).

15.8 Site plan shall show the slope and the width of the path from public side walk to each building entrance and to the playing fields for the disabled access. NOTE: Such paths shall not be located behind parked cars. The slope of the path from the parking to the fields does not meet the disabled access requirements. A ramp shall be provided with intermediate landings each 3 feet as well as handrails. (B&S)

15.9 Site plan shall note the location and dimensions for all assigned, bicycle, and handicapped accessibility features for the site, and shall be in compliance with the latest version of Title 24 of the California Code of Regulations.

15.10 Sidewalks adjacent to a parking area shall be a minimum of seven (7) feet in width.

15.11 Site plan shall clearly indicate no parking areas and fire lanes, and indicate how such areas will be designated on the site.

15.12 Decorative paving shall be shown at the project's entrance to a minimum depth of 20 feet from the property line on Tierra Subida Avenue and Rayburn Road. Stamped concrete is not permitted.

15.13 Site plan shall indicate the alignment of all adjacent streets, turn lanes, medians, bus turnouts, and location of project entrance(s), drive aisles, traffic control devices, sidewalks, landscape setbacks, and location of other infrastructure as determined by the Director of Planning.

15.14 A minimum twelve foot paved access shall be provided to the bottom of the basin for maintenance purposes. The pavement section along the proposed service path to the bottom of the basin shall be designed to withstand heavy equipment traffic. Maintenance access shall be provided to the basin at the north end of the site near the dam and outlet structures as well as at the southwest end of the basin near the inlet structures and rip-rap. Design shall be based upon HS-20 truck turning radius. (E)

15.15 Site plan shall indicate the location and method of operation of any vehicle restricting gates. The gates shall be subject to the approval of the Traffic/Transportation Engineer and the Fire Department. Where utilized, a portion of the guest spaces shall be accessible without passing through a security entrance, and residents shall not be required to pay additional costs to receive devices to open a security gate.

15.16 Elevations shall note proposed materials, colors, height, dimensions, window, roof, and patio/balcony treatments for all four sides of proposed structure(s).

15.17 Exterior ladders providing roof access shall be prohibited. Access to the roof shall be provided within the building.

15.18 All gutters and downspouts shall be concealed unless painted to match the surface to which it is attached.

15.19 The photometric lighting plan for the parking area and the site shall comply with applicable standards contained in the Zoning Ordinance or as required by the Mitigation Monitoring Program prepared for the project.

15.20 Site plan shall provide a Building Code Analysis showing the occupancy of each building, the allowable area of the buildings, and the proposed areas of the building. (Adopted codes are the 1996 Los Angeles County Codes).

15.21 All driveways shall have a minimum of 20 feet of queuing area at grade with the intersecting arterials. (TE)

16 The applicant shall provide four (4) copies of landscape plans to the Planning Department for review and approval. These plans shall include, but not be limited to, the following items: (P)(E)

PROJECT LANDSCAPE REQUIREMENTS

16.1 Street trees in the parkways shall not exceed a spacing approved by the City Landscape Architect for the species proposed.

16.2 Where trees are incorporated into the landscape design of common or open areas, all trees shall be a minimum one (1) inch caliper in a 15 gallon or larger container size. Fifty (50) percent of the trees shall be a minimum two (2) inch caliper in a 24 inch box size or larger container. Twenty (20) percent of the trees shall be a minimum two and a half (2-1/2) inch caliper in a 36 inch box size or larger container. The trunk caliper shall be measured four and on-half (4-1/2) feet above the root crown. Any Washingtonia spp. or similar palm trees proposed shall have a minimum of twelve (12) feet of brown trunk height.

16.3 All plant material shall be indicated on the landscape plans with symbols that are sixty (60) percent of a diameter of the mature size of the plant. When determining mature plant size, the lower end of the size range shall be used (for example, if a plant is indicated to have a mature size of 6-10 feet, a six (6) foot diameter shall be used when graphically indicating the plant material on the plan).

16.4 All landscape areas shall be enclosed by a six (6) inch raised concrete curb. All turf areas shall be separated from non-turf areas by a minimum of a six (6) inch raised concrete mow strip.

16.5 All slopes steeper than 3:1 shall be landscaped for erosion control per the Engineering Design Standards.

16.6 Backflow devices shall be screened with a solid Le Meur cover or equivalent and landscaping.

16.7 All plant material sizes and calipers shall conform to the American Standard for Nursery Stock, American Association of Nurserymen, Washington, DC, 1990.

16.8 The landscape plans shall comply with all provisions of Municipal Code Chapter 14.05, Water Efficient Landscape Ordinance.

PARKING LOT LANDSCAPE REQUIREMENTS

16.9 Landscaping shall be provided within parking areas so that at least five (5) percent of the surface area of the parking lot is landscaped (excluding perimeter and front setback landscaping). Landscaping shall be dispersed throughout the parking lot in order to provide shade throughout the lot.

16.10 A minimum of one (1) canopy tree per four (4) parking stalls (or eight parking stalls when two rows of four share a common frontage) shall be provided.

16.11 A minimum forty (40) percent of the parking lot trees shall be a minimum 24-inch box size and with a minimum two (2) inch caliper.

16.12 Landscape planters shall be a minimum of five (5) feet in width (inside dimension), except that tree wells located between parking rows and spaces may be a minimum of four feet in width (inside dimension). All landscaping and planting within paved areas shall be contained within raised planters surrounded by six inch concrete curbs.

16.13 Bumper blocks or curbs shall be placed a minimum of thirty (30) inches away from the trunk of any tree.

16.14 Landscape islands, a minimum ten (10) feet in width with minimum aisle turning radii of ten (10) feet shall be provided at the end of all parking rows, except where parking rows directly abut buildings, sidewalks, wall, or similar features.

16.15 Landscape islands shall not extend closer than three (3) feet from the aisle end of the adjacent parking space(s).

16.16 Landscape islands shall be designed with a six (6) inch curb and a minimum one (1) foot paved area where abutting the side of parking stalls. Paved areas of landscape islands shall not be counted toward fulfilling landscape requirements.

16.17 All landscape islands, which are located at the front of head-in parking spaces, shall be designed with a minimum two and a half (2-1/2) foot area free from vegetation where the front of a vehicle may overhang the island. The overhang area shall be surfaced with non-living landscape material such as bark, gravel, or rock. Two and a half (2-1/2) feet of the overhang area may be counted as part of the overall parking space length.

16.18 All portions of a parking lot devoted to landscaping shall be provided with a permanent automatic irrigation system designed for water conservation.

17 The applicant shall comply with all provisions of Municipal Code Chapter 14.04, Joshua Tree and Native Vegetation Preservation and the Desert Vegetation Preservation Plan prepared for the project. (E)

18 Caltrans approval is required for the proposed improvements within the State right-of-way. (E)(P)

19 Plans shall demonstrate satisfactory compliance with design requirements of the Los Angeles County Fire Department, including but not limited to, the following: (F)

19.1 Fire Department access shall be extended to within 150 feet distance of any portion of structure to be built.

19.2 Access shall comply with Section 10.207 of the Fire Code which requires all weather access. All weather access may require paving.

19.3 Where driveways extend further than 300 feet and are of single access design, turnarounds suitable for fire protection equipment use shall be provided and shown on the final map. Turnarounds shall be designed, constructed, and maintained to insure their integrity for Fire Department use. Where topography dictates, turnarounds shall be provided for driveways which extend over 150 feet.

19.4 The private driveways shall be indicated on the final map as "FIRE LANE" and shall be maintained in accordance with the Los Angeles County Fire Code.

20 Grading and wall plans shall be submitted for review and approval to the Engineering Division. Approval by both the City Engineer and Planning Director shall be obtained prior the issuance of a Grading Permit. Final grading and wall concepts shall be in substantial conformance with those shown on the approved site plan, conceptual grading plan. (P)(E)

21 In all cases where a required wall is to be located adjacent to the top of a 2:1 or greater slope the wall shall be set back a minimum two and one-half (2-1/2) feet from the crest of that slope on the level side. All slope and wall configurations shall meet the setback requirements of the City Building Code. (P)(E)

22 Prior to the issuance of a Grading Permit for Phase II, the developer shall obtain the following approval: (E)

22.1 Obtain a permit from Dam Safety to construct the proposed dam.

22.2 Obtain a permit from Caltrans for encroachment into State Route 14 right-of-way.

22.3 Obtain necessary title and interest to construct off-site facilities, including but not limited to, low flow outlet culvert, outlet culvert, and spillway outlet channel.

22.4 The developer's engineer shall submit an additional study to the City Engineer to address impacts associated with the downstream discharge. The City Engineer, upon review of the additional study, may require an extension of the low flow and outlet culvert to the main Anaverde channel near Sierra Highway.

22.5 The developer shall obtain title and interest to realign Avenue R-8 and City Ranch Road to be in alignment with the proposed driveway.

22.6 The developer shall redesign the facility to provide all-weather maintenance access roadways into the basin at the inlet and outlet of the basin.

23 The applicant shall incorporate into the project design all existing easements within the project boundaries, or obtain abandonment of said easements from the affected easement holder(s). If this requirement cannot be accomplished, the project shall be redesigned accordingly to the satisfaction of the Director of Planning/City Engineer, or the Planning Commission. (P)(E)

24 The applicant shall obtain off-site easements from the affected property owner(s) for all proposed off-site improvements (i.e. slopes and related grading activities, street improvements, walls drainage, etc.). If said easements cannot be obtained, the project shall be redesigned to incorporate these improvements entirely within the project boundary to the satisfaction of the Director of Planning or the Planning Commission. The City Engineer shall have the right to withhold approval of the affected improvement plans for failure to satisfy this condition. (P)(E)

25 All manufactured slopes on or adjacent to project boundaries shall meet the setback requirements of Chapter 70 of the current City Building Code. A recorded off-site Slope Acceptance Letter from all affected property owners shall be submitted to the City Engineer prior to approval of grading plans for any off-site slope not meeting these requirements. In addition, all slopes are required to meet City Standards with respect to erosion control. (E)

26 The applicant shall submit a temporary erosion control and sedimentation plan for approval by the City Engineer prior to grading plan approval and grading

permit issuance when grading activity will occur between October 1st and April 15th. (E)

27 From the beginning of the first ground disturbing activity until the use has been released for occupancy, the following are required of the applicant: 1) have erosion control measures, per an approved Erosion Control and Sedimentation Plan, in place during the rainy season (November 1 - April 15); 2) provide appropriate dust control measures, per City Standards, to minimize nuisance from dust at all times. (E)(B&S)

28 A drainage acceptance letter from each affected property owner shall be submitted to the City Engineer when the pre-developed storm runoff onto any adjacent property is increased, concentrated, diverted, or changed in any form as required by State law. (E)

29 A final hydrology study and hydraulics report shall be prepared for this project and approved by the City Engineer. The hydrology study and hydraulics report shall address on-site and off-site conditions and impacts, based on the City of Palmdale adopted Storm Water Management Policy. (E)

30 An on-site storm drainage basin (detention) shall be required for this development. Regular maintenance shall be the responsibility of the City or its approved designee. (E)

31 This project shall be designed in accordance with the City's Floodplain Management Ordinance and related criteria within the Engineering Design Standards. (E)

32 The applicant shall submit geotechnical reports, prepared in accordance with the City's Engineering Design Standards, to the City Engineer for review and approval prior to the approval of a grading permit. (E)

33 All drainage facilities shall be designed to be compatible with Master Plan of Drainage facilities. Applicant shall provide system piping to allow for the future elimination of the drainage basin. (E)

34 Grading shall be designated "Engineering Grading" per City Building Code and shall be done in accordance with an approved grading plan. All grading work

shall be performed in one continuous operation, or in phases as approved by the Director of Planning and the City Engineer. (E)

THE FOLLOWING CONDITIONS SHALL BE COMPLETED PRIOR TO OR IN CONJUNCTION WITH ISSUANCE OF BUILDING PERMITS:

35 The applicant shall pay all fees at the time fees are determined payable and comply with all requirements of the applicable Federal, State, and Local agencies including, but not limited to, the following:

Los Angeles County Sanitation District
Los Angeles County Consolidated Fire District
Palmdale Water District
Palmdale School District
Antelope Valley Union High School District

The duty of inquiry as to such requirements shall be upon the applicant. Receipt and proof of payment shall be provided to the Building and Safety Department prior to issuance of any building permits. (P)(E)(F)(B&S)

36 The applicant shall submit detailed plans for all building construction and obtain plan approval from all agencies/departments as required. (B&S)(F)(P)

37 All agency approvals for permit issuance shall be on file with the Building and Safety Department. (B&S)(F)

38 The applicant shall provide standard street improvements for the east half of Tierra Subida Avenue across the project frontage. The design shall be based on an acceptable centerline profile extending a minimum 300 feet beyond the project where applicable, according to the General Plan designation for that street. These improvements shall consist of: (E)

38.1 Curb and gutter,

38.2 Sidewalk (width = five feet),

38.3 Roadway grading and paving, overlay and or match-up, as directed by City Engineer,

38.4 Traffic control signs and devices as required by the City Traffic Engineer,

38.5 Pavement transition from the project boundaries to the satisfaction of the City Engineer,

38.6 Wheelchair ramp(s) at all walk returns,

38.7 Design shall be based on a 97 foot street half-width.

39 The applicant shall provide standard street improvements for the south half of Rayburn Road across the project frontage. The design shall be based on an acceptable centerline profile extending a minimum 300 feet beyond the project where applicable, according to the General Plan designation for that street. These improvements shall consist of: (E)

39.1 Curb and gutter,

39.2 Sidewalk (width = five feet),

39.3 Roadway grading and paving, overlay and or match-up, as directed by City Engineer,

39.4 Traffic control signs and devices as required by the City Traffic Engineer,

39.5 Pavement transition from the project boundaries to the satisfaction of the City Engineer,

39.6 Wheelchair ramp(s) at all walk returns,

39.7 Design shall be based on a 52 foot street half-width.

40 The applicant shall provide standard street improvements necessary to realign City Ranch Road with the Phase II entry driveway into the Palmdale Sports Complex. The design shall be based on an acceptable centerline profile

extending a minimum 300 feet west of the intersection with Tierra Subida Avenue. (E)

41 Appropriate right-of-way for right-turn lane(s) shall be provided at the northerly and southerly Tierra Subida Avenue driveways, and at the Rayburn Road driveway. Design shall be subject to the approval of the Traffic/Transportation Engineer. (TE)

42 Right-of-way for future intersection widening shall be dedicated at the intersection of Rayburn Road and Tierra Subida Avenue as follows: (1) for the westbound approach, triple left-turn lanes and dual right-turn lanes; and (2) for the northbound approach, single left-turn lane and dual right-turn lanes. Design shall be subject to the approval of the Traffic/Transportation Engineer. (TE)

43 Provide a striping and signing plan for all roadway improvements, subject to the approval of the Traffic/Transportation Engineer as part of the approval of the street improvement plans. A striping and signing plan shall be made a part of the final street improvement plans. (TE)(E)

44 The applicant shall comply with all applicable development regulations and requirements prior to the issuance of any building permits on the subject property. (P)(E)(B&S)

45 A sanitary sewer-area study for this project shall be prepared and submitted to the City Engineer for review and approval. The system shall be designed and installed as the only method of sewage disposal for this project. (E)

46 Coordination and clearance must be obtained from Los Angeles County Public Works, Sewer Maintenance Division, and from Los Angeles County Sanitation District prior to issuance of a sewer permit. (E)

47 Water mains shall be designed to meet or exceed the total flow requirements determined from domestic flow and fire flow for this development. Required domestic flow shall be calculated by the applicant's engineer. Fire flow shall be determined by the Los Angeles County Fire Chief. (E)

48 Driveways should have a minimum radius of 15 feet. (TE)

49 The plans and specifications for the water delivery system shall be submitted for approval to the responsible water purveyor prior to final approval of this development by the City Engineer. (E)

49.1 An Agreement and evidence satisfactory to the City Engineer showing that the applicant has entered into a contract with the serving water utility for establishing a security guaranteeing payment for the installation of the improvements.

50 Site lighting plans shall be reviewed and approved by the Planning Department and the Building and Safety Department, as part of the approval of the improvement plans. Site lighting plans shall be submitted to Southern California Edison Company and shall be made a part of the final improvement plans. (E)

51 The applicant shall provide a complete set of street improvement plans for review and comment to utility providers including but not limited to the following: (E)

51.1 Southern California Edison

51.2 Southern California Gas Company

51.3 Pacific Bell or General Telephone

51.4 Palmdale Water District

52 Easements for all on-site utilities, public and private, shall be granted and recorded for maintenance and upkeep. Such easements may include, but are not limited to, sewer, water, electric, gas, telephone, storm drains, detention basins, and landscaping. (E)

53 Will Serve letters will be required. The following is a list of the minimum Will Serve letters required: (E)

53.1 Palmdale Water District

53.2 Southern California Edison

53.3 Southern California Gas Company

54 All sanitary sewer mains to be dedicated to the City area required to submit as-built plans, and have TV video inspection prior to final acceptance for maintenance. (E)

55 At completion of rough grading, the applicant shall submit appropriate reports and statements (Certifications) to the City Engineer, for review and approval, prior to release of rough grading. The City of Palmdale Building Code requires these reports from the field or supervising grading engineer, the soils engineer, the geologist, and the grading contractor. (E)(B&S)

56 The applicant shall obtain sufficient off-site sewer easements to the City, and provide an off-site outfall sewer with supplemental size, capacity, and length as required by the City Engineer. (E)

THE FOLLOWING CONDITIONS SHALL BE MET WHILE CONSTRUCTION ACTIVITIES ARE ON-GOING:

57 Adequate sanitary disposal facilities shall be required on-site during all phases of construction. (E)(B&S)

58 The applicant shall provide solid waste disposal containers on-site during all phases of construction. The accumulation of refuse and debris which may constitute an unsightly/unsafe public nuisance to surrounding properties is not permitted. (P)

59 Grading shall be done in accordance with a grading plan prepared by the applicant's Registered Civil Engineer. All grading work shall be performed in phases as approved by the Director of Planning and the City Engineer. (P)(E)

60 Transmission lines less than 50KV and all other utility lines, existing and proposed, shall be installed underground in accordance with the City's Underground Utilities Ordinance. (E)

61 Provide signing and striping for all roadway improvements. (TE)

THE FOLLOWING CONDITION(S) SHALL BE MET AT AN ON-GOING ELEMENT OF THE PROJECT:

76 All parking facilities shall be maintained in good condition in accordance with the provisions of Article 87 of the Zoning Ordinance. The maintenance thereof may include, but shall not be limited to the repaving, oiling, and striping of a parking area and the repair, restoration and/or replacement of any parking area design features when deemed necessary by the Director of Planning to insure the health, safety, and welfare of the general public. (P)(E)

77 Electric Meter Installations: Southern California Edison's rules and policies require that all metering equipment be located so as to provide 24-hour access to the Utility. Metering equipment may be installed inside a building when located in an illuminated meter room directly accessible from the outside and readily accessible 24-hours a day. The Edison company requires their approval on all metering equipment prior to installation. (P)(SCE)(B&S)

Key to Departmental Conditions:

(P) Planning Department (267-5200)
(E) Engineering Division (267-5272)
(F) Fire Department (723-4455)
(B&S) Building & Safety Department (267-5353)
(Pk) Parks & Recreation Department (267-56110
(SCE) Southern California Edison Company (945-9317)
(TE) Traffic Engineering (267-5300)

* Mitigation Measures

MEB:kmi

62 Comply with City and State guidelines and requirements for traffic control during construction and prior to final project acceptance. (TE)

63 Notify the Traffic/Transportation Engineer sixty (60) days prior to anticipated opening of any street to public travel. (TE)

64 Construct additional pavement to provide for a striped westbound left-turn lane at the Rayburn Road driveway, and a striped southbound left-turn lane at the northerly and southerly Tierra Subida Avenue driveway. (TE)

65 Construct additional pavement to provide for a striped eastbound right-turn lane at the Rayburn Road driveway, and a striped northbound right-turn lane at the northerly and southerly Tierra Subida Avenue driveway. (TE)

THE FOLLOWING CONDITIONS SHALL BE MET PRIOR TO OCCUPANCY OF THIS PROJECT:

66 The applicant shall comply with the provisions of Chapter 3.40 (Traffic Impact Fee Ordinance) of the Palmdale Municipal Code. The applicant shall pay the applicable traffic impact fees to the Building and Safety Department in the amount that is in effect at the time such fees are to be collected pursuant to the provisions of Chapter 3.40 of the Palmdale Municipal Code. (E)(TE)(B&S)

67 Access at the following location shall be limited to right-turn in and right-turn out movements: The middle Tierra Subida Avenue driveway, the right-turn only sign for driveway exiting vehicles shall be installed and maintained by the applicant and comply with State standards. (TE)

68 The applicant shall develop monitoring program to evaluate the parking situation upon operation of Phase I of the project. This program shall identify future parking concerns, if any, and implement mitigation measures as appropriate. Examples of the mitigation measures may include but are not limited to: (1) provide additional on-site parking by means of acquiring additional land and/or achieving the same via developing less soccer fields as proposed in Phase II; (2) provide unimproved over-flow parking area on-site to accommodate unusual parking peaks (e.g. championship games); (3) utilize the existing Avenue S Park-and-Ride lots for the project parking and provide shuttle service between

the lots and the project site as appropriate; and (4) provide a down time (e.g. 1 hour, 2 hours, etc.) between when one game ends on a soccer field until the next game on that same field begins. On-street parking along Rayburn Road and Tierra Subida Avenue shall be restricted at all times. All mitigation measures shall be subject to the approval of the Traffic/Transportation Engineer. Additional parking spaces shall be provided as deemed appropriate by the Traffic/Transportation Engineer. (TE)

69 Slope erosion control and street trees shall be installed to the satisfaction of the City Landscape Architect. (E)

70 All public improvements must be complete and accepted by the City. (E)

71 At completion of final grading, the applicant shall submit appropriate statements (Certifications) to the City Engineer prior to release of final grading. The City of Palmdale building codes require that these be submitted by the field or supervising grading engineer, and the landscape architect. (E)

72 Repair any broken or damaged curb, gutter, sidewalk, and pavement on streets within or along the frontage of the development. Any existing driveways that are not to be used shall be replaced with standard curb, gutter, and sidewalk. (E)

73 The applicant shall improve any private street(s) or access drives for this project according to the plans approved by the City Engineer. (E)

74 The project shall be constructed in accordance with all the approved plans, including but not limited to site plans, grading plans, wall plans, landscape/irrigation plans, lighting plans, and elevations. (P)(E)

75 The applicant shall contact the Planning Department a minimum of two (2) weeks prior to final inspection by the Building and Safety Department to make arrangements for a final walk-through inspection by the Planning Department. (P)

Screencheck EIR Completed: July 29, 1996
Preliminary Draft EIR Completed: August 30, 1996
Draft EIR Completed: September 4, 1996
Final EIR ~~Completed~~ Certified: November 7, 1996

~~*DRAFT*~~ *FINAL*

ENVIRONMENTAL IMPACT REPORT NO. 96-1
for the
ANAVERDE FLOOD CONTROL BASIN AND SPORTS COMPLEX

SCH # 96041093

Lead Agency:

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~~September~~ November 7, 1996
JN 32668

Anaverde Flood Control Basin and Sports Complex
Environmental Impact Report
(EIR 96-1)

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1.0 EXECUTIVE SUMMARY

1.0 EXECUTIVE SUMMARY

A. PROJECT SUMMARY

The "project" as addressed within this Environmental Impact Report (EIR), consists of the proposed 73-acre Anaverde Detention Basin and Sports Complex. The currently proposed project is to build an earthen dam at the lowest point of the site using fill material from the property. Ultimately, the project would consist of the flood control basin and the sports complex, including 10 soccer fields (lighted for night time use), parking, restrooms, concession area, hiking trails, picnic and lot facilities, and maintenance facilities. The project is consistent with the "Public Facility" designation in the City General Plan and zoning maps.

The proposed 73-acre Anaverde Detention Basin and Sports Complex site is located in northern Los Angeles County on the southern edge of the Antelope Valley, a high desert plain bounded by the San Gabriel Mountains to the south, the Tehachapi Mountains to the north, and the Mojave Desert to the east. The project site is bounded by the Antelope Valley Freeway (State Route 14) to the east, Rayburn Road to the north, Tierra Subida Avenue to the west, and the unimproved Avenue R-8 to the south. The Antelope Valley Freeway is the main north-south route in this area and bisects both Palmdale and Lancaster, the major cities in this portion of the valley.

The Anaverde Detention Basin is planned as a "flow-through" detention basin that will significantly attenuate the peak flow from various frequency storms. The maximum water surface elevation of the basin is 2,787.5 feet above mean sea level (msl), with a corresponding storage volume of 1,106 acre-feet. The project would result in approximately 9,000 cubic yards of material being hauled off-site.

The detention basin planned elevations, capacity and slopes are as follows:

Basin Invert	2,735 ft
Outlet Pipe Invert	2,748 ft
Spillway Crest	2,787.5 ft
Top of Embankment (Dam Crest)	2,793 ft
Basin Volume (Maximum Water Surface Elevation)	1,106 acre-feet (af)
Freeway/Spillway Slope	3:1 (horizontal/vertical)
Soccer Field Slopes	2-1/2:1 (horizontal/vertical)

Operation of the basin will occur mainly during and immediately after storm events. During a storm, water from Anaverde Creek will enter the basin through the reinforced box culverts located beneath Tierra Subida Avenue and will be detained in the basin by the dam and earthen levees. If the detention capacity of the basin is exceeded, excess runoff from Anaverde Creek will flow over the spillway at the northeastern edge of the basin. This runoff will pass into a concrete channel that leads under the Antelope Valley Freeway and will either flow east along Avenue R or flow across undeveloped parcels of land north of Rayburn Road in natural channels, east of the Antelope Valley Freeway.

B. ENVIRONMENTAL SUMMARY

IMPACTS	MITIGATION MEASURES	UNAVOIDABLE SIGNIFICANT IMPACTS
EARTH RESOURCES		
Construction		
Grading activities would be required to make the basin functional and to prepare the site for recreational development, subsequently resulting in the exposure of soils to short-term erosion by wind and water. **Significance: Less than significant with mitigation.**	#4.1-1 An Erosion Control Plan shall be developed and approved by the City of Palmdale prior to issuance of a grading permit. The erosion control plan shall outline methods that shall be implemented to control erosion from graded or cleared portions of the site.	Gradual topographic change as project phasing progresses is a significant and unavoidable impact of basin excavation and dam construction. It should be noted that topographical alterations will alter the aesthetic character of the site. Refer to Section 4.6, AESTHETICS, for a discussion of aesthetic impacts and feasible mitigation measures.
Topography		
Implementation of the proposed project would result in modification of the existing topography which would occur during grading activities. **Significance: Significant with mitigation.**	4.1-2 No mitigation measure(s) feasible.	
Geology and Soils		
Project grading could result in settlement and other unstable soil conditions, potentially resulting in a significant effect on the environment. **Significance: Less then significant with mitigation.**	#4.1-3a The applicant shall comply with detailed geotechnical recommendations as set forth in Appendix H of the "Preliminary Report of Geotechnical Investigation for Anaverde Flood Control Facility and Sports Complex," prepared by Leighton & Associates, dated June 1996. Measures shall be reflected in the grading plans, subject to review and approval by the City Engineer.	
	4.1-3b Refer to Mitigation Measure 4.1-1.	
The creation of the flood control basin could prevent erosion problems, but create potential slope failures. **Significance: Less than significant**	4.1-4 Refer to Mitigation Measure 4.1-3a.	

IMPACTS	MITIGATION MEASURES	UNAVOIDABLE ADVERSE IMPACTS
Seismicity		
Due to the proximity of the San Andreas Fault Zone and the Little Rock fault to the project site, ground motion during seismic events could cause the dam embankment to fail. **Significance: Significant with mitigation.**	#4.1-5a The proposed project shall adhere to and be in strict compliance with the seismic design criteria of the Uniform Building Code and the City of Palmdale, as well as the California Department of Water Resources, Division of Safety of Dams Guidelines for the Design and Construction of Small Embankment Dams.	
	4.1-5b Refer to Mitigation Measure 4.1-3a.	
AIR RESOURCES		
Short-term Construction Impacts	#4.2.1&2	
Project implementation would result in exhaust emissions from the construction equipment used onsite and the trucks to transport materials/excess fill to/from the site. **Significance: Significant with Mitigation.**	The project will implement the following mitigation for construction-related air emissions. a. The Project Applicant shall obtain any and all permits as may be required by the South Coast Air Quality Management District ("SCAQMD") for the removal, transportation and disposal of soil. b. Ground wetting procedures and other dust palliative measures shall be followed during earth-moving operations and construction to minimize fugitive dust emissions. c. Trucks importing or exporting earthen materials shall be covered and sprinkled prior to entering public streets. d. Roadways shall be periodically swept or otherwise cleared of any spilled export material to assist in minimizing fugitive dust in accordance with SCAQMD Rule 403. e. Construction equipment shall be maintained in proper tune.	The project will result in significant fugitive dust (PM10) and nitrogen oxide emissions during grading.

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IMPACTS	MITIGATION MEASURES	UNAVOIDABLE ADVERSE IMPACTS
	f. Construction/grading activities shall be phased and/or scheduled to avoid high ozone days.	
Project implementation would result in particulates (fugitive dust) emissions during site preparation, excavation and grading activities. **Significance: Significant with Mitigation.**		
Long-Term Emissions		
Implementation of the proposed project would result in an overall increase in the local and regional pollutant load. **Significance: Not Significant.**	None are required.	
Consistency with Regional Plans		
The project would be consistent with applicable regional air quality and growth management plans. **Significance: Not significant (consistent).**	None are required.	
DRAINAGE/WATER QUALITY		
Drainage/Flooding		
Implementation of the proposed project will alter on-site and downstream drainage patterns as well as reduce the frequency and extent of downstream flooding. **Significance: Not Significant.**	4.3-1. No mitigation is required.	None have been identified.
Sedimentation		
Sediments would build up in the basin with the implementation of the proposed project. **Significance: Less than significant.**	4.3-2. No mitigation is required.	

IMPACTS	MITIGATION MEASURES	UNAVOIDABLE ADVERSE IMPACTS
Groundwater Recharge		
Implementation of the proposed project would have a beneficial impact on water percolation and groundwater recharge. **Significance: Not significant.**	4.3-3. No mitigation is required.	
Water Quality		
Implementation of the project would not affect water quality. **Significance: Not significant.**	4.3-4. No mitigation is required.	
Sports Complex		
Construction of the ten soccer fields will not affect water quality and/or hydrology. **Significance: Less than significant with mitigation.**	#4.3-5. Controlled use of pesticides and fertilizers within common areas shall be enforced through provision in the Landscape Management Program, including frequency and type of fertilizers/pesticides to be used, and application by qualified persons. [New language added]	
NOISE		
Short-Term Impacts		
Project construction activities will temporarily increase local noise levels. **Significance: Less than significant with mitigation.**	#4.4-1a Construction activities shall comply with City of Palmdale Municipal Code Section 8.28.030 relating to construction noise. If problems arise from construction noise, enforcement of the City's Municipal Code relating to construction-related noise discernable at residential boundaries will help minimize any potential noise impacts. Such noise is permitted between the hours of 6:30 a.m. and 8:00 p.m. Monday through Saturday.	None have been identified.
	#4.4-1b All construction equipment, fixed or mobile, shall be equipped with properly operating	

IMPACTS	MITIGATION MEASURES	UNAVOIDABLE ADVERSE IMPACTS
	and maintained mufflers, to the satisfaction of the City Inspector.	
	#4.4-1c Stationary construction equipment, if necessary, shall be placed such that emitted noise is directed away from sensitive noise receivers, to the satisfaction of the City Inspector.	
	#4.4-1d Stockpiling and vehicle staging areas shall be located as far as practical from noise sensitive receptors during construction activities, to the satisfaction of the City Inspector.	
Long-term Impacts		
Project implementation would attract additional vehicle travel on the surrounding road networks. **Significance: Less than Significant.**	4.4-2. No mitigation required.	
Implementation of the Sports Complex will increase noise levels indirectly. **Significance: Less than significant.**	#4.4-3. Development of the proposed project shall adhere to the City of Palmdale and California State Noise Insulation Standards (California Administrative Code, title 25, Chapter 1, Subchapter 1, Article 4).	
TRAFFIC AND CIRCULATION		
Short-Term (Construction Impacts)		None have been identified.
Development of the proposed project would increase construction traffic on local streets. **Significance: Less than significant with mitigation.**	#4.5-1a Traffic specifications shall be submitted along with project plans and specifications for City approval prior to construction of each phase. Proper traffic management procedures should be employed during construction activities.	
	#4.5-1b To minimize impacts to traffic along Rayburn Road from trucks entering or exiting the	

IMPACTS	MITIGATION MEASURES	UNAVOIDABLE ADVERSE IMPACTS
	project site during construction, the access road entrance should be of sufficient width to accommodate at least two trucks. Traffic management procedures (e.g., flagmen, signs) should be employed as needed. On-site parking should be provided for construction vehicles.	
	#4.5-1c Complete closure of streets should be avoided during construction.	
	#4.5-1d Consideration should be given to the provision of deceleration lane(s) at driveways along Tierra Subida Avenue and Rayburn Road near the project site during project construction. Implementation of this mitigation would reduce potential safety problems between vehicles and trucks. Coordination of this mitigation would be the responsibility of both the City of Palmdale and the County of Los Angeles.	
Long-Term Traffic Impacts Implementation of the Sports Complex would increase traffic levels on local streets. **Significance: Less than significant.**	4.5-2 Prior to issuance of grading permits, the City shall revise the site plan to address detailed circulation improvements, to the satisfaction of the City Traffic Engineer, as discussed in a May 23, 1996 memo, including: • Signage • Turning Lane Provisions • Driveway Provision • Right-of-Way Requirements	
Parking Due to the lack of parking data for the proposed use, it is difficult to estimate the exact number of parking spaces which can adequately serve the proposed use. Therefore, potential insufficient on-site parking may occur. **Significance: Less than significant with mitigation.**	#4.5-3 The City should develop a monitoring program to evaluate the parking situation upon operation of Phase I of the sports complex. This program would identify future parking concerns if any, and develop plans and/or strategies to mitigate such concerns as appropriate. Examples of mitigation plans and/or strategies may include but are not limited to: (1) limit the	

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IMPACTS	MITIGATION MEASURES	UNAVOIDABLE ADVERSE IMPACTS
	number of fields in use at the same time, (2) provide a minimum of one hour between when one game ends on a field until the next game on that same field begins, (3) utilize the existing Avenue S Park and Ride lots for the sports complex parking and provide shuttle service between the lots and the complex as appropriate, (4) provide additional on-site parking by means of acquiring additional land and/or achieving the same via developing less soccer fields as proposed, and (5) provide unimproved over-flow parking area on-site to accommodate unusual parking peaks (e.g. championship games). It is of critical importance to understand that strategy (4) "reducing the number of fields and providing adequate on-site parking" can in effect have more total hours of field use than strategy (2) "provide a minimum of one hour between games."	As the City of Palmdale has the authority to enforce mitigation measures to reduce potential parking impacts, including limiting the number of soccer fields in use at the same time and providing a minimum of one hour between games on the same field, no unavoidable significant parking impacts are anticipated.
AESTHETICS		
Short-Term		
Construction of the flood control basin, soccer fields and related improvements would create temporary aesthetic nuisances associated with project construction and grading activities for the adjacent residential neighborhood. **Significance: Less than significant with mitigation.**	#4.6-1a During construction, the contractor shall keep the site clear of all trash, weeds, etc. Compliance with this measure is subject to periodic site inspections by City Staff. #4.6-1b During construction, the contractor shall provide screening of the site's northern perimeter, along Rayburn Road, in order to partially screen views of the site from residential lots to the north. #4.6-1c The contractor shall establish construction staging areas at least 500 feet from the nearest residential lot. The equipment stored in the staging area shall be kept in a	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.

IMPACTS	MITIGATION MEASURES	UNAVOIDABLE ADVERSE IMPACTS
	orderly fashion. Compliance with this measure is subject to periodic site inspections by City Staff.	
Long-Term		
Long-term development impacts would be permanent and significantly alter views across the site. **Significance: Less than significant with mitigation.**	#4.6-2 The City of Palmdale shall review and approve the project's landscape plans. The landscape plans should include the planting of Native shrubs and California junipers along the northern, western and eastern project boundaries in order to partially screen the basin from view of motorists traveling along Rayburn Road, Tierra Subida Avenue and the Antelope Valley Freeway. Landscaping shall, at minimum, address the following: • Use of native and/or drought-tolerant species; • Proposed palette, size and placement; and • Irrigation requirements.	
Light and Glare		
Implementation of the sports complex element of the proposed project would introduce a new light source into this rural setting. **Significance: Significant with mitigation.**	#4.6-3a All lights used to illuminate the parking areas and soccer fields 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, unless specifically permitted by a special event permit on a case-by-case basis. #4.7-1b The Sports Complex hours of operation shall conclude no later than 10:00 p.m. All lights, except for security lighting within parking lot areas, shall be turned off.	

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IMPACTS	MITIGATION MEASURES	UNAVOIDABLE ADVERSE IMPACTS
BIOLOGICAL RESOURCES		
Vegetation		
Implementation of the proposed project would result in the loss of some existing plant communities and Joshua trees. **Significance: Less than significant with mitigation.**	#4.7-1a Prior to grading activities, project limits shall be fenced or otherwise clearly marked to avoid potential encroachment outside of the designated project impact area. #4.7-1b Basin slopes and similar areas outside of active recreation areas shall be revegetated with native plant materials upon completion of grading. Native species should be specified in landscaping plans wherever possible. Landscaping should be designed to be consistent, and blend with, natural vegetation patterns. #4.7-1c A habitat restoration specialist shall participate in the development of the landscaping plans. Landscape plans and specifications shall address the following elements, designed to enhance the successful restoration of natural plant communities. • Topsoil preservation and reapplication • Site preparation including soil decompaction • Weed control • Use of fertilizers, herbicides, and pesticides • Plant palettes • Sources for plant materials • Performance standards #4.7-1d Impacts to Joshua tree woodlands shall be mitigated by protection of Joshua tree woodland habitat on the site, or, at the option of the City, acquisition of off-site	No unavoidable impacts have been identified.

IMPACTS	MITIGATION MEASURES	UNAVOIDABLE ADVERSE IMPACTS
	habitat within the City sphere of influence. Prior to project grading, Joshua trees within the project area shall be accurately counted and evaluated, and a management plan developed to offset the loss of this regionally sensitive habitat. Mitigation measures shall include transplanting of individual trees to preserved habitat areas and/or replacement with nursery-grown trees at an appropriate ratio (e.g., 5:1).	
Wildlife		
Implementation of the proposed project could potentially affect wildlife in this habitat area. **Significance: Less than significant with mitigation.**	#4.7-2a Construction shall be limited to the hours of 6:30 a.m. to 8:00 p.m. to minimize indirect impacts to crepuscular (active at dusk/dawn) and nocturnal wildlife. Any night lighting used for security purposes shall be confined to project impact areas.	
	#4.7-2b Night lighting shall be designed to be non-intrusive into adjacent, off-site areas to the maximum extent possible, per City of Palmdale standards.	
	#4.7-2c Focussed spring surveys shall be conducted to confirm the absence of the least Bell's vireo and southwestern willow flycatcher prior to grading in riparian areas. If these species are identified within project impact areas, work shall be deferred in these areas and appropriate mitigation measures shall be developed and implemented in consultation with USFWS and CDFG.	
	#4.7-2d Focused spring surveys shall be conducted to confirm the absence of the arroyo toad and red-legged frog prior to grading in aquatic and marsh areas. If these species are identified within project impact areas, work	

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IMPACTS	MITIGATION MEASURES	UNAVOIDABLE ADVERSE IMPACTS
	shall be deferred in these areas and appropriate mitigation measures shall be developed and implemented in consultation with USFWS and CDFG.	
	#4.7-2e Refer to the EIR text for a detailed mitigation measure for Burrowing Owls.	
Sensitive Species an d Habitats		
Implementation of the proposed project could potentially affect existing wetland habitats. **Significance: Less than significant with mitigation.**	#4.7-3a An Army Corps of Engineers Section 404 Permit and/or California Department of Fish and Game Section 1603 Streambed Alteration Agreement shall be obtained, as appropriate, for any proposed alterations to stream channels and/or wetland areas.	
	#4.7-3bAny impacts to wetland areas shall be mitigated in kind and within the same watershed at a minimum 1:1 replacement ratio. If it is not possible to perform in kind mitigation within the same watershed, a higher mitigation ratio may be required. A wetland mitigation plan shall be developed in conformance with Corps Habitat Mitigation and Monitoring Proposal Guidelines.	
CULTURAL RESOURCES		
Archaeology		
Project construction and increased human disturbance on-site could impact existing archaeological resources. **Significance: Less than significant with mitigation.**	#4.8-1a A qualified archaeologist shall be retained to attend the pre-grade meeting and to monitor grading activities for evidence of buried cultural resource sites. During grading activities, the archaeologist shall conduct limited monitoring to observe and retrieve any buried artifacts that may be uncovered.	None have been identified.
	#4.8-1bIf buried remains are encountered, the archaeological monitor shall have the authority to temporarily divert or direct	

IMPACTS	MITIGATION MEASURES	UNAVOIDABLE ADVERSE IMPACTS
	grading to allow time to evaluate any exposed prehistoric material, and the Archaeological Survey at UCLA or some other public agency shall be contacted so that appropriate action may be taken to stabilize or salvage the remains.	
	#4.8-1c A final monitoring report, including an itemized inventory and pertinent field data, shall be sent to the Director of Planning, City of Palmdale as well as copies of the report to the Archaeological Information Center at the University of California, Los Angeles.	
Paleontology		
Project construction and increased human disturbance on-site could impact existing paleontological resources. **Significance: Less than significant with mitigation.**	#4.8-2a A qualified paleontologist shall be retained to produce a mitigation plan for the proposed project.	
	#4.8-2b The paleontologist shall attend the pre-grade meeting to discuss the monitoring, collecting, and safety procedures for the project and shall supervise the paleontological monitoring during earth moving activities in the area.	
	#4.8-2c Full time monitoring shall be conducted during earth moving activities in the clay shale member (Tac) of the Anaverde Formation. Half-time monitoring shall be conducted during earth moving activities within the moderate sensitivity units (Tar, Tab) of the Anaverde Formation and the Nadeau Gravel. The Recent Alluvium shall be monitored at depths below three feet on a half-time basis until the presence or absence of the high sensitivity Pleistocene alluvium has been determined. Any	

IMPACTS	MITIGATION MEASURES	UNAVOIDABLE ADVERSE IMPACTS
	Pleistocene Alluvium, if present on the project area, shall be monitored on a full-time basis. Igneous rocks, artificial fill, disturbed soils, and slopewash would not require monitoring.	
	#4.8-2dScreening of sediments shall also be conducted under the supervision of the paleontologist during monitoring because many significant vertebrate remains are small. Up to a six thousand pound matrix sample can be processed for any single locality as recommended by the Guidelines in the Society of Vertebrate Paleontologists Bulletin.	
	#4.8-2e The paleontological monitor shall have the authority to temporarily divert or redirect grading to allow time to evaluate any exposed fossil material.	
	#4.8-2f During monitoring, any scientifically significant specimens shall be properly salvaged after evaluation by, and under the supervision of, the paleontologist. During fossil salvage, contextual stratigraphic data shall also be collected. This will include lithologic descriptions, localities plotted on a USGS 7.5' Series topographic quadrangle, photographs, and field notes.	
	#4.8-2g Specimens shall be prepared to the point of identification, stabilized, identified, and curated on a long-term loan basis in a suitable repository that has a retrievable storage system, such as the San Bernardino County Museum or the Los Angeles County Museum of Natural History.	

IMPACTS	MITIGATION MEASURES	UNAVOIDABLE ADVERSE IMPACTS
	#4.8-2h A final report shall be prepared at the end of earth moving activity, and shall include an itemized inventory of recovered fossils, an appropriate stratigraphic and locality data. This report shall be sent to the Lead Agency, signifying the end of mitigation. Another copy shall accompany any recovered fossils, along with field logs and photographs, to the designated repository.	

C. SUMMARY OF ALTERNATIVES

The following is a summary of project alternatives described in Section 6.0, ALTERNATIVES TO THE PROPOSED PROJECT. Refer to Section 6.0 for a complete discussion of project alternatives.

"NO PROJECT" ALTERNATIVE

A " No Project" Alternative would maintain the site in its current state as vacant land. None of the impacts associated with recreational development, flood control improvements and construction activities would occur if the "No Project" Alternative were selected. Implementation of this alternative would avoid any adverse physical or environmental impact associated with development. Existing geologic, aesthetic, biological and land use conditions in the area would remain the same. In addition, traffic and noise impacts due to construction of a flood control basin and operation ten (10) soccer fields would not occur with the "No Project" Alternative.

The "No Project" Alternative would not be environmentally preferable to the proposed project because no flood control/water conservation facilities would be constructed on Anaverde Creek and flood flows would continue to inundate portions of Palmdale. In addition, the "No Project" Alternative would be inconsistent with the goals and objectives of the Antelope Valley Comprehensive Plan of Flood Control and Water Conservation and the City of Palmdale's General Plan which identifies the need for flood control. Therefore, this alternative is not presently being considered.

"CHANNEL" ALTERNATIVE

Under the "Channel" Alternative, a concrete-line trapezoidal channel would be constructed to transfer storm water approximately 33,000 feet (6.25 miles) from the mouth of Anaverde Creek to the proposed Lockheed Basin which would be located southwest of U.S.A.F. Plant 42. No detention basin or recreation fields would be constructed. The channel would be 60 feet wide at the top with a maximum depth of 12 feet to accommodate storm runoff from Anaverde Creek in the absence of the proposed Anaverde Basin. Existing drainage channels and culverts on the U.S.A.F. Plant 42 grounds would need to be enlarged to accommodate the floodwater brought by the Channel Alternative. The "Channel" Alternative would provide the

same level of flood protection as the proposed basin project except for areas north of the proposed Lockheed Basin, including U.S.A.F. Plant 42.

Implementation of this alternative would require the permanent removal of approximately 68 acres of vegetation and wildlife habitat along the proposed alignment. Total removal would be 50 percent greater than that necessary on site for the proposed basin project. Furthermore, excavation of the channel alignment would require the removal of approximately 525,000 cubic yards of material, thus resulting in a substantial increase in truck trips over a long period of time, as compared to the proposed project.

Environmental Impacts associated with the "Channel" Alternative would result in an increase in impacts as compared to the proposed basins/sports complex concept. Therefore, the "Channel" Alternative is not presently being considered.

"REDUCED SCALE" ALTERNATIVE

The "Reduced Scale" Alternative would reduce the number of soccer fields by 50 percent. Only five lighted soccer fields in the southern portion of the project area would be developed along with the detention basin. With the construction of fewer soccer fields, impacts to the biological, geological and aesthetic aspects of the site would be lessened through reduced slope grading and alteration of the site. In addition, traffic and noise impacts would also be reduced by 50% with this alternative.

However, although implementation of the "Reduced Density" Alternative could potentially reduce the significance of project-related impacts, reductions in the proposed number of soccer fields would not eliminate these impacts. Fewer fields would limit the flexibility of field use and would provide less recreational space, as compared to the proposed project. Nonetheless, the "Reduced Scale" Alternative is considered to be environmentally superior to the proposed project.

"ALTERNATIVE SITE" ALTERNATIVE

Developing the project on a different site would not preclude development of this site in accordance with the existing General Plan. "Reasonable alternatives sites" for flood control improvements along Anaverde Creek, such as the formerly proposed City Ranch Basin, were

considered in other technical documents and determined not to be feasible. In addition, developing an alternative site would not realize positive effects of the project including the fact that the project increases the areas recreational opportunities and provides immediate and long-term flood control needs in the project area. Therefore, it is not considered necessary to investigate alternative sites for the subject project.

D. AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED

PARKING

As discussed in Section 4.5, TRAFFIC AND CIRCULATION, the project meets City parking codes. However, based on empirical observations of Domenic Massari and other local parks, the 310 parking stalls would not be adequate for the proposed 10 soccer fields, should a worst-case condition occur with all 10 fields in use with overlapping game schedules. As discussed in the EIR, the City has complete control over this facility, and will implement parking monitoring after Phase I construction, followed by a variety of mitigation measures with Phase II construction, as needed, to minimize potential parking impacts to adjacent residential areas.

2.0 INTRODUCTION AND PURPOSE

2.0 INTRODUCTION AND PURPOSE

2.1 Purpose of the EIR

The purpose of this Draft Environmental Impact Report (EIR) is to review the existing conditions, analyze the potential environmental impacts, and suggest feasible mitigation measures to reduce significant effects of the "project", as defined in Section 3.0, PROJECT DESCRIPTION.

As stated in Section 15121 of the California Environmental Quality Act (CEQA) Guidelines, an EIR is an informational document which will inform public agency decision-makers and the public of potentially significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project. The City of Palmdale will consider the information in this EIR, along with other information which may be presented during the review of the proposed project.

As the Lead Agency, the City of Palmdale must respond to each significant impact identified in this EIR by adopting mitigation measures or by making findings and, if necessary, by issuing a Statement of Overriding Considerations for any significant effect which cannot be mitigated to a less than significant level if the project is approved. The findings and Statement of Overriding Considerations are attached to the Resolution for project approval, separate from and following EIR certification.

The proposed project includes a sports complex within a flood control basin encompassing approximately 73 acres in the southwestern portion of the City of Palmdale, located in the high desert area of Los Angeles County. Proposed uses include an earthen dam for flood control purposes and a sports complex. The project will require the extension of utilities, and will require flood control and recreation infrastructure to be developed on the site (see Section 3.0, PROJECT DESCRIPTION.)

2.2 Compliance with CEQA

This Draft EIR has been prepared in conformance with CEQA, Sections 21000-21178.1 of the State of California Public Resources Code, the State CEQA Guidelines Sections 15000 through 15387 and the City of Palmdale's procedures for implementing CEQA. The principal

CEQA Guidelines Sections governing the content of this document are in Sections 15120 and 15132 (Contents of Environmental Impact Reports).

Pursuant to state and local CEQA Guidelines, the City of Palmdale initiated the project environmental review process, and distributed an Initial Study and Notice of Preparation(NOP) April 25, 1996 for a 30-day public review period (refer to Appendix 10.1, INITIAL STUDY/NOP). The City determined that the project may result in significant adverse effects and therefore requires an EIR. This Draft EIR includes pertinent NOP response data and other information obtained throughout the EIR preparation process. As part of the review process, the Draft EIR is subject to a 45-day review period by the State Clearinghouse and interested parties. Following the review period of this Draft EIR, written responses to comments will be prepared, a copy of which will be provided to each public agency which comments on the document. The Final EIR will consist of the Draft EIR, any revisions to the Draft, responses to comments addressing any additional concerns of responsible agencies or reviewing parties, as well as staff reports, resolutions, and public meeting minutes.

2.3 Scope of the EIR

This EIR focuses on significant changes in the environment that could result from implementation of the proposed project. The EIR also provides measures to mitigate potentially significant impacts of the project and identifies any impacts which cannot be mitigated to less than significant levels. This EIR addresses impacts in the following areas based on the Initial Study, Notice of Preparation letters and research conducted throughout the EIR process:

- Earth Resources
- Air Resources
- Drainage/Water Quality
- Noise
- Traffic and Circulation
- Aesthetics
- Biological Resources
- Cultural Resources

This Draft EIR is organized into 10 sections:

- Section 1.0, EXECUTIVE SUMMARY, provides a brief project description and summary of the environmental impacts, and the mitigation measures and alternatives for each impact.

- Section 2.0, INTRODUCTION AND PURPOSE, provides CEQA compliance information.

- Section 3.0, PROJECT DESCRIPTION, provides a detailed project description and a description of the associated discretionary actions that are required, as well as a general discussion of the existing site conditions.

- Section 4.0, DESCRIPTION OF ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES, contains a detailed environmental analysis of the existing conditions, potential impacts, recommended mitigation measures, and unavoidable significant impacts.

- Section 5.0, LONG-TERM IMPLICATIONS OF THE PROPOSED PROJECT, discusses the significant environmental changes that would be involved in the proposed action, should it be implemented; growth-inducing impacts; and cumulative impacts associated with General Plan build-out and concurrent surrounding projects.

- Section 6.0, ALTERNATIVES TO THE PROPOSED PROJECT, describes alternatives to the project, some of which may be considered during project deliberations.

- Section 7.0, EFFECTS FOUND NOT TO BE SIGNIFICANT, provides an explanation of potential impacts which have been determined not to be significant in the Initial Study checklist.

- Section 8.0, ORGANIZATIONS AND PERSONS CONSULTED, identifies the lead agency, preparers of the EIR, all federal, state and local agencies, and other organizations and individuals consulted during the preparation of the EIR.

- Section 9.0, BIBLIOGRAPHY, identifies reference sources utilized for the EIR.

- Section 10.0, APPENDICES, provides relevant portions of project-specific technical studies, reports and correspondence.

2.4 Use of the EIR

The Draft EIR is part of the project review process for the project as defined in Section 3.0, PROJECT DESCRIPTION. It is the intent of this Draft EIR to enable the City of Palmdale, other responsible agencies, and interested parties to evaluate the environmental impacts of the proposed project, thereby enabling them to make informed decisions with respect to project approval (see Section 3.7, AGREEMENTS, PERMITS AND APPROVALS). This EIR also provides additional CEQA mandated discussions, including a discussion of cumulative impacts and an analysis of alternatives to the proposed project that could feasibly attain the basic objectives of the project.

2.5 Documentation Incorporated by Reference

Pertinent documents relating to this project EIR have been cited and incorporated by reference, in accordance with Section 15150 of the CEQA Guidelines, as a means of reducing the redundancy and length of environmental reports.

The following documents are available for public review at the City of Palmdale Planning Department, 38306 - 9th Street East, Palmdale, California 93550 and are hereby incorporated by reference into this Draft EIR. Information contained within these documents has been utilized for sections throughout this EIR.

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, issue, 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 Anaverde Detention Basin Final Environmental Impact Report and Environmental Impact Statement, October 22, 1986.

The Anaverde Detention Basin Final EIR and EIS was prepared by the Los Angeles County Department of Public Works and Harding Lawson Associates of Novato, California. This document was prepared to analyze the impacts associated with the construction of a flood detention basin. The project would have involved excavation of approximately 2.6 million cubic yards of material phased over approximately 20 years to create a flood control basin capable of detaining 1,117 acre-feet of storm runoff from Anaverde Creek. The proposed Anaverde Basin site addressed in this EIR/EIS was located on the same 73-acre site addressed in this Draft EIR. Issues discussed that are relevant to the current project and assisted in providing background information include: topography, geology, soils and seismicity, hydrology and water, biological resources, paleontology, cultural resources, traffic and circulation, air quality, noise, visual quality and land use. The document is available for review at the City of Palmdale Planning Department.

The Anaverde Detention Basin Addendum Environmental Impact Report, adopted July 3, 1991.

The October 22, 1986 EIR also considered and analyzed construction of an earthen dam as a project alternative. The earthen dam alternative was the alternative selected by the county in 1991 when excavation of the basin was determined to be cost prohibitive. An Addendum to the 1986 EIR was prepared and adopted by the Los Angeles County Board of Supervisors on July 3, 1991. The EIR Addendum contained findings that the original 1986 EIR applied to the revised project.

2.6 Technical Report Citations

Pertinent technical documents relating to this EIR have ben cited, in accordance with Section 15148 of the CEQA Guidelines, as a means of reducing the length of environmental reports.

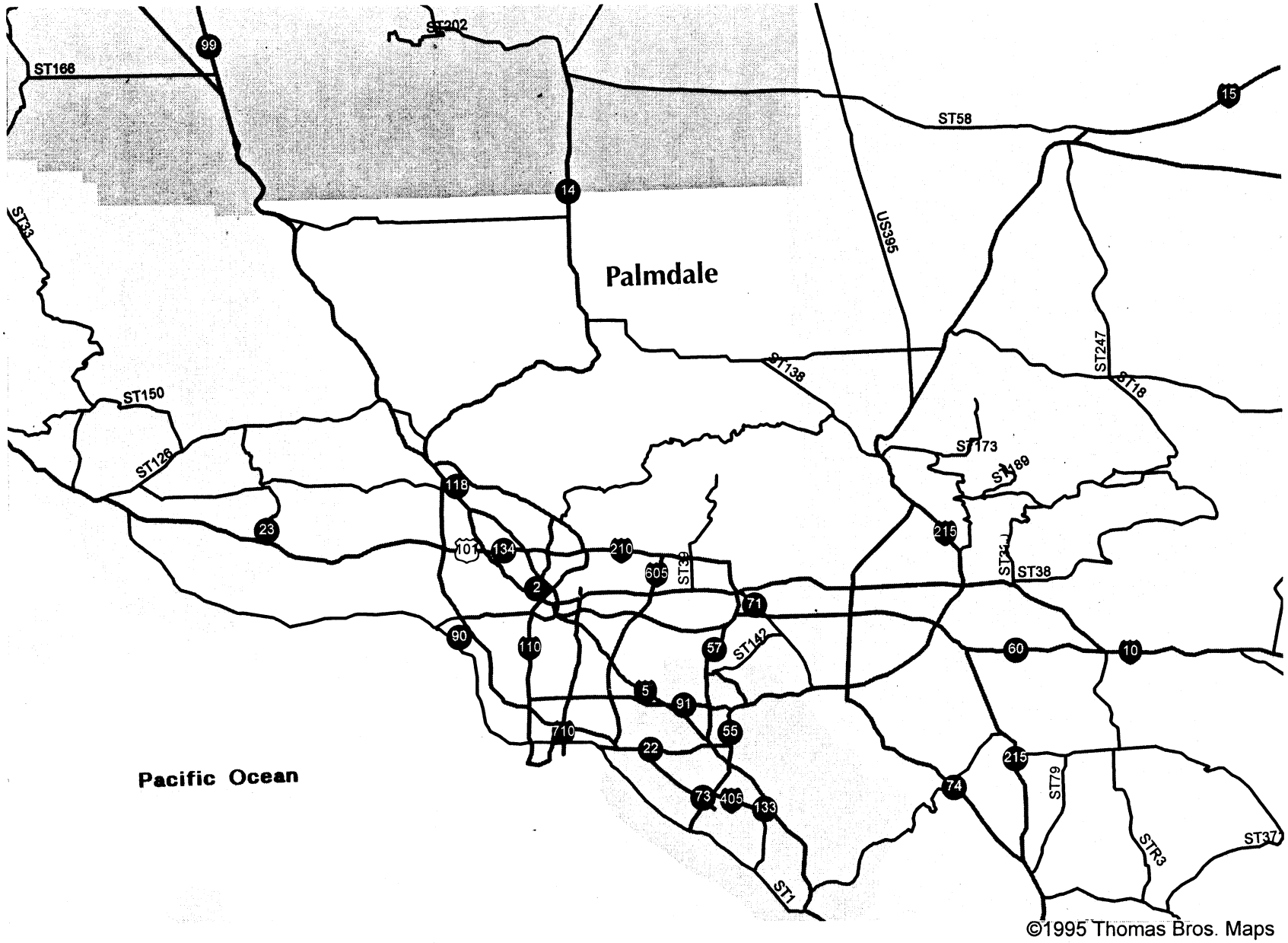
Anaverde Detention Basin Hydrology Study Ultimate Condition, Prepared by AKM Consulting Engineers, July 16, 1996.

This report provides a summary of hydrologic calculations, earthwork quantities of rough grading, a discussion of Anaverde Watershed and calculations regarding the site's ultimate condition.

Project Concept Report for Anaverde Detention Basin and Sports Complex, Prepared by AKM Consulting Engineers, dated May 1996.

This report summarizes hydrologic and geotechnical information, discusses the design of proposed facilities, utilities, and recreational amenities, and estimates costs associated with the project.

3.0 PROJECT DESCRIPTION



Project Site

Not to Scale

ANAVERDE FLOOD CONTROL BASIN AND SPORTS COMPLEX EIR

Regional Vicinity Map

Robert Bein, William Frost & Associates

7-96 JN 32668

Exhibit 3-1

3.0 PROJECT DESCRIPTION

3.1 Project Location

The proposed 73-acre Anaverde Basin site is located in northern Los Angeles County on the southern edge of the Antelope Valley, a high desert plain bounded by the San Gabriel Mountains to the south, the Tehachapi Mountains to the north, and the Mojave Desert to the east. The Antelope Valley Freeway is the main north-south route in this area and bisects both Palmdale and Lancaster, the major cities in this portion of the valley (refer to Exhibit 3-1, REGIONAL VICINITY MAP).

The site is bounded by the Antelope Valley Freeway (State Route 14) to the east, Rayburn Road to the north, Tierra Subida Avenue to the west, and the unimproved Avenue R-8 to the south (refer to Exhibit 3-2, SITE VICINITY MAP).

3.2 Environmental Setting

The project site lies in depressed ground approximately twenty-five feet below the adjacent roads. The project site is relatively flat, except for the Anaverde Creek channel which bisects the site from the southwest to the northeast. The existing channel contains a depression that was created in 1988 by the County of Los Angeles as part of initial construction of the previously approved detention basin. The project was halted because bedrock was reached after less than twenty-five feet of excavation (refer to Exhibit 3-3, AERIAL PHOTOGRAPH). There is a small graded area which contains approximately 100 cubic yards of concrete rubble of unknown origin in the northern portion of the project site. Following creation of the initial detention basin in 1988 the Anaverde Creek flow shifted south to its present location, and riparian vegetation emerged as a result of the basin causing ponding water and reduced st. eam flow.

Vegetation consists of relatively undisturbed desert scrub, stands of mature Juniper bushes and sparsely placed mature Joshua trees which appear to be in a healthy state. The entire project site is surrounded by a six foot high chain link fence. Consequently, the area is relatively undisturbed by human encroachment, except for the previously noted excavation and concrete rubble.

The San Andreas Fault is located approximately one-half mile to the south of the site, and the Little Rock Fault extends across the approximate center of the site. The California Aqueduct is located approximately one mile to the south of the site.

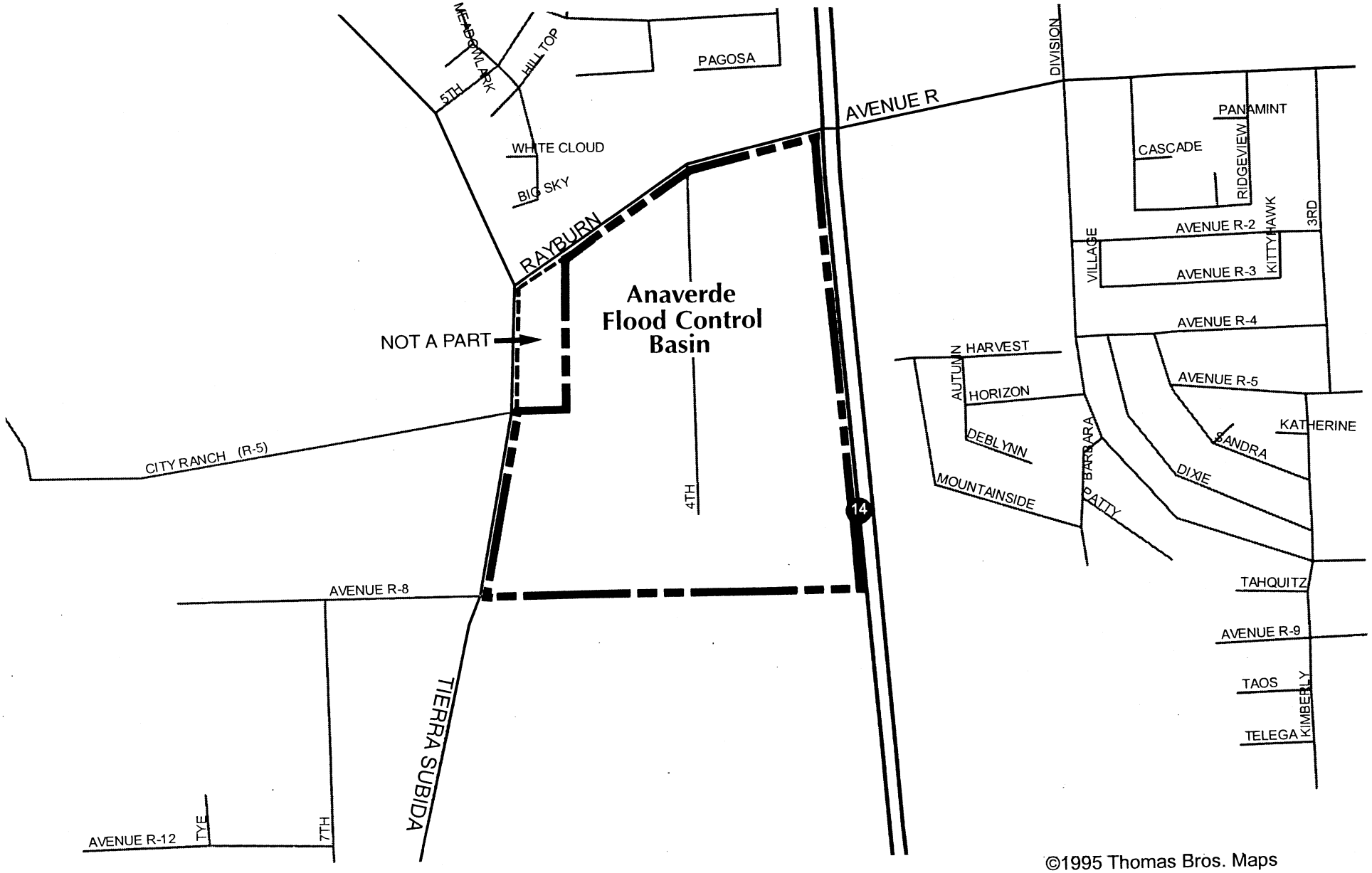
Across the freeway from the project site, to the east, are undeveloped parcels of land and residential neighborhoods. Beyond the southern boundary, the project site is ringed by low, (less than 100 feet from the toe to crest), steep hills. The area west of Tierra Subida Avenue is hilly terrain designated for low density residential development. To the north of Rayburn Road is vacant land designated for office commercial development, and two single-family residential subdivisions are located farther to the north.

The Anaverde Creek extends northerly and easterly from the Sierra Pelonas to the Antelope Valley Freeway, and northerly through the Cities of Palmdale and Lancaster. With 10,200 acres, nearly half of the watershed tributary to and within the City of Palmdale is located upstream of the Antelope Valley Freeway crossing of Anaverde Creek (the upper watershed). Anaverde Creek crosses State Route 14 just south of Rayburn Road. The runoff splits with a portion flowing north generally along Division Street and another portion flowing east along Avenue R to the existing channel between the railroad tracks at Sierra Highway and 6th Street East.[1] It then moves northerly parallel to the railroad tracks to United States Air Force (U.S.A.F.) Plant 42.

3.3 Background and History

The Anaverde Detention Basin has been in planning since the mid 1980's to provide flood protection for the watershed downstream of the Antelope Valley Freeway (the lower watershed). Major portions of downtown Palmdale are presently subject to significant flood hazards from the Anaverde Creek watershed. Ultimate flows entering the basin site (following build-out of upstream areas) are projected at 9,065 cfs. The basin was originally proposed by the Los Angeles County Department of Public Works (LACDPW) as the second of two

1 Anaverde Detention Basin Hydrology Study Ultimate Condition. AKM Consulting Engineers, July 16, 1996, page IV-6.



©1995 Thomas Bros. Maps

Project Site

Not to Scale

ANAVERDE FLOOD CONTROL BASIN AND SPORTS COMPLEX EIR

Site Vicinity

Robert Bein, William Frost & Associates

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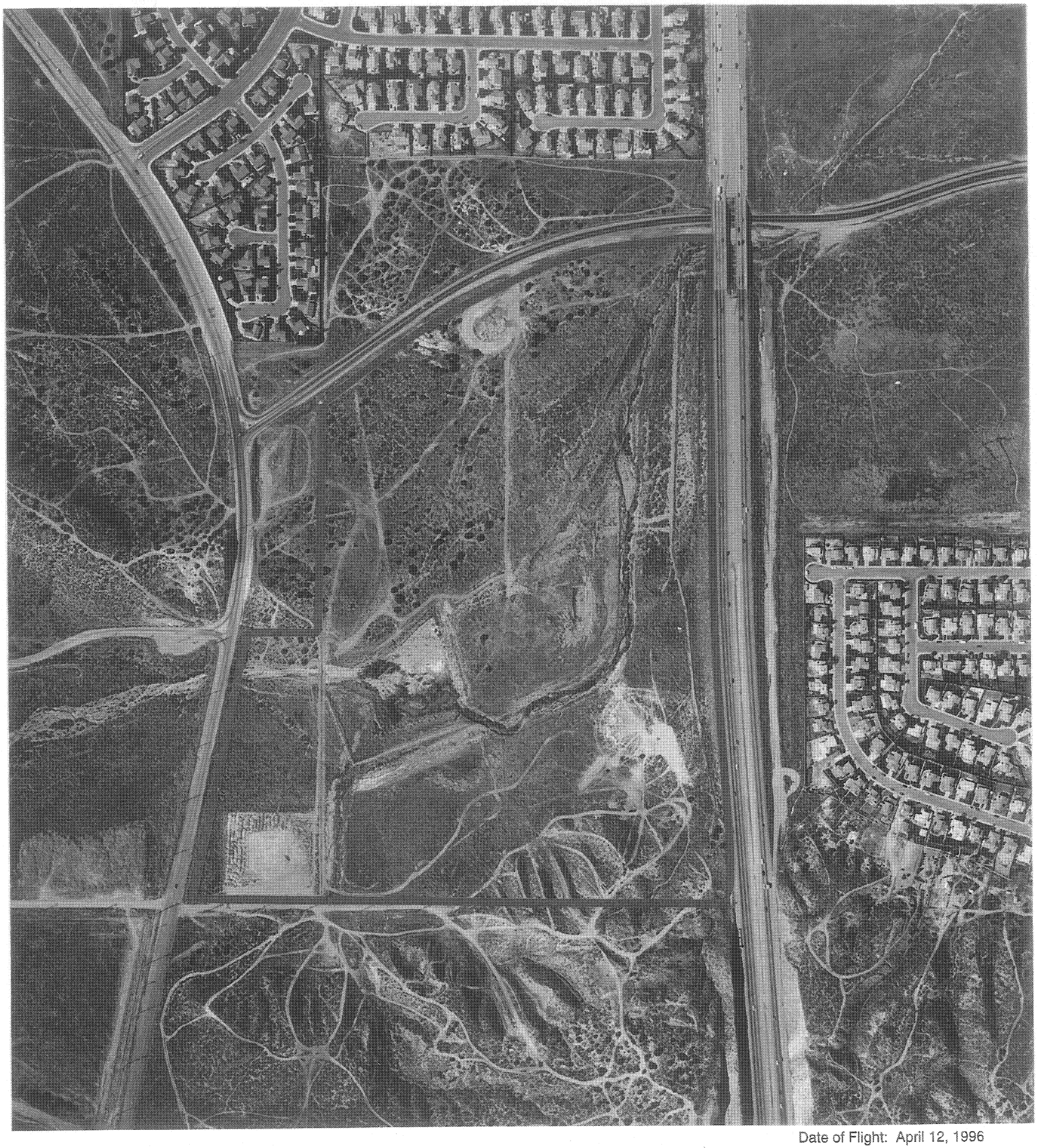
Exhibit 3-2



Date of Flight: April 12, 1996

Subject Site

No Scale

ANAVERDE FLOOD CONTROL BASIN AND SPORTS COMPLEX EIR

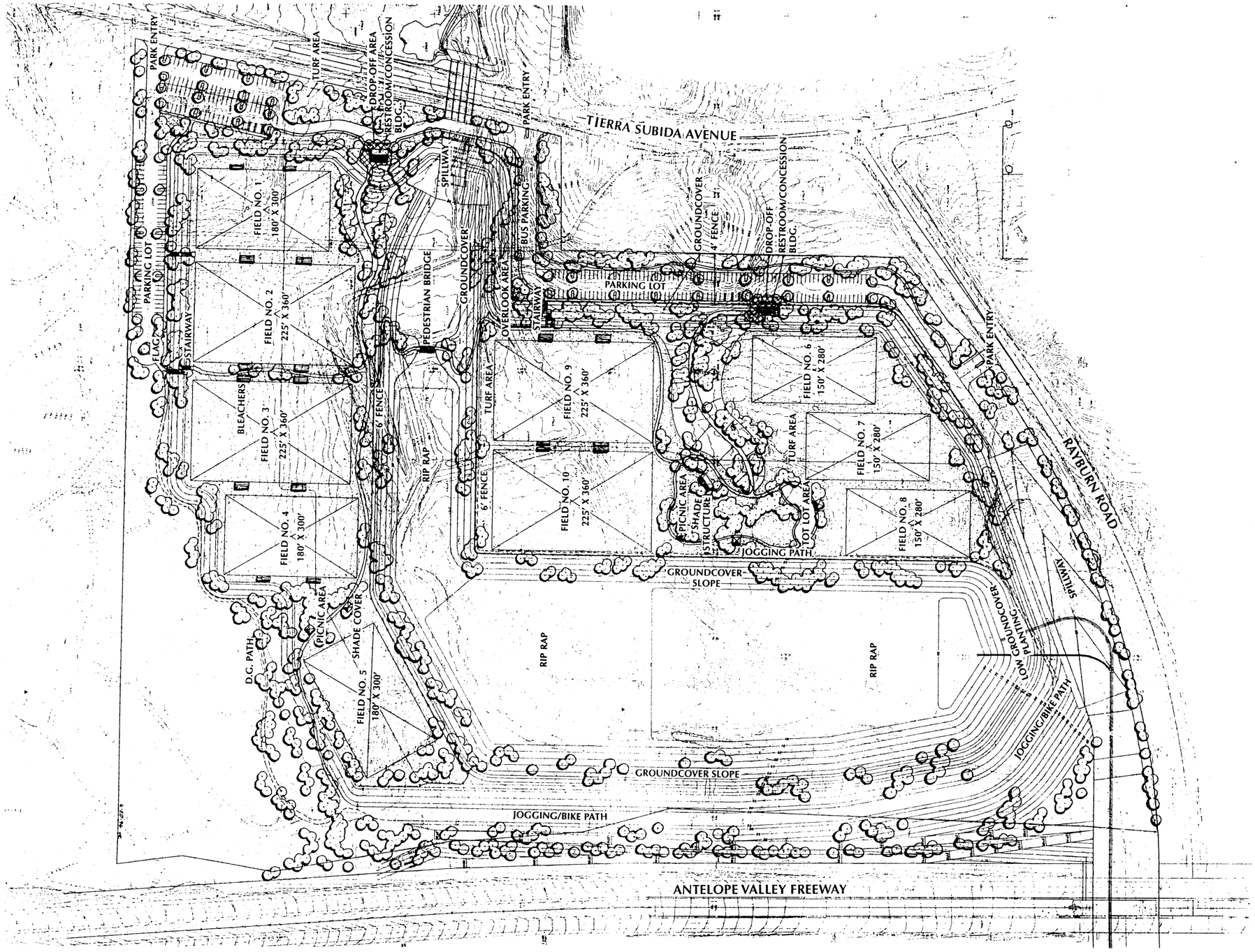
Aerial Photograph

Robert Bein, William Frost & Associates

8-96

JN 32668

Exhibit 3-3



Source: Lawrence R. Moss & Associates

No Scale

ANAVERDE FLOOD CONTROL BASIN AND SPORTS COMPLEX EIR

Site Plan

Robert Bein, William Frost & Associates

JN 32668

Exhibit 3-4

retention basins that would capture and retain the entire volume of a 4-day 50-year storm from the 15.94-square mile (10,200 acre) watershed upstream of the Antelope Valley Freeway (the upper watershed). This entire area was within unincorporated Los Angeles County. The first basin, referred to as the "City Ranch Basin" in the Antelope Valley Comprehensive Plan of Flood Control and Water Conservation (the Comprehensive Plan), prepared by the LACDPW in 1987, was located upstream of the California Aqueduct crossing of Anaverde Creek. The flood control planning for the lower watershed was based upon the same planning that allowed no flood flows into the City of Palmdale from the upper watershed.

The City of Palmdale prepared its first Master Plan of Drainage in 1988. This Master Plan utilized the same planning assumption for the upper watershed as the Comprehensive Plan. Subsequently, the City of Palmdale annexed two large areas, referred to as Ritter Ranch and City Ranch, into the upper watershed. As more detailed studies were conducted, it became apparent that the City Ranch Basin could not be constructed where it was originally proposed. Furthermore, complete retention of the runoff from the design storm was very difficult to implement. The flood control planning was then revised to provide a detention basin upstream of the Antelope Valley Freeway crossing which would substantially reduce the peak flows from the design storm (4-day 50-year storm) which constitutes a capital storm event.

Since the County purchased the property, it has been entirely annexed into the City of Palmdale. The County indicated that they would dedicate the property to the City for the purpose of a flood control basin and a joint-use recreational facility.

The original concept for the basin was to fully excavate the basin and export the dirt so impoundment would be below existing grade. The basin site is underlain by bedrock at fairly shallow depths, and would have required extensive blasting, excavation and off-site hauling activities.

The currently proposed project is to build an earthen dam at the lowest point of the site using fill material from the property, which would significantly reduce the amount of excavation required and also reduce the cost of the facility. A sports field complex within the remaining usable portion of the 73 acres would be developed. Ultimately, the project would consist of the flood control basin and the sports complex, including 10 soccer fields (lighted for night time use), parking, restrooms, concession area, hiking trails, picnic and tot lot facilities, and maintenance facilities.

3.4 Project Characteristics

The project is consistent with General Plan and zoning designations of "Public Facility", as discussed in Appendix 10.1, INITIAL STUDY/NOP.

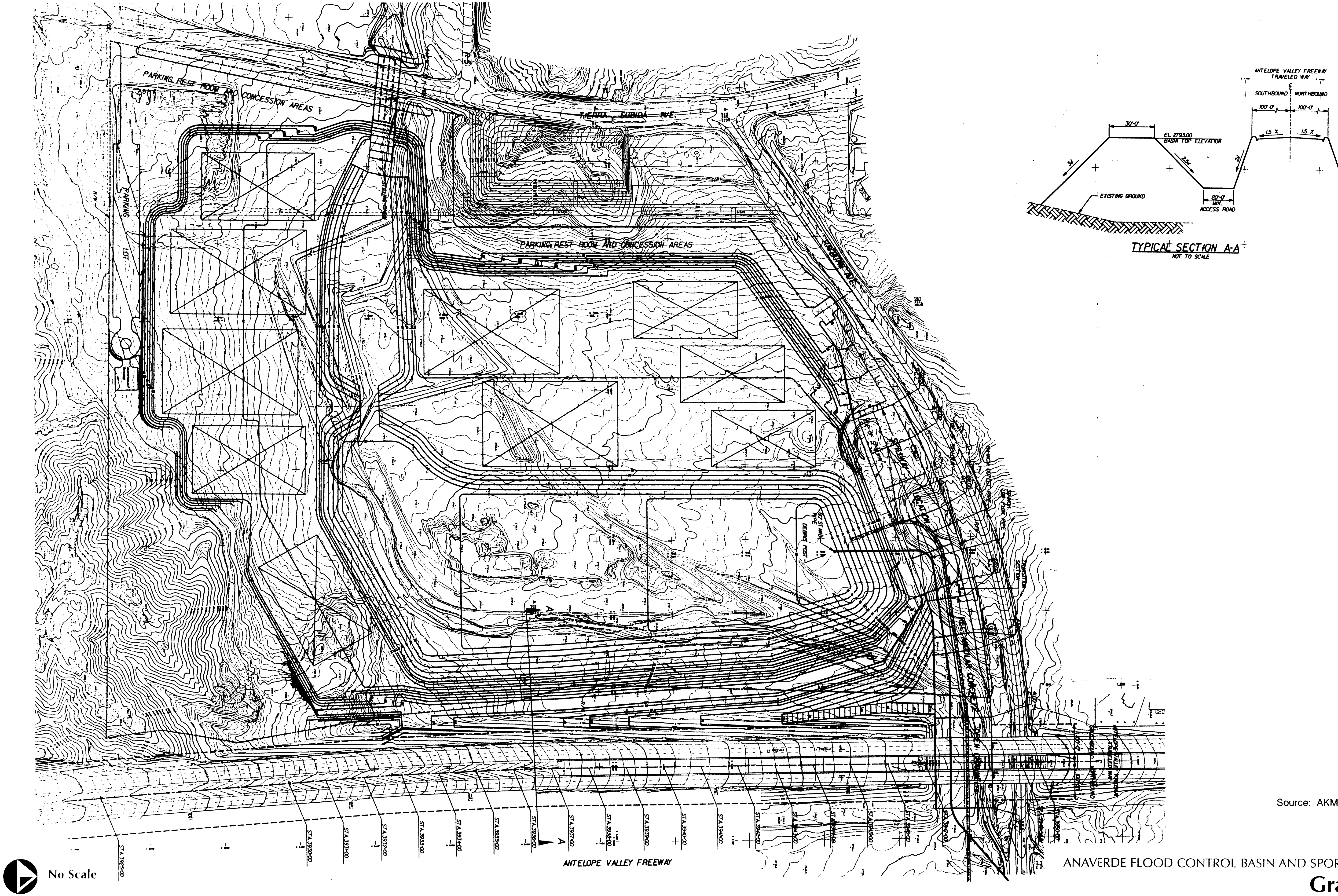
3.4.1 Anaverde Flood Control Basin

The Anaverde Detention Basin is planned as a "flow-through" detention basin that will significantly attenuate the peak flow from various frequency storms. The City of Palmdale's Drainage Management Plan requires protection from the Capital Flood, which is the runoff resulting from a 4-day 50-year capital storm event. Furthermore, as part of the Flood Insurance Program and in compliance with the Federal Emergency Management Agency (FEMA), downstream properties will have to be protected from the 100-year flood.

The maximum water surface elevation of the Anaverde Basin is 2,787.5 feet above mean sea level (msl), with a corresponding storage volume of 1,106 acre-feet. This places the basin under the jurisdiction of the State of California Department of Water Resources, Division of Safety of Dams (DSOD). Therefore, the basin is designed in accordance with the guidelines, statutes and regulations of the DSOD.

The detention basin planned elevations, capacity and slopes are as follows (refer to Exhibits 3-4, SITE PLAN and 3-5, GRADING PLAN):

Basin Invert	2,735 ft
Outlet Pipe Invert	2,748 ft
Spillway Crest	2,787.5 ft
Top of Embankment (Dam Crest)	2,793 ft
Basin Volume (Maximum Water Surface Elevation)	1,106 acre-feet (af)
Freeway/Spillway Slope	3:1 (horizontal/vertical)
Soccer Field Slopes	2-1/2:1 (horizontal/vertical)



Source: AKM Consulting Engineers
8-96

ANAVERDE FLOOD CONTROL BASIN AND SPORTS COMPLEX EIR

Grading Plan

Robert Bein, William Frost & Associates
8-96
JN 32668

Exhibit 3-5

The project will result in approximately 9,000 cubic yards of material being hauled off-site.[2]

- Inlet Structure

The inlet structure is planned as a four-barrel 4 x 14-foot wide x 10-foot high multi-box structure under Tierra Subida Avenue and an United States Bureau of Reclamation (USBR) Type III stilling basin in order to slow flows down. The box structure is designed to pass the peak flow from a 50-year capital storm with a minimum of two feet of freeboard, and may provide approximately one-half foot of freeboard for the peak flow from a FEMA 100-year storm (the FEMA 100-year storm event has less flow than the 50-year capital storm).

The basin inlet is designed with a USBR Type III stilling basin to prevent erosion of the interior slopes. The interior slopes of the embankment are designed at 3 horizontal feet for every 1 vertical foot. The exterior slopes are designed at 2½ horizontal feet for every 1 vertical foot.

- Basin

The basin is sized to contain the runoff from a 4-day 50-year capital storm event with approximately two feet of freeboard below the spillway and provide approximately one-half foot of freeboard for the peak flow from a FEMA 100-year storm. The basin potential volume below the top of the spillway crest is 1,106 af. From the inlet structure a wide channel will convey flows to the basin outlet facilities.

Collapsible and compressible materials shall be completely removed prior to placement of fill at the portion of dam embankment supporting the spillway and the outlet works. DSOD requires that the spillway be placed within cut or soil cement backfill. At other locations along the embankment, the removal of colluvium and younger, loose alluvium will occur. Removals may range from 5 feet to 55 feet along the upstream portion of the dam and to 5 feet to 15 feet elsewhere. Seepage through the embankment is not expected.

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[2] Initial Phase I grading will result in approximately 200,800 cubic yards of excess fill, which will be placed in the adjacent Phase II area. Ultimate on-site grading will result in approximately 674,000 cubic yards of cut and 635, 000 cubic yards of fill. In consideration of the 30,000 cubic yards of excess fill from the adjacent parcel, the overall net project grading will produce approximately 9,000 cubic yards of excess fill (674,000 - (635,000 + 30,000) = 9,000 cubic yards).

The basin volume accommodates both the 50-year and the 100-year storms without overtopping the spillway. Current 100-year storm flows are 3,730 cubic feet per second (cfs) in the project area. Implementation of the project will reduce 50-year capital storm event flows to 811 cfs (less than 25% of existing flows).

- Outlet Facilities

An ungated reinforced concrete pipe of 66-inch diameter will provide outflow from the basin. The invert of the outflow pipe is placed approximately 13 feet above the lowest elevation in the basin. The basin is designed to ensure that runoff from a 4-day 100-year storm will not outlet over the spillway. The outflow pipe will be able to empty the entire volume of the basin within five days (a 60-inch low-flow steel stem pipe will drain flows below the outlet pipe elevation). The outlet pipe will be temporarily terminated at a bubble-up structure on the east side of the Antelope Valley Freeway. As a separate project, the outlet pipe will eventually be extended easterly along Avenue R to the Anaverde Creek Channel near Sierra Highway (a distance of approximately 4,000 feet).

An uncontrolled "ogee" crested spillway (small dam design type), 500 feet in width and constructed of reinforced concrete over the earthen embankment, will convey the peak bulked flow of 17,592 cfs from the Probable Maximum Precipitation (PMP) with 1.5 feet of freeboard.[3]

3.4.2 Sports Complex

In conjunction with the project's flood control function, the City of Palmdale proposes a mixed land use for the purpose of a regional sports complex. The largest component of the sports complex is a championship caliber youth soccer facility. As presently planned, the detention basin accommodates a total of 10 lighted soccer fields. Supporting facilities for the soccer fields include a concessions building, two separate restroom facilities, a tot lot and picnic area, adjacent paved parking and a permanent maintenance and storage facility (refer to Exhibit 3-4, SITE PLAN).

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[3] Based on a 24-hour rainfall of 12.33 inches (no year frequency).

In addition to the soccer complex, the project includes an extensive network of trails and walkways that will be suitable for multiple mixed uses including rollerblading, biking, strolling and running.

3.4.3 Utilities/Off-Site Improvements

The proposed facility will require the construction of water, sewer, electrical and telephone utilities. Sewer service will be provided by a small on-site pump station and force main within the limits of Tierra Subida Avenue, with the discharge into an existing gravity sewer north of Rayburn Road. A water connection will occur off-site, east of the Antelope Valley Freeway.

Off-site grading will be required to install the four barrel multi-box structures under Tierra Subida Avenue. A transitional structure will be developed west of Tierra Subida Avenue adjacent to the four box structures.

Two parcels, located southeast of the Rayburn Road and Tierra Subida Avenue intersection, between the project site and Tierra Subida Avenue, will be graded as part of the project (generally referenced as the "Dr. Smith" property). Approximately 25,000 cubic yards of cut and 50,000 cubic yards of fill will occur commensurate with the earthen dam phase of the project (refer to Exhibit 3-5 ~~4.12-2~~, GRADING PLAN~~ of Section 4.1 GEOLOGY AND SOILS).~~

City Ranch Road (Avenue R-5) will be realigned to the south in order to align with one of the entrances to the sports complex along Tierra Subida Avenue.

3.4.4 Operation and Maintenance

Operation of the basin will occur mainly during and immediately after storm events. During a storm, water from Anaverde Creek will enter the basin through the reinforced box culverts located beneath Tierra Subida Avenue and will be detained in the basin by the dam and earthen levees. If the detention capacity of the basin is exceeded, excess runoff from Anaverde Creek will flow over the spillway at the northeastern edge of the basin. This runoff will pass into a concrete channel that leads under the Antelope Valley Freeway and will either flow east along Avenue R or flow across undeveloped parcels of land north of Rayburn Road in natural channels, east of the Antelope Valley Freeway.

The basin and dam will require periodic maintenance. Approximately 70 af of accumulated debris and sediment (from the 50-year storm) is anticipated and will need to be periodically removed from the basin. Based on the estimated low debris production from the watershed, frequent clean-out will not be required. Any debris removed from the basin for periodic operation and maintenance will be placed at appropriate and approved locations.

3.5 Project Objectives

FEMA has mapped, for the National Flood Insurance Program, the area between Rayburn Road and U.S.A.F. Plant 42 as being subject to flood hazard. These maps document that this area is not adequately protected from major storm events and that flood protection is needed in already developed areas in the City of Palmdale and adjacent unincorporated county territory.

Due to the prevalence of dry, sunny weather, development in the Antelope Valley had been predicated on an "as-needed" approach to drainage. While this approach is not adequate for a major metropolitan area, it was sufficient for the Valley for a long time with its sparse development. Now, without major drainage facilities and with the rapidly expanding urbanization across the valley floor, drainage from surrounding hillsides and canyons such as Anaverde Canyon flooding represents a significant threat to human lives and developed property including homes and businesses.

The objective of the proposed project is to provide major flood control improvement for the flood waters from Anaverde Creek. The purpose of these improvements is to substantially increase the level of flood protection provided to those portions of the City of Palmdale and unincorporated county territory downstream of Anaverde Creek (reducing flows at SR-14 from approximately 3,730 cfs to 811 cfs). In addition, a benefit of the proposed project is that it provides an opportunity for substantial savings in construction cost to the people of the City of Palmdale.

Implementation of the proposed sports complex would also satisfy a second project objective to provide active recreational opportunities for the residents of Palmdale, as well as to offset the unavoidable impacts associated with construction of the flood control basin, including wind and water erosion.

3.6 Project Phasing

Phase I will begin construction in late 1996, and will be completed by July 1997. The first phase associated with the proposed project will involve the construction of the southerly soccer field complex including five lighted soccer fields and parking. In addition, the parcel referred to as the "Dr. Smith Property" located westerly of the project site, will also be graded during Phase II construction activities.

Phase II will begin construction in late 1997 or early 1998. The second phase associated with the proposed project will involve the construction of the flood control basin including all fill and excavation, channelization, inlet/outlet structures, spillway and grading; and construction of the northerly soccer field complex including five lighted soccer fields, additional parking, concession stand and restrooms. In addition, off-site improvement will include the realignment of City Ranch Road (Avenue R-5) at Tierra Subida Avenue and improvements within Anaverde Creek, west of Tierra Subida Avenue.

Grading impacts associated with Phases I and II are addressed throughout the EIR.

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, 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:

Responsible Agency	Approval/Permit
City of Palmdale City Council	• Final EIR Certification • Project Approval • Road Improvement Plans • Building Plans • Building Permits • Grading Permit • Encroachment Permits
City of Palmdale Planning Commission	• Conditional Use Permit • Site Plan (Sports Complex) - Design/Grading Plans
County Sanitation Districts of Los Angeles County	• District Annexation (Portion of site)
Caltrans District 7	• ~~Encroachment Permit/Grading Plans~~ Permit for Over-sized Transport Vehicles on State Highways (if necessary).
California Department Water Resources - Division of Safety of Dams	• Flood Control Basin Construction Application
U.S. Army Corps of Engineers	• 404 Permit (Phase II only)
California Department of Fish & Game	• 1601 Agreement (Phase II only)
Regional Water Quality Control Board	• NPDES Permit
State Department of Health Services	• Design Plans for concessions and restrooms, and water/sewer facilities

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 sports complex site plan and authorization for improvement design plans to be released for construction bids, subject to meeting Conditions of Approval and receipt of future approvals/permits.

Encroachment Permit Grading within Caltrans right-of-way will require an encroachment permit and review of grading plans.

Flood Control Basin Design Approval: Project requires DSOD approval of Basin design due to its size, pursuant to "Guidelines for the Design and Construction of Small Embankment Dams" (DSOD, reprinted January 1993).

404 Permit: Required for grading within "waters of the United States" defined for this project by U.S. Army Corps of Engineers (ACOE) staff (Phase II only).

1601 Agreement: Required for streambed modifications for public agency projects (also may require 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, including dewatering activities (a common practice involving the temporary lowering of the local groundwater level by pumping and discharging to surface drainage to facilitate construction).

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

4.0 Description of Environmental Setting, Impacts And Mitigation Measures

4.0 OVERVIEW OF EIR METHODOLOGY AND SIGNIFICANCE DETERMINATIONS

EIR Methodology

The EIR was prepared based primarily on the Project Concept Report for Anaverde Detention Basin and Sports Complex, prepared by AKM Consulting Engineers, dated May 1996, the revised site plan dated June 20, 1996, revised grading plan (AKM, August 1996), revised hydrology calculations (AKM, August 12, 1996), and related requested approvals. This EIR includes as much detail as possible to maximize information available for public review and minimize the need for any future environmental documentation (see Section 2.0 of this EIR for further explanation of the EIR process). The EIR includes information gathered from Notice of Preparation comments (Appendix 10.1), utility and service agencies, and incorporating applicable portions of prior EIRs (see Section 2.5, DOCUMENTATION INCORPORATED BY REFERENCE). In addition, several technical studies were prepared for review and incorporation into this EIR. Each of these studies were reviewed by City Staff and RBF. Technical studies completed for the proposed project include:

- Anaverde Detention Basin Hydrology Study Ultimate Condition (available at the City Planning Department)
- Earth Resources (Appendix 10.2)
- Traffic (Appendix 10.4)
- Biological Resources (Appendix 10.5)
- Cultural Resources (Appendix 10.6)

Significance Determinations

The impact analysis contained in this EIR is presented to clearly indicate the significance determination for each impact by numbering each impact, with a correspondingly numbered impact discussion and, if necessary, mitigation measure(s). The significance determinations are based on a number of factors as explained in each impact section. These primarily included Appendix G of the CEQA Guidelines, General Plan policies, ordinances, generally accepted professional standards, and established quantified thresholds by the City or other

agencies (such as Level of Service for traffic impacts, pollutant emission thresholds hillside grading standards, and daily noise exposure standards adopted by the City).

The following is an explanation of the different significance determinations made in this EIR:

A. Not Significant

This determination is made when any of the three following cases apply:

(1) *No Impact:* Due to the nature or location of the project, this impact will not occur.

(2) *Less Than Significant:* Although an impact may occur, it will not be at a significant level based on the above described standards.

(3) *Potentially Significant Impact "Mitigated" Through Existing Requirements (No EIR mitigation required):* In this case, there is an impact which, although it is potentially significant, will be reduced to less than significant levels through various existing requirements. These existing requirements include City Codes and Ordinances, engineering and design requirements (through the Uniform Building Code and other regulations), and regulations from regional, state and federal agencies.

B. Less Than Significant With Mitigation

This determination is made when a potentially significant impact can be reduced to less than significant levels by incorporating EIR mitigation measures.

C. Significant With Mitigation

This determination is made for a potentially significant impact where there is either no mitigation available, or the recommended mitigation measures are not sufficient to reduce the impact to less than significant levels. This determination requires a Statement of Overriding Considerations, pursuant to CEQA Guidelines Section 15093 (this would be adopted by City Council as part of the resolution approving the project).

4.1 EARTH RESOURCES

The following section is based on information contained within various technical studies prepared for the project site. The primary references used include the Project Concept Report for Anaverde Detention Basin and Sports Complex, prepared by AKM Consulting Engineers, dated May 1996; the Preliminary Report of Geotechnical Investigation for Anaverde Flood Control Facility and Sports Complex, prepared by Leighton and Associates, dated June 1996, and the revised grading plan from AKM, dated August 1996. Portions of this report is contained in Appendix 10.2, GEOTECHNICAL REPORTS, of this environmental document. In addition, regional information was obtained from the City of Palmdale General Plan.

EXISTING CONDITIONS

Topography

The project area lies at the base of the Sierra Pelona Mountain Range along the south slope of the Antelope Valley. Ridges and valleys in the project vicinity have a pronounced northwest-southeast trend, resulting from repeated movements on the San Andreas Fault.

Anaverde Creek emerges from the foothills aligned with the San Andreas Fault Zone. Within the project area, the stream valley is approximately 1,000 feet wide with a gradient of 100 feet per mile. Upstream of the site, Anaverde Creek flows generally west to east; downstream of the site, it flows toward the northeast. This rotation of flow pattern is a result of right lateral separation across the San Andreas Fault Zone.

Natural slopes surrounding the project site are of a ratio of approximately 2:1. Slopes are relatively gentle and decrease to very flat to the north, in the main part of the Antelope Valley. To the southwest, portions of the north slope of the Sierra Pelona Range become steep and exceed 35 percent.

Elevations in the project area range between 2,745 and 2,800 feet above Mean Sea Level (MSL). Elevations within the Anaverde Creek drainage attain 5,217 feet MSL at Odell Point, approximately six miles southwest of the proposed project site.

Geology and Soils

The Mojave Desert basins and mountains contain Precambrian, Paleozoic, and Mesozoic rocks largely overlain by Cenozoic lake and other alluvial deposits. The Transverse Ranges are characterized by a complex group of tectonically faulted, folded, and uplifted rocks, ranging in age from Precambrian to recent. The Anaverde Valley is composed of recent alluvial deposits from Anaverde Creek and its tributary streams and Quaternary (Pleistocene) alluvium, underlain by both sedimentary and igneous bedrock of Pliocene and Cretaceous age, respectively.

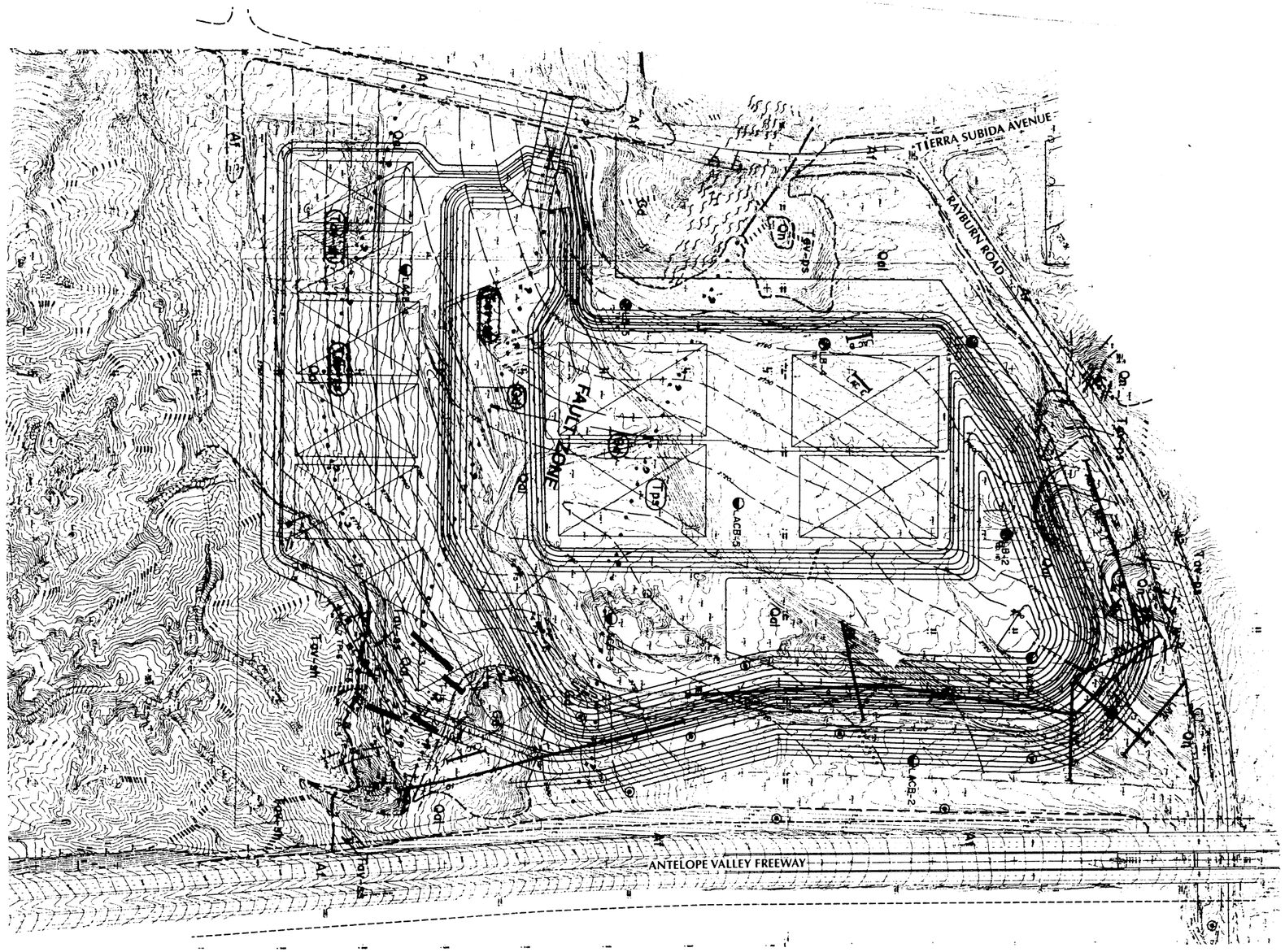
Based upon project site reconnaissance and the excavation of trenches and evaluation of test pits by a geologist, the surficial geologic units at the site were identified as artificial fill, younger and older alluvium, and bedrock units were identified as the Anaverde Formation and Granodiorite. These geologic units are illustrated on Exhibit 4.1-1, GEOTECHNICAL MAP, and described below:

- *Surficial Units*

  Artificial Fill (af): Artificial fill surrounds the site to the west, north and east and was placed during construction of Tierra Subida Road, Rayburn Road and the Antelope Valley Freeway (SR-14), respectively.

  Younger Alluvium (Qal): Holocene age alluvial materials were encountered throughout the site and represent channel and flood plain deposits associated with Anaverde Creek. In general, the alluvial deposits at the site consist predominantly of sands and silty sands.

  Older Alluvium (Qn): Older Alluvium Nadeau Gravel exist as isolated deposits that mantle the underlying Anaverde Formation Pebbly Sandstone in the northern and western portions of the site. Typically, these deposits are loosely consolidated and consist of pebbly to boulder sized, Pelona Schist clasts with minor quartz and granitic clasts, within a silty clay matrix. The Nadeau Gravel is at least ten (10) feet in thickness, as exposed along the northeastern portion of Rayburn Road.



LEGEND

Af	ARTIFICIAL FILL	MODERN
Qal	YOUNGER ALLUVIUM	QUATERNARY
Qn	OLDER ALLUVIUM (NATIVE GRAVELS)	QUATERNARY
Tav-sh	SILTY SHALE (ANAVERDE FORMATION)	PLIOCENE
Tav-ss	SANDSTONE (ANAVERDE FORMATION)	PLIOCENE
Tav-pc	PEBBLY SANDSTONE (ANAVERDE FORMATION)	PLIOCENE
Gd	GRANODIORITE	CRETACEOUS

SYMBOLS

FAULT LOCATION, DASHED WHERE INFERRED, DOTTED WHERE BURIED, QUERIED WHERE UNCERTAIN

GEOLOGIC CONTACT, DOTTED WHERE BURIED AND QUERIED WHERE UNCERTAIN

BEDDING ATTITUDE, DASHED WHERE BURIED

GENERALIZED BEDDING ATTITUDE, DASHED WHERE BURIED

JOINT ATTITUDE, DASHED WHERE BURIED

VERTICAL JOINT ATTITUDE, DASHED WHERE BURIED

FAULT ATTITUDE, DASHED WHERE BURIED

LB-5 (TD 18') — APPROXIMATE LOCATION OF HOLLOW STEM "FLIGHT" AUGER BORING BY LEIGHTON AND ASSOCIATES, INC., 1996 SHOWING TOTAL DEPTH IN FEET

LACB-5 — APPROXIMATE LOCATION OF HOLLOW STEM "FLIGHT" AUGER BORING BY LOS ANGELES COUNTY, 1996

PROPOSED PHASE II BORINGS

TP-9 — APPROXIMATE LOCATION OF TEST PIT BY LEIGHTON AND ASSOCIATE, INC., 1996

T-3 — APPROXIMATE LOCATION OF EXPLORATORY TRENCH BY LEIGHTON AND ASSOCIATE, INC., 1996

LINE - 5 — SEISMIC REFRACTION LINE BY LEIGHTON AND ASSOCIATES, INC., 1996

LAC C — SEISMIC REFRACTION LINE BY LOS ANGELES COUNTY, 1996

2770 — CONTOUR ON TOP OF BEDROCK (IN FEET)

SHEAR ZONE

F4 — FAULT TRACES IN CREEK BANK

Source: Leighton and Associates, Inc.

No Scale

ANAVERDE FLOOD CONTROL BASIN AND SPORTS COMPLEX EIR

Geotechnical Map

Robert Bein, William Frost & Associates
7.96 JN 32668

Exhibit 4.1-1

- *Bedrock Units*

  Anaverde Formation (Tav): Three separate lithologic units can be recognized in the Palmdale area within the Pliocene age Anaverde Formation. They are Pebbly Sandstone (Tav-ps), Silty Shale (Tav-sh), and Sandstone (Tav-ss) and are described as follows:

  A) Pebbly Sandstone was encountered in the northern and western portions of the site and is characterized as well-bedded, poorly sorted, quartz-rich sandstone with minor pebble and cobble granitics.

  B) Silty Shale was encountered in the southern portion of the site and consists of moderately to highly weathered, dry, soft to medium hard, thinly bedded siltstone with interbeds of hard silicified siltstone.

  C) Sandstone is present in the southeastern portion of the site. It can be characterized as weathered, massive, very hard, very coarse grained to pebbly with a medium to coarse grained matrix of quartz.

  Granodiorite (Gd): Igneous rocks of Cretaceous age are composed of highly weathered and intensely fractured, medium-grained granodiorite. The granodiorite forms a resistant hill (topographic uplifts) in the northwestern and southeastern part of the proposed basin and within a 75-foot long section of the Anaverde Creek.

Seismicity

The project area lies approximately 2,000 feet to four miles north of and adjacent to the active rift zone of the San Andreas Fault Zone. In 1857, the San Andreas Fault experienced a major earthquake in this area, resulting in ground surface rupture a distance of 250 to 300 miles, and a maximum horizontal movement on the order of 20 feet. The project area is located near the middle of the ruptured fault segment. The San Andreas through the project area is estimated to rupture every 134 years on average, but with a large degree of fluctuation (+123/-71 years). Since seismic movement on the San Andreas Fault Zone is characteristically lateral, primarily horizontal movement can be expected. However, elevation changes associated with vertical displacement along faults could also occur.

The Little Rock Fault, which lies slightly to the north of and parallel to the San Andreas Fault, is within the San Andreas Fault Zone. Faults associated with the Little Rock Fault bisect the project site. The Little Rock Fault Zone varies in character from a linear single fault trace to parallel shear zones up to 1,000 feet wide. The fault zone within the project site boundaries is associated with two granodiorite knolls; these knolls define a zone that averages 400 feet in width across the center of the site and marks the southeastern margin of the Ritter Ridge compressional uplift. Splays of this fault zone were identified in Holocene age sediments in Anaverde Creek. Based upon regional fault mapping studies, another fault trace may extend across the southern portion of the site.

The San Andreas and Little Rock Faults are both capable of significant surface disruption (rupture and shaking) associated with faulting during large earthquakes. Based on the geotechnical report prepared by Leighton and Associates, the Little Rock Fault Zone is capable of generating a magnitude 6.6 to 7.0 earthquake, producing an average displacement of 1 to 3 feet up to a localized maximum of close to 5 feet. A recurrence interval is unknown, although it is probable that the Little Rock fault could rupture co-seismically with the San Andreas fault.

IMPACT ANALYSIS

Construction

4.1-1. *Grading activities would be required to make the basin functional and to prepare the site for recreational development, subsequently resulting in the exposure of soils to short-term erosion by wind and water.* **Significance: Less than significant with mitigation.**

4.1-1 Discussion. According to the geological study prepared for the project area by Leighton and Associates, Inc. (June 1996), the project area contains alluvial soils that are highly susceptible to erosion. Grading operations and resulting manufactured slopes could increase the potential for erosion and siltation both during and after the construction phase of the project. In order to mitigate the potential effects of erosion on-site, temporary erosion control measures would be required such as use of sandbags, hydroseeding, and/or soil stabilizers. Implementation of the appropriate grading measures would reduce potential impacts to less than significant levels.

Topography

4.1-2 *Implementation of the proposed project would result in modification of the existing topography which would occur during grading activities.* **Significance: Significant with mitigation.**

4.1-2 Discussion: The ultimate project would require excavation (cut) of approximately 674,000 cubic yards of earth material and fill of approximately 635,000 cubic yards of earth material, resulting in an alteration of site topography. With an estimated 30,000 cubic yards of excess fill on the adjacent parcel the overall grading will be essentially balanced (only 9,000 cubic yards will require export). Placement of the excavated material to construct the dam and earthen levees of the basin and the soccer fields would alter the topography of the project site and those areas receiving this fill.

Gradual topographic change as project phasing progresses is a significant and unavoidable impact of basin excavation and dam construction. It should be noted that topographical alterations will alter the aesthetic character of the site. Refer to Section 4.6, AESTHETICS, for a discussion of aesthetic impacts and feasible mitigation measures. No mitigation measures have been identified which will reduce impacts associated with the physical modification of the project site's topography.

Geology and Soils

4.1-3 *Project grading could result in settlement and other unstable soil conditions, potentially resulting in a significant effect on the environment.* **Significance: Less then significant with mitigation.**

4.1-3 Discussion. In general, preliminary geologic investigations suggest the alluvial slopes of 2:1 (two feet vertically for every horizontal foot) within the proposed development are expected to be grossly stable against deep-seated failure, except in some localized areas where remedial grading may be needed. However, cut slopes proposed in alluvium and some of the sandstone bedrock material may be susceptible to surficial instability and erosion. Remedial grading may be required in these areas. The abutment slopes are anticipated to be grossly stable, provided the removals recommended in the geologic report are implemented.

Complete removal of collapsible/compressible materials such as topsoil, colluvium, alluvium, and other unsuitable materials will be required at the dam embankment prior to fill placement where embankment is to support the spillway and outlet works. Where no sensitive structures are planned, or seepage is not an issue, removals will be limited to the colluvium and younger, loose alluvium. Dense older alluvium will be left in place. The removal depths along the upstream portion of the dam embankment are estimated to be in the order of five to 55 feet below the present ground surface. This removal is considered to be the core trench. Removals behind the core trench are anticipated to be five to 15 feet. However, actual depths of removals will be determined in the field during grading, based upon ingrading inspections by the geotechnical consultant. All areas will be inspected by the geotechnical consultant and individually approved prior to placement of new compacted fill. All embankment construction will be performed in accordance with the recommended Earthwork and Grading Specifications outlined by the geotechnical consultant.

Topsoil, and compressible and collapsible alluvium should be removed from the alignment of the outlet works, to competent material. Based on the exploration, an estimated alluvium depth of 5 to 15 feet below the present grade may need to be overexcavated at the vicinity of outlet works. Expected depths will be determined in the field.

Overexcavations should be backfilled to the geotechnical consultant's recommended project specifications. Minimum compaction level required for backfill are 95 percent relative density as determined by ASTM D698 test method. The moisture content of fill placed should be between optimum moisture content and optimum plus three percent.

4.1-4 *The creation of the flood control basin could prevent erosion problems, but create potential slope failures.* **Significance: Less than significant**

<u>4.1-4 Discussion</u>. Under normal operating conditions, the flood control basin would trap water and transported sediments, thus gradually reducing holding capacity of the basin and reducing the deposition of alluvial sediments on the floor of the Antelope Valley. The former effect is not significant and requires no mitigation since the project is located in a low debris producing watershed. The reduction in bypassed sediment transport is considered beneficial and requires no mitigation. No significant erosion of downstream properties should occur as a result of desilted flows since the valley floor is flat enough to reduce the velocity of sheet flooding and is within a low debris producing area.

Excavations for the basin and the dam embankment are expected to be free of groundwater; however, the containment of flood flow with the basin may result in the seepage of water through the dam and levees which may increase the possibility of a natural slope failure. It should be noted that the dam embankment is anticipated to consist predominately of compacted silty sands derived from alluvium. Based on the results of permeability tests and the fact that water will be detained for a limited time, it is considered that seepage of water completely through the dam is unlikely. However, the dam and levee material saturated by seepage may be subject to increased likelihood of failure, particularly during a seismic event.

Dam and levee design should incorporate sump pumping, as well as slope protection measures (e.g., filter fabric, vegetation) to minimize erosion by rain, wind, and seepage. Dams and levees should also be inspected regularly for signs of animal burrowing.

Seismicity

4.1-5 *Due to the proximity of the San Andreas Fault Zone and the Little Rock fault to the project site, ground motion during seismic events could cause the dam embankment to fail.* **Significance: Significant with mitigation.**

4.1-5 Discussion. Because of its proximity to the San Andreas Fault Zone and the Little Rock fault, the proposed flood control basin and sports complex could be subject to ground shaking from earthquakes. Ground shaking during an earthquake or potential ground rupture from movement along Little Rock fault may cause slope failures within the basin, thereby displacing water. The potential for ground rupture at the project site is considered to be high. Vertical displacement associated with ground rupture and/or strong ground shaking could cause failure of the dam or levees, or both. Since water levels would be above grade when the facility is filled with flood water, the possibility of catastrophic flooding by failure of the dam or levee caused by a seismic event must be considered significant. However, it should be noted that the proposed basin would hold water at a high level for a limited period of time and ground shaking could result in only some limited deformation of the slopes. In addition, considering that the basin is designed to empty even the maximum potential flood (MPF) within five days,

the probability of concurrence of the peak ground acceleration[1] with any flooding condition is extremely low (less than 0.0004 percent in 50 years).[2]

Further soils investigations will be necessary both to establish the suitability of excavated materials for dam and levee construction, and to determine final design parameters which address seismic concerns. All appropriate means should be taken to ensure dam and levee survival during a seismic event. However, it may not be possible to fully mitigate against the possibility of failure of the dam for vertical displacements associated with ground rupture.

MITIGATION MEASURES

Construction

#4.1-1 An Erosion Control Plan shall be developed and approved by the City of Palmdale prior to issuance of a grading permit. The erosion control plan shall outline methods that shall be implemented to control erosion from graded or cleared portions of the site.

Topography

4.1-2 No mitigation measure(s) feasible.

Geology and Soils

#4.1-3a The applicant shall comply with detailed geotechnical recommendations as set forth in Appendix H of the "Preliminary Report of Geotechnical Investigation for Anaverde Flood Control Facility and Sports Complex," prepared by Leighton & Associates, dated June 1996. Measures shall be reflected in the grading plans, subject to review and approval by the City Engineer.

4.1-3b Refer to Mitigation Measure 4.1-1.

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1 The maximum credible peak ground acceleration (PGA) is the maximum ground motion at a site resulting from a maximum credible earthquake that occurs on a nearby fault.

2 Geotechnical Investigation for Anaverde Flood Control Facility and Sports Complex, City of Palmdale, California. Leighton and Associates, Inc., July 17, 1996, page 16.

4.1-4 Refer to Mitigation Measure 4.1-3a.

Seismicity

#4.1-5a The proposed project shall adhere to and be in strict compliance with the seismic design criteria of the Uniform Building Code and the City of Palmdale, as well as the California Department of Water Resources, Division of Safety of Dams Guidelines for the Design and Construction of Small Embankment Dams.

4.1-5b Refer to Mitigation Measure 4.1-3a.

UNAVOIDABLE SIGNIFICANT IMPACTS

Gradual topographic change as project phasing progresses is a significant and unavoidable impact of basin excavation and dam construction. It should be noted that topographical alterations will alter the aesthetic character of the site. Refer to Section 4.6, AESTHETICS, for a discussion of aesthetic impacts and feasible mitigation measures.

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), April 1993), Air Quality Data 1987-1991 (SCAQMD), the Final 1994 Air Quality Management Plan (SCAQMD, adopted July, 1991), The National Oceanic and Atmospheric Administration Climatological Data Annual Summary, and the Soil Survey - Antelope Valley Area, California (U.S. Department of Agriculture Soil Conservation Service). 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.

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.

Temperature Inversions and Smog

Under ideal meteorological conditions and irrespective of topography, pollutants emitted into the air would be mixed and dispersed into the upper atmosphere. However, the Southern California region frequently experiences temperature inversions in which pollutants are trapped and accumulate close to the ground. The inversion, a layer of warm, dry air overlaying cool, moist marine air, is a normal condition in the south land. The cool, damp and hazy sea air capped by coastal clouds is heavier than the warm, clear air which acts as a lid through which the marine layer cannot rise. The height of the inversion is important in determining pollutant concentration. When the inversion is approximately 2,500 feet above sea level, the sea breezes carry the pollutants inland to escape over the mountain slopes or through the passes. At a height of 1,200 feet, the terrain prevents the pollutants from escaping and it backs up along the foothill communities. Below 1,200 feet, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer over the entire coastal basin. Usually, inversions are lower before sunrise then during the daylight hours. Mixing heights for inversions are lower in the summer and more persistent, being partly responsible for the high levels of ozone observed during summer months in the Basin. Smog in Southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods of time, allowing them to form

secondary pollutants by reacting with sunlight. The Basin has a limited ability to disperse these pollutants due to typically low wind speeds.

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, which tend to contain basin primary pollutants as they react with each other and sunlight to form existing emissions.

- *Local Air Quality Levels*

Criteria air pollutants are defined as those pollutants for which the Federal and State governments have established ambient air quality standards, or criteria, for outdoor concentrations in order to protect public health. The Federal and State standards have been set at levels above which concentrations could be generally harmful to human health and welfare.

At the present time, six ambient air pollutants are of special concern in the SeDAB: carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), and fine particulate matter (PM10). The Los Angeles County portion of the Basin is a non-attainment area for ozone (O_3) (for both state and federal), and fine particulate matter (PM10) (for state only).[1] Non-attainment refers to the fact that the state and/or federal ambient air quality standards are violated in the region.

The AQMD operates several air quality monitoring stations within the Basin. The nearest air quality monitoring station to the project site is located in Lancaster. Air Quality levels at this monitoring station were utilized for this analysis. The data collected at this station is considered to be representative of the air quality experienced on-site. Air quality data from 1990 to 1994 is provided in Table 4.2-1, LOCAL AIR QUALITY LEVELS. As indicated in this Table, fine particulate matter (PM10) and ozone are the pollutants of primary concern in the area. The particulate mater originates within the Southeast Desert Air Basin. However,

[1] Proposed Amendments to the Area Designations for State Ambient Air Quality Standards with Maps of Area Designations for the State and National Ambient Air Quality Standards, California Air Resources Board, Approved November 9, 1994.

TABLE 4.2-1

LOCAL AIR QUALITY LEVELS MEASURED AT THE LANCASTER AMBIENT AIR MONITORING STATION

Pollutant	California Standard	Federal Primary Standard	Year	Maximum[1] Concentration	Days (Samples) State/Federal Std. Exceeded
CO	20 ppm for 1 hour	35 ppm for 1 hour	1990	11	0/0
			1991	10	0/0
			1992	09	0/0
			1993	09	0/0
			1994	08	0/0
	9 ppm for 8 hours	9 ppm for 8 hours	1990		0/0
			1991		0/0
			1992		0/0
			1993	09	0/0
			1994	08	0/0
Ozone	0.09 ppm for 1 hour	0.12 ppm for 1 hour	1990	0.15	52/7
			1991	0.14	62/8
			1992	0.17	78/25
			1993	0.16	65/11
			1994	0.14	64/8
NO_2	0.25 ppm for 1 hour	0.053 ppm annual average	1990	0.09	0/0
			1991	0.11	0/0
			1992	0.16	0/0
			1993	0.11	0/0
			1994	0.10	0/0
SO_2	0.25 ppm for 1 hour	0.14 ppm for 24 hours or 80 ug/m^3 (0.03 ppm) annual average	1990 - 94	NM	NM
PM10	50 ug/m for 24 hours	150 ug/m for 24 hours	1990	342	22/6
			1991	780	11/3
			1992	68	5/0
			1993	70	9/0
			1994	97	3/0
Lead	1.5 ug (1 month avg.)	1.5 ug (quarterly avg.)	1990-94	NM	NM

NOTES:

1. Maximum concentration is measured over the same period as the California Standard.
2. State standard for ozone changed from 10 ppm over hour to 0.09 ppm in 1988.

NS = No standard set. NM = Not measured.
ug/m^3 = micrograms per cubic meter

Sources: 1989 - 1991 data from Air Quality Data, South Coast Air Quality Management District; 1992 data from CEQA Air Quality Handbook, SCAQMD, April 1993 (pp. A3-7); 1993 data from Draft 1994 Air Quality Management Plan, SCAQMD, April 1994 (pp. 2-15 to 2-22).

much of the other pollutants are a result of South Coast Air Basin pollutants spilling over into the desert area.

The following air quality information briefly describes the various types of pollutants.

Carbon Monoxide (CO)

Carbon monoxide is a colorless and odorless gas. The automobile and other types of motor vehicles are the main source of this pollutant in the SeDAB. 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. The state standard of CO is 20.0 ppm (parts per million), averaged over one hour. The maximum one-hour concentration at the Lancaster monitoring station has remained steady between the years 1990 to 1994 with an average of 9.4 ppm but decreased substantially in 1994 to 8 ppm.

Ozone (O3)

Ozone is one of a number of substances called photochemical oxidants. These oxidants are formed when hydrocarbons and related compounds, also called volatile organic compounds (VOC) and reactive organic compounds (ROC), both by-products of the internal combustion engine, interact with oxides of nitrogen in the presence of ultraviolet sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in Lancaster. 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

[2] Emissions Inventory 1989, Air Resources Board, August, 1991, Table A-75.

contribution. Although local emissions do add incrementally to regional air quality degradation, their effects are obscured by the transport problem.

The State standard for ozone is 0.09 ppm, averaged over 1 hour. The ozone levels at the Lancaster Station have fluctuated from 0.15 ppm in 1990 to 0.14 ppm in 1994, averaging 0.15 ppm from 1990 to 1994. State standard exceedances have ranged from 78 days in 1992 to 47 days in 1994.

Nitrogen Dioxide (NO_2)

NO_2 is a by-product of fuel combustion which results from mobile and stationary sources and has complex diurnal concentrations that are typically higher at night. A recent emissions inventory shows that 66 percent of the SEDAB's NOx is emitted from mobile sources and 34 percent from stationary sources.[3] The Basin has relatively low NO2 concentrations, as very few monitoring stations have exceeded the State standard of 0.25 ppm (one hour) since 1988. Nitrogen dioxide levels did not exceed the State or Federal standards at the Lancaster Station during the past five years.

Sulfur Dioxide (SO_2)

SO_2 is a result of the combustion of sulfur-containing fossil fuels from mobile and stationary sources. Diurnal concentrations are complex, but are typically higher at night. This pollutant is not measured at the Lancaster station; however the SOCAB has relatively low SO_2 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 SO_2 concentrations.

Fine Particulate Matter (PM10)

PM10 are extremely small suspended particulates (10 microns and less), with one micron being one millionth of a meter). PM10 arises from sources such as road dust, diesel soot, combustion products, construction operations and dust storms. PM10 scatters light and significantly reduces visibility. Maximum concentrations at the Lancaster Station ranged from 780 ug/m^3 in 1991 to 97 ug/m^3 in 1994. Exceedances of

[3]Ibid.

the State standard also varied over the last five years from 22 days in 1990 to 3 days in 1994.

In the Southeast Desert Air Basin, atmospheric lead is generated almost entirely by the combustion of leaded gasoline. 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 ug/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. Lead concentrations were not measured at the Lancaster monitoring station between 1990 and 1994.

Air Quality Management and Standards

The project site is located in the SEDAB and, jurisdictionally, is governed by the SCAQMD and the California Air Resources Board (CARB). Under the provisions of the Federal Clean Air Act (CAA), the Environmental Protection Agency (EPA) was required to classify each air pollution control district with respect to attainment or non-attainment status. The CAA was amended in November 1990, primarily to overhaul the planning provisions of those areas not currently meeting the National Ambient Air Quality Standards (NAAQS). The CAA identifies specific emission reduction goals, requires both a demonstration of reasonable further progress and an attainment demonstration, and incorporates more stringent sanctions for failure to meet interim milestones. As previously noted, portions of the basin are non-attainment areas for O_3 and PM10. Non-attainment refers to the fact that the Federal and/or State ambient air quality standards are violated in the region. As a non-attainment region, the region must participate in the State Implementation Plan pursuant to the Federal Clean Air Act and amendments thereto. Both Federal and State Clean Air Acts require the preparation of a plan to reduce pollution to healthful levels.

In accordance with the State Lewis Air Quality Management Act (1976) and the Federal Clean Air Act Amendments, the SCAQMD prepared several Air Quality Management Plans (AQMP). The 1989 AQMP was the first AQMP to define a comprehensive control strategy,

achievable attainment dates, and an aggressive rule-making 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) and 1990 amendments to the Federal. Both of these laws require stricter controls on pollutants and attainment of air quality standards within specified time frames.

The CCAA was signed into law on September 30, 1988, became effective on January 1, 1989, and was amended in 1992. Also known as the "Sher Bill" (AB 2595), the CCAA established a legal mandate to achieve health-based state air quality standards at the earliest practicable date. A revised AQMP which reflected these new requirements from the Federal and State government was adopted by the District on July 12, 1991. The 1991 AQMP was designed to comply with State and Federal requirements and thus reduce the high level of pollutant emission in the SoCAB and return clean air to the region by 2010. The Plan is governed by State and Federal laws and is part of the State Implementation Plan (SIP) submitted to the Environmental Protection Agency (EPA).

To accomplish its task, the AQMP relies on a multi-level partnership of governmental agencies at the Federal, State, regional and local level. These agencies (EPA, ARB, local governments, Southern California Association of Governments (SCAG), and the District) are the cornerstones that implement the AQMP programs.

Current Condition. The 1994 Final AQMP addresses CAA and CCAA requirements. The more stringent CCAA requirements include:

1) demonstration of the overall effectiveness of the air quality program;
2) reduction of non-attainment pollutants and their precursors at a rate of five percent per year or maximum feasible rate;
3) achieving an average vehicle ridership during commute hours of 1.5 persons per vehicle by 1999;
4) ensuring no net increase in mobile source emissions after 1997;
5) reducing population exposure to severe non-attainment pollutants according to a prescribed schedule; and
6) ranking control measures by cost-effectiveness.

Control Strategy. As opposed to the three-tiered structure of measures in the 1991 AQMP, the 1994 AQMP includes two tiers of emission reduction measures (short/intermediate and

long-term measures), based on availability and readiness of technology. Short- and intermediate-term measures propose the application of available technologies and management practices between 1994 and the year 2005. In the 1991 AQMP, these measures were generally designated as Tier I control measures. These short- and intermediate-term measures are designed to satisfy the Federal CAA requirement of reasonably available control technologies, and the CCAA requirements of best available retrofit control technologies.

To ultimately achieve ambient air quality standards, further development and refinement of known low- and zero-emission control technologies, in addition to technological breakthroughs, will be necessary. Long-term measures rely on the advancement of technologies and control methods that can reasonably be expected to occur between 1994 and 2010. These measures were designated as Tier II and Tier III control measures in the 1991 AQMP.

Because of the EPA's principal authority over many off-road sources, the 1994 AQMP's off-road mobile source control measures are based on the EPA's proposed FIP for the Basin. The FIP's proposed control measures are based on a combination of stringent emission standards, declining caps on emission levels and emission/user fees.

Sensitive Receptors

Sensitive populations are more susceptible to the effects of air pollution than the general population. Sensitive populations (sensitive receptors) who are in proximity to localized sources of toxins and carbon monoxide are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, child care centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The residential developments situated north of Rayburn Road and east of the Antelope Valley Freeway are the only sensitive receptors located in the vicinity of the proposed project.

IMPACT ANALYSIS

Short-term Construction Impacts

Development of the proposed project will occur over two phases, with Phase I consisting of a 29 - acre sports complex (10 soccer fields and appurtenant facilities) and Phase II consisting

of a 43-acre flood control basin and appurtenant facilities. Project implementation will involve an estimated 9,000 cubic yards requiring export to an offsite location. Each phase will occur over an estimated period of six months.

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:

- Exhaust emissions from the heavy-duty, diesel powered construction equipment used onsite as well as the vehicles used to transport materials to/from the site and to transport excess fill offsite.
- Particulate (fugitive dust) emissions from grading, excavation, 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;

4.2-1 *Project implementation would result in exhaust emissions from the construction equipment used onsite and the trucks to transport materials/excess fill to/from the site.* **Significance: Significant with Mitigation.**

4.2-1 Discussion: Diesel-powered, earth-moving vehicles used during the excavation/construction phases would produce exhaust emissions. The impacts from the emissions would depend on climate conditions (wind dispersion of exhaust) and the number of vehicles working at the project site. During construction activities, the smell of diesel fumes would be the most noticeable impact directly downwind from the project site. Nitrogen oxide compounds (NOx) and carbon monoxide (CO) are the main pollutants released by diesel-powered equipment. Calculations of on-site emissions indicate that all projected emissions fall below levels designated as significant thresholds, with the exception of nitrogen oxides (Table 4.2-2, SHORT-TERM EXHAUST EMISSIONS). Exhaust emissions from the heavy-duty construction equipment during the short-term construction phase are estimated to range from 70.60 pounds per day of reactive hydrocarbons to 681.83 pounds per day of nitrogen oxide emissions.

TABLE 4.2-2

SHORT-TERM EXHAUST EMISSIONS
(Phases I and II Combined)
(lbs/day)

Air Pollutant	On-Site Construction Equipment Exhaust Emissions[1]	Off-site Haul-Truck Exhaust Emissions[2]	Total Exhaust Emissions
Carbon Monoxide	161.57	108	269.57
Reactive Organic Compounds	42.60	28	70.60
Nitrogen Oxides	512.83	169	681.83
Particulates (PM10)	48.98	29	77.98

1 Assumes 8 and 15 pieces of heavy-duty, diesel-powered construction equipment operating for a maximum of 12 hours per day, five days a week, with 80 percent utilization for Phases I and II, respectively. Emission factors for the heavy duty, diesel powered on-site construction equipment were obtained from Supplement A to Compilation of Air Pollutant Emission Factors Volume II: Mobile Sources. EPA's AP-42 provides emission factors for exhaust hydrocarbons which contribute to ozone formation. For the sake of consistency in this analysis, reactive hydrocarbons (HC) have been labeled as Reactive Organic Compounds (ROC). The SCAQMD is gradually replacing the term "HC" with "ROC".

2 Assumes 7,200 haul-truck miles traveled per day, based on a maximum of 240 daily truck trips at 30 miles per trip (round-trip). Emission factors were obtained from EMFAC7V1.1, based on the following assumptions: 40 mph average speed, 20% hot start, heavy/medium duty truck split of 90%/10%, 55° F/winter conditions for CO, 85°F/summer conditions for other pollutants. Emission factors are as follows (grams/mile): 6.78 for CO, 1.77 for ROC, 1.84 for PM10, and 10.63 for No_x.

The heavy-duty, diesel powered vehicles used to transport excess fill offsite will generate exhaust emissions during transport. Approximately 9,000 cubic yards of excess fill will be transported to an offsite disposal site, which is assumed to be located approximately 15 miles north of the project site[4]. Table 4.2-2, SHORT-TERM EXHAUST EMISSIONS, details project emissions from haul truck exhaust.

4.2-2 *Project implementation would result in particulates (fugitive dust) emissions during site preparation, excavation and grading activities.* **Significance: Significant with Mitigation.**

4.2-2 Discussion. Fugitive dust poses two public health and safety concerns. The first concern is that of respiratory problems attributable to the suspended particulates in the air. The second concern is that of motor vehicle accidents caused by reduced visibility during severe wind conditions. Fugitive dust may also cause significant property damage during strong wind storms by acting as an abrasive material agent, much like sandblasting activities.

The actual quantity of fugitive dust emissions generated is governed by the type and amount of work being done and the prevailing wind conditions. Site preparation, clearing, grading, excavation and heavy-duty equipment/truck use on unpaved surfaces can create large quantities of fugitive dust during the construction process. However, based on typical earth-moving operations and assuming that no mitigation measures are employed, an estimated 55 pounds of particulate matter will be discharged daily into the atmosphere per acre graded. It should be noted that the fugitive dust emissions represent particulate matter with diameters equal to, or less than, ten microns (PM_{10}). PM_{10} is a specific subset of total particulates and is monitored by the SCAQMD as one of several criteria air pollutants. Furthermore, most particulate matter settles out within a small distance from the Project site.

The entire 72-acre project site will not be subject to earth-moving operations on a daily basis. It is estimated that earth-moving activities will occur over an area of approximately 10 acres at one time. Applying the EPA factor to the relevant project surface area provides a dust emissions estimate of approximately 550 pounds per day per acre (before mitigation). The EPA has estimated that regular watering of the portions of a site under operation may reduce fugitive dust emissions by up to 50 percent. Therefore, with watering measures implemented, project fugitive dust (particulate) emissions are estimated to be approximately 275 pounds per day per acre for the duration of earthmoving operations, which is a significant impact.

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4 A precise disposal location has not been identified, although it is assumed that the disposal route will generally be from the site to Avenue S to northbound Antelope Valley Freeway.

No definitive methodology by which to assess the significance of the project's impact directly upon air quality has been set forth to date by any regulatory agency, including the SCAQMD (which has jurisdiction over the project). However, the SCAQMD has suggested threshold values for air pollutant emissions as a means of generally assessing the potential significance upon ambient air quality of a proposed project's emissions. It should be noted that according to the SCAQMD *CEQA Air Quality Handbook*, the threshold values are considered to be suggestions only. The intent of the SCAQMD threshold values is to provide guidelines in order to generally determine the significance of the project's stationary and mobile source emissions. In accordance with the SCAQMD's recommendation, this analysis has utilized the threshold values as one of the criteria to determine the potential significance of the project's air pollutant emissions.

Total Short-term Emissions

When the total daily exhaust emissions from the construction equipment, as shown in Table 4.2-2, SHORT-TERM EXHAUST EMISSIONS are added to the estimated fugitive dust emissions, SCAQMD NSR threshold values are exceeded for fugitive dust and nitrogen oxides, as shown in Table 4.2-3, TOTAL SHORT-TERM EMISSIONS. Short-term impacts (based on threshold levels) for carbon monoxide, sulfur dioxide, and reactive hydrocarbons would not be considered significant.

Long-Term Emissions

4.2-3 *Implementation of the proposed project would result in an overall increase in the local and regional pollutant load.* **Significance: Not Significant.**

4.2-3 Discussion. The Sports Complex will not directly affect air quality, however, the increased traffic resulting from project operation will contribute emissions.

The proposed project does not involve the development of numerous buildings or housing resulting in a demand upon natural gas or electrical energy. Although the sports complex includes appurtenant facilities (i.e., parking/field lighting; and concession/storage buildings), these are anticipated to result in a negligible demand upon natural gas and electrical energy resources, thereby generating a negligible amount of pollutants.

TABLE 4.2-3

TOTAL SHORT-TERM EMISSIONS
(Phases I and II Combined)
(lbs/day)

Air Pollutant	Exhaust	Fugitive Dust	Total	SCAQMD Thresholds[1]
Carbon Monoxide	269.57	--	269.57	550
Reactive Organic Compounds	70.60	--	70.60	75
Nitrogen Oxides	681.83	--	681.83	100
Particulates (PM10)	77.98	550	627.98	150

(--) Denotes less than 0.1 pounds per day.

TABLE 4.2-4

ESTIMATED PROJECT MOTOR VEHICLE EMISSIONS

Air Pollutant	Emission Factor[1] (grams/mile)	Estimated Emissions[2] (lbs/day)	SCAQMD Thresholds
Carbon Monoxide	23.3	496	550
Reactive Organic Compounds	0.98	21	75
Nitrogen Oxides	1.26	27	100
Particulates (PM10)	0.01	0.2	150

1 Emission factors obtained from EMFAC7FV1.1, assuming 100% cold starts, 65°F/winter CO conditions, 85°F/summer conditions for other pollutants, vehicle speeds per worst-case assumptions in SCAQMD CEQA Air Quality Handbook (25 mph for CO, 35 mph for ROC, 15 mph for PM10, and 20 mph for NOx), and a vehicle mix of 80% light duty autos, 19% light duty trucks and 1% medium duty trucks.

2 Assumes a total of 9,660 miles per day, based on 1,400 average daily trips and an average trip length of 6.9 miles.

Estimated motor vehicle emissions (the largest emission source), generated by traffic associated with the project, are shown in Table 4.2-4, ESTIMATED PROJECT MOTOR VEHICLE EMISSIONS. Based on information presented in Section 5.4, the estimated emissions generated by the project's traffic was based on 1,400 average daily trips. Estimated emissions generated by the Project's traffic range from 0.2 pounds per day of particulates to 496 pounds per day of carbon monoxide. Estimated motor vehicle emissions do not exceed established SCAQMD threshold criteria and are not anticipated to be significant. As noted above, long-term emissions from stationary sources (such as natural gas consumption and electrical energy generation were considered negligible estimated at less than 0.1 pound per day).

Project Significance

The SCAQMD has suggested general threshold values for air pollutant emissions as a means of assessing the potential significance of proposed project emissions upon ambient air quality. The original intent of the SCAQMD threshold values was to provide guidelines for stationary sources only. Subsequently, SCAQMD requested that total project emissions (mobile and stationary) be compared to the threshold values in order to determine the significance of project emissions. This analysis utilized the threshold values as the criteria to determine the potential significance of the Project's air pollutant emissions.

The project stationary-source emissions would not exceed the threshold values. These emissions, primarily associated with the vehicular traffic generated by the project, are considered to have a less than significant impact.

Consistency with Regional Plans

4.2-4 *The project would be consistent with applicable regional air quality and growth management plans.* **Significance: Not significant (consistent).**

<u>4.2-4 Discussion</u>. Although the project would represent an incremental negative impact to air quality in the Southeast Desert Air Basin, a primary concern is that project-related impacts have been properly anticipated in the regional air quality planning process and reduced whenever feasible. Therefore, it is necessary to assess the project's consistency with the AQMP.

The Southern California Association of Governments (SCAG) is responsible under the Federal Clean Air Act for determining conformity of projects, plans and programs with the SCAQMD Air Quality Management Plan. SCAG published the Regional Comprehensive Plan and Guide (RCPG) in May 1995. The RCPG is a compilation of the summaries of Plans for the Southern California Region.

It establishes a broad set of goals for the region, and identifies strategies for agencies at all levels to use in guiding their decision-making toward implementation of the proposals.[5] Specifically, the Growth Management and Regional Mobility Chapters contain policies to help guide local agencies in developing a more balanced number of houses and jobs.

Policies within the adopted chapters of the RCP are aimed at SCAG's overall goals to 1) improve the regional standard of living, 2) maintain the regional quality of life, and 3) provide social, political and cultural equity. Selected policies include the following:

- SCAG shall encourage patterns of urban development and land use which reduce costs on infrastructure construction and make better use of existing facilities.

- SCAG shall discourage development, or encourage the use of special design requirements, in areas with steep slopes, high fire, flood and seismic hazards.

Although air quality is a regional problem, SCAG's RCPG and SCAQMD's AQMP place a heavy reliance on local implementation measures, such as land use decisions and local employment transportation programs. The implementation process stresses the freedom of cities to choose attainment measures that best suit local conditions.

As indicated in SCAQMD's CEQA Air Quality Handbook, there are two main indicators of consistency:

- Whether the project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP; and

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5 Draft Regional Comprehensive Plan, Southern California Association of Governments, December 1993, page xv.

- Whether the project will exceed the assumptions in the AQMP in 2010 or increments based on the year of project build-out and phase.

Due to the nature and scope of the proposed sports complex, the project would not cause air quality impact violations or VMT beyond that accounted for in both local and regional growth management documents. Therefore, the project would be consistent with the AQMP.

MITIGATION MEASURES

Short-term Emissions

#4.2-1&2 The project will implement the following mitigation for construction-related air emissions:

a. The Project Applicant shall obtain any and all permits as may be required by the South Coast Air Quality Management District ("SCAQMD") for the removal, transportation and disposal of soil.
b. Ground wetting procedures and other dust palliative measures shall be followed during earth-moving operations and construction to minimize fugitive dust emissions.
c. Trucks importing or exporting earthen materials shall be covered and sprinkled prior to entering public streets.
d. Roadways shall be periodically swept or otherwise cleared of any spilled export material to assist in minimizing fugitive dust in accordance with SCAQMD Rule 403.
e. Construction equipment shall be maintained in proper tune.
f. Construction/grading activities shall be phased and/or scheduled to avoid high ozone days.

Long-term Emissions

4.2-3 None are required.

Consistency with Regional Plans

4.2-4 None are required.

UNAVOIDABLE SIGNIFICANT IMPACTS

The project will result in significant fugitive dust (PM10) and nitrogen oxide emissions during grading.

4.3 DRAINAGE/WATER QUALITY

The following drainage/water quality discussion is based on the "Anaverde Detention Basin Hydrology Study Ultimate Condition" report prepared by AKM Consulting Engineers, dated July 16, 1996 and information from the City of Palmdale General Plan. This section provides a discussion of existing conditions, potential impacts and mitigation measures relating to drainage, flood control and water quality for the project.

EXISTING CONDITIONS

Precipitation in the San Gabriel, Tehachapi, and Sierra Pelona Mountains ranges from 10 to 39 inches annually, with the highest amounts falling in the San Gabriel Mountains to the south and generally at higher elevations. Rainfall on the valley floor ranges from five to ten inches annually; the difference between valley and mountain precipitation is the result of the rain-shadow effect of the range to the west. In the Palmdale area, average annual precipitation is on the order of eight to ten inches, and the year-to-year range is four to 17 inches. About 90 percent of the rainfall occurs between November and April; except for occasional summer thundershowers, the weather is dry during the remainder of the year.

A network of intermittent streams (Little Rock Creek, Big Rock Creek, Anaverde Creek, and Amargosa Creek) originates in the mountains and foothills surrounding Antelope Valley and has, for thousands of years, carried sediment to the margin of the valley and deposited it in the form of alluvial fans.

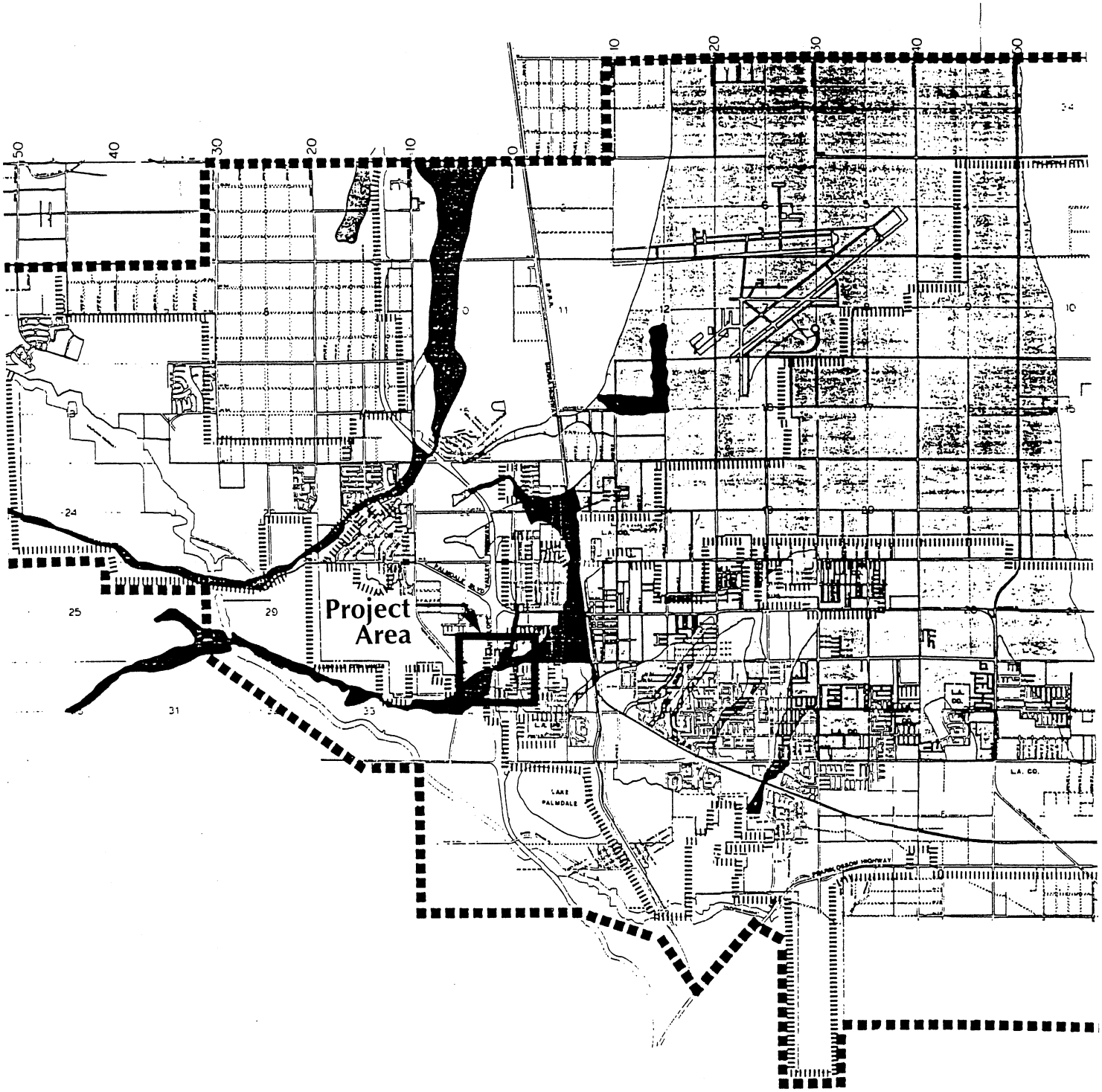
These streams carry channelized runoff from the steep, rocky mountain slopes to the alluvial slopes and valley floor, where the water gradually infiltrates and surface flow ceases. On the valley floor runoff becomes almost entirely sheet flow for several reasons: 1) the natural drainage channels are poorly defined once they leave the steeper alluvial slopes, 2) runoff that is channelized in the upper reaches of these streams spreads broadly once channel incision and definition decline, 3) the soils are fine-grained and relatively impervious in some areas, and 4) the surface gradients are very gentle. Complicating these natural conditions is the fact that much of the alluvial slopes and valley floor is now rapidly becoming urbanized, creating new areas of impervious surface and new sources of runoff. The result has been flooding problems. FEMA has mapped major portions of the valley floor and the Palmdale area as being subject to a flood hazard. FEMA 100-year floodplain maps show that a very large portion of the City

of Palmdale in the downstream part of the Anaverde Creek watershed is subject to inundation during a 100-year flood. Contributing sources include the upstream watershed of Anaverde Creek but also other intermittent streams and sheet flow from areas surrounding the proposed basin service area. Exhibit 4.3-1, FLOOD HAZARD AREAS, shows the extent of the flood hazard in the Anaverde Basin service area.

Heavy rainfall in the mountains combined with spring snowmelt produced severe flooding in 1938, 1965, and 1969. During these years widespread damage occurred to orchards, irrigation systems, buildings, and roads. With the increasing urbanization in the Palmdale area, the losses and damage due to poorly defined drainage channels and floods have increased. In Palmdale, stormwater detention facilities are designed into individual projects on an independent basis without benefit of coordination by a region-wide plan. Such facilities provide site-specific flood protection but also pass on the flood hazard to downstream areas.

Antelope Valley is effectively a closed basin. On those occasions where high-intensity and/or long-duration rains occur, waters flow to the Rosamond and Rogers dry lake beds on Edwards Air Force Base before they pond. The Air Force maintains runways on these lake beds; runways on Rogers Lake are used for daily operations while those on Rosamond Lake are used for emergency operations and operations associated with its low-altitude, supersonic corridor (EIR/EIS 1986). Flood waters and the accompanying sediment are, in limited volumes, necessary for runway resurfacing. However, excessive flooding can put the runways out of operation (EIR/EIS 1986), as was the case in early 1983 when it took five months for two feet of water to evaporate.

The Antelope Valley groundwater basin underlies the project area and provides a significant portion of the City of Palmdale's water supply. The ground-water basin is formed of up to 2,000 feet of alluvium carried from the surrounding mountains. The Pearland groundwater subunit of the basin extends from Palmdale to Llano along the base of the San Gabriel Mountains. Streambed and other surface infiltration, percolation, and ground-water recharge are generally greatest on the alluvial slopes and tend to decrease toward the valley floor (EIR/EIS 1986). Recharge exhibits this trend along Big and Little Rock Creeks, while in the vicinity of Anaverde Creek recharge capabilities tend to increase with distance from the base of the mountain slopes.



100 Year Flood Hazard

500 Year Flood Hazard

0 8,000 Feet

Source: City of Palmdale General Plan

ANAVERDE FLOOD CONTROL BASIN AND SPORTS COMPLEX EIR

Flood Hazard Areas

Robert Bein, William Frost & Associates

7-96 JN 32668

Exhibit 4.3-1

Approximately 15.94 square miles (10,200 acres) of watershed are tributary to Anaverde Creek above the proposed detention basin site. Upstream in Anaverde Valley, Anaverde Creek is deeply incised. In the vicinity of the public landfill along City Ranch Road the channel is 100 feet wide and ten feet deep. With proximity to the project site, the width and depth of the channel decrease and channel definition declines. A pair of 52-inch by 84-inch pipe arches convey channelized runoff in Anaverde Creek beneath Tierra Subida Avenue to the proposed basin site. On-site, Anaverde Creek has been recently graded (widened) to improve its definition and floodwater conveyance capacity.

East of the Antelope Valley Freeway, runoff from Anaverde Creek flows in two directions. Part of this runoff crosses Rayburn Road where it is directed onto adjacent undeveloped land to the north. This flow creates a shallow channel for approximately 300 feet north of the road and then continues as sheet flow overland to the north between Division Street and the Antelope Valley Freeway toward Palmdale Boulevard and eventually to Avenue P-8. The rest of the runoff from Anaverde Creek is channeled to the east into a small ditch south of and parallel to Rayburn Road and through a pair of 39-inch diameter culverts which carry it beneath Division Street. From Division Street, runoff flows in open roadside ditches along Avenue R (which becomes Rayburn Road) and into a concrete channel south of the American Legion Hall. This concrete channel becomes an earthen channel west of the Southern Pacific Railroad tracks along Sierra Highway, directing flow to the north. Overland sheet flow from Anaverde Creek and runoff from other contributing sources collect in this channel in the vicinity of Avenue P-6. Ultimately this runoff flows to a large existing earthen channel between the Lockheed aircraft assembly facility and U.S.A.F. Plant 42 and around U.S.A.F. Plant 42 in a detention basin that parallels Avenue M. When the capacity of this basin is exceeded, water moves north across Avenue M into the adjacent agricultural fields and flows to Rosamond dry lake bed at Edwards Air Force Base; runoff from Anaverde Creek does not flow into Rogers dry lake bed.

Documented descriptions of flooding conditions in the City of Palmdale are not available, but longtime City employees have described conditions downstream from the proposed detention basin. On a regular basis, ponding occurs and water stands for several days on Rayburn Road immediately east of the freeway. Following multiple storms and when the soils are saturated, water from Anaverde Creek ponds along Palmdale Boulevard, extending into the southernmost eastbound lane of traffic. The ditches along Avenue R are deep enough to prevent such ponding in lanes of travel in either direction (EIR/EIS 1986).

IMPACT ANALYSIS

Drainage/Flooding

4.3-1 *Implementation of the proposed project will alter on-site and downstream drainage patterns as well as reduce the frequency and extent of downstream flooding.* **Significance: Not Significant.**

4.3-1 Discussion. Detention of runoff from major events would have a significantly positive impact on downstream flooding. The basin would reduce flood peaks and the lateral spread and depth of floodwaters originating in the Anaverde Creek watershed. One of the effects of the project is to substantially reduce the FEMA flood insurance designation areas within the proposed basin service area downstream in Palmdale. To the extent that water is detained in the basin (and flows reduced), the existing downstream system will be more able to accommodate runoff originating downstream of the project site.

Any overflow that occurs when basin detention capacity is exceeded would flow down the spillway and continue along existing surface runoff pathways. All detained volume would be released at a rate adequate to drain the detention basin. The basin would be fully drained in five days.

Sedimentation

4.3-2 *Sediments would build up in the basin with the implementation of the proposed project.* **Significance: Less than significant.**

4.3-2 Discussion. Although the Anaverde Valley watershed may not yield large volumes of sediment, some sediment is currently carried through the project site and downstream into the City of Palmdale. The proposed detention basin would capture this sediment, and it would be removed through a program of periodic maintenance designed to ~~detain~~ maintain basin capacity.

Rocks, gravel, and smaller materials carried long distances downstream during higher intensity storms can cause considerable damage to public and private property, including mud inundation and clogging of existing storm drains and culverts. In fact, the existing 39-inch

diameter culverts at the Rayburn Road Division Street intersection operate at approximately 55 to 60 percent capacity because they are often plugged with sediment carried by Anaverde Creek. Culvert capacity elsewhere may also be reduced for the same reason. Reduction in capacity aggravates flooding problems. The effect of sediment detention would, therefore, be a beneficial reduction in sediment-related problems.

Sediment requirements at Rosamond dry lake are met primarily by contributions from Little Rock Creek and other washes on the north side of the lake bed (EIR/EIS 1986). Therefore, a reduced supply of sediment from Anaverde Creek would not have a measurable effect on runway maintenance and operations at Edwards Air Force Base.

Groundwater Recharge

4.3-3 *Implementation of the proposed project would have a beneficial impact on water percolation and groundwater recharge.* **Significance: Not significant.**

4.3-3 Discussion. The benefits of percolation and on-site groundwater conservation would be limited because of the bedrock bottom. Ground water was not encountered during the latest Geotechnical exploration (AKM Consulting Engineers, June 1996) or the previous exploration conducted by Los Angeles County in September 1985. Data from wells in the vicinity of the site indicate that ground water may be as deep as 200 feet below present ground surface (Los Angeles County, 1985). However, it is reasonable to assume that during wet seasons, ground water will rise in the upstream portion of the proposed ~~r~~detention basin. Further, it may be argued that through bedrock fractures some of the foundation soils downstream of the embankment may become saturated. While the latter is theoretically possible, it is not considered likely.

Water Quality

4.3-4 *Implementation of the project would not affect water quality.* **Significance: Not significant.**

4.3-4 Discussion. Retention of sediment within the basin would reduce the downstream sediment content of waters from Anaverde Valley, but in terms of water quality, the reduction

would not be significant because waters from Anaverde Valley are not used directly for domestic purposes and, upon recharge, the effect of sediment is effectively eliminated.

Sports Complex

4.3-5 *Construction of the ten soccer fields will not affect water quality and/or hydrology.* **Significance: Less than significant.**

4.3-5 Discussion. There are no anticipated significant impacts relating to drainage and water quality control with construction of the Sports Complex located in the Flood Control Basin. It should be noted, however, that implementation of the proposed project would likely result in an increase of urban runoff. Urban runoff typically contains potentially harmful contaminants such as pesticides and fertilizers from landscaping activities, as well as elevated levels of fertilizer residues such as nitrates. Therefore, implementation of the sports complex may result in downstream water quality impacts due to the use of fertilizer on the proposed soccer fields. However, control of pollution from urban runoff is a significant benefit that a flood control basin may provide in addition to the flood control functions. A basin may significantly reduce the concentration of fertilizer residues such as nitrogen and phosphorus, as well as other pollutants including suspended solids, pesticides and heavy metals. In addition, the City will implement a Landscape Management Program that includes appropriate application of fertilizers. As a result, impacts to water quality are considered to be less than significant.

MITIGATION MEASURES

Drainage/Flooding

4.3-1. No mitigation is required.

Sedimentation

4.3-2. No mitigation is required.

Groundwater Recharge

4.3-3. No mitigation is required.

Water Quality

4.3-4. No mitigation is required.

Sports Complex

#4.3-5. Controlled use of pesticides and fertilizers within common areas shall be enforced through provision in the Landscape Management Program, including frequency and type of fertilizers/pesticides to be used, and application by qualified persons.

UNAVOIDABLE SIGNIFICANT IMPACTS

None have been identified.

4.4 NOISE

This section addresses potential noise impacts from project construction, traffic and operations. Information from the traffic analysis (Appendix 10.4, TRAFFIC STUDY) and project information were analyzed to determine potential noise impacts using the FHWA Highway Noise Prediction Model RD-77-108. This section is also based on the City of Palmdale Draft General Plan Noise Element and the Circulation and Transportation Needs Study for Palmdale Southwest Planning Area. Baseline noise data used within this analysis is included in Appendix 10.3, NOISE DATA.

EXISTING CONDITIONS

Noise Scales

Community noise levels are expressed in terms of "A-weighted" decibel levels, abbreviated dBA. A-weighing is used to modify the measured response as influenced by the average 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 dBA, therefore, a sound measured for one hour can be expressed as a one hour Leq of 57 dBA.

The noise rating scale used in the City of Palmdale for land use compatibility assessment is the Community Noise Equivalent Level (CNEL). The CNEL reading represents the average of 24 hourly readings of equivalent levels, known as Leq's, based on the A-weighted decibel (roughly equivalent to the Day-Night Average Sound level (Ldn)). CNEL values are based on "penalizing" evening noises (7 p.m. to 10 p.m.) by 5 dBA and night noise levels (10 p.m. to 7 a.m.) by 10 dBA. CNEL may be indicated by "dBA CNEL" or just "CNEL". However, Ldn does not include the evening hour adjustment and is typically within 1 dBA of CNEL values. Leq represents a non-weighted equivalent energy noise exposure for a short time period, such as one hour or eight hours.

Noise Standards

In addition to Federal and State noise standards, the City of Palmdale has adopted noise standards in its General Plan Noise Element. The City's noise compatibility criteria by land

use are summarized in Table 4.4-1, SUMMARY OF NOISE COMPATIBILITY CRITERIA BY LAND USE and are consistent with both federal and state standards and guidelines. These standards include maximum permissible noise levels for noise sources not operating on a public right-of way. The federal government specifically preempts local control of noise emissions from aircraft, railroad and interstate highways. However, local agencies may regulate noise levels of most other sources, may provide standards for insulation of noise receivers (either within the structure or by placement of noise barriers such as walls), and, through land use decisions, may reduce noise impacts by separating noise generators from noise sensitive uses. In general, the exterior living areas (yards and patios) of residences should not exceed 60 CNEL.

The State of California has established guidelines for acceptable community noise levels which are based on the CNEL rating scale. The guidelines rank noise land use compatibility in terms of "normally acceptable", "conditionally acceptable", "normally unacceptable" and "clearly unacceptable". As indicated in Table 4.4-2, Acceptable Noise Levels, many noise sensitive land uses such as residential areas, schools, churches, hospitals, etc. use a daily noise level value of 70 dBA as the dividing line between a "conditionally acceptable" and a "normally unacceptable" noise environment.

The City of Palmdale has adopted the State guidelines for maximum exterior noise levels for noise sensitive land uses as a standard. Noise sensitive land uses include residential (single and multi-family dwellings, mobile home parks, dormitories, and similar uses); transient lodging (including hotels, motels, and similar uses); hospitals, nursing homes, convalescent hospitals, and other facilities for long-term medical care; and public or private educational facilities, libraries, churches, and places of public assembly. The "exterior living area" of these uses includes single family private yards, and multi-family patios or balconies which are greater than six (6) feet in depth. The noise standards for these land uses are 60 dBA CNEL exterior and 45 dBA CNEL interior.

TABLE 4.4-1

SUMMARY OF NOISE COMPATIBILITY CRITERIA BY LAND USE

LAND USE	COMPATIBILITY CRITERIA	
Residential:		
Exterior	Outdoor living areas must be mitigated to 60 dB CNEL or less.	
Interior	Habitable rooms must be mitigated to 45 dB CNEL or less.	
Noise Sensitive Use:		
Exterior	Same as residential criteria.	
Interior	Same as residential criteria.	
Commercial:		
Exterior	A noise level of 65 dB CNEL or less or which does not interfere with normal business activity.	
Interior[a]	A noise level of 45 to 65 Leg(h), depending on interior use.	
	Typical Use	Leg(h)
	Private office, church sanctuary, college, preschool, schools (grad K-12), Board room, conference room, etc.	45
	General office, reception, clerical, etc.	50
	Bank lobby, retail store, restaurant, typing pool, etc.	55
Industrial:		
Exterior	A noise level of 70 dB CNEL or less or which does not interfere with normal business activity.	
Interior[a]	A noise level of 65 leg(h)	
Quarry Activities	Noise levels must be mitigated to 65 dBA or less at any residential property line.	

a Leg(h) The A-weighted equivalent sound level averaged over a period of "h" hours. An example would be $Leg_{(12)}$ where the equivalent sound level is the average over a specified 12-hour period (such as 7 a.m. to 7 p.m.). Typically, time period "h" is defined to match the hours of operation of a given type of use.

TABLE 4.4-2
ACCEPTABLE NOISE LEVELS

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE L_{dn} Value or CNEL dBA			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Land Use Category				
Residential - Low Density Single Family, Duplex, Mobile Homes	50 - 60	60 - 70	70 - 75	75 - 90
Residential - Multi Family	50 - 65	60 - 70	70 - 75	75 - 90
Transient Lodging - Motel, Hotels	50 - 70	60 - 70	70 - 75	75 - 90
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 - 70	60 - 70	70 - 80	85 - 90
Auditoriums, Concert Halls, Amphitheaters	NA	50 - 70	NA	70 - 90
Sports Arenas, Outdoor Spectator Sports	NA	50 - 75	NA	70 - 90
Playgrounds, Neighborhood Parks	50 - 70	NA	65 - 75	70 - 90
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 - 70	NA	70 - 80	85- 90
Office Buildings, Business Commercial and Professional	50 - 70	65 - 75	75 - 90	NA
Industrial, Manufacturing, Utilities, Agriculture	50 - 75	70 - 80	75 - 85	NA

Notes: **NORMALLY ACCEPTABLE**
Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

CONDITIONALLY ACCEPTABLE
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction but with closed windows and fresh air supply systems or air conditioning will normally suffice.

NORMALLY UNACCEPTABLE
New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

LAND USE DISCOURAGED
New construction or development should generally not be undertaken.

Source: City of Palmdale General Plan Noise Element, Page N-22.

In addition, the City of Palmdale requires that the project comply with the California Noise Insulation Standards (California Administrative Code, Title 24). The Code requires that "interior community noise levels (CNEL) attributable to exterior sources shall not exceed an annual CNEL of 45 dBA in any habitable rooms with windows closed." The Code requires that this standard be applied to all new hotels, motels, apartment houses and dwellings other than detached single-family dwellings. The State requires implementation of this standard when the outdoor noise levels exceed 60 dBA CNEL. CNEL noise criteria are designed to minimize the impacts from transportation noise on residential land uses.

Preliminary Noise Analysis Methodology

Noise levels estimated in this assessment have been calculated using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (RD-77-108). This model is the widely accepted method for estimating traffic noise impacts. The FHWA model arrives at a predicted noise level through a series of adjustments to a reference sound level. Adjustments are made by the model to account for traffic flows, varying distances from the roadway, finite length roadways and shielding. To compute the "equivalent noise level" during typical daytime, evening, and nighttime hours, a series of parameters are input into the model such as average daily traffic volumes, roadway geometry, and vehicle speed and mix for each roadway link analyzed. Weighting these noise levels and summing them results in the CNEL for the traffic projections used. It should be noted that the figures presented in Table 4, 65 CNEL PROJECTIONS, are for a "soft" site (noise level attenuation of 4.5 dBA per doubling distance), which assumes the source and receiver are close to the ground, and that the terrain between the observer and the roadway is relatively flat and soft. The analysis is intended to provide a preliminary assessment of existing noise levels and potential future noise impacts.

Noise walls typically provide a CNEL noise reduction of 5 dBA (up to 11 dBA CNEL reduction with an excellent wall having no gaps). A row of buildings provide up to a 5 dBA CNEL noise reduction with a 1.5 dBA CNEL reduction for each additional row of buildings. A typical building with closed windows (now upgraded) provides a CNEL noise reduction of approximately 20 to 25 dBA. The exact degree of noise attenuation depends on the nature and orientation of the structure, and intervening barriers.

Noise Environment

- Noise Sources

The Palmdale area is characterized by noise levels typical of urban, suburban, and rural environments. Noise levels range from above 75 decibels (dB CNEL)[1] in the immediate vicinity of the Antelope Valley Freeway, major area roads, the Southern Pacific railroad line, and U.S.A.F. Plant 42 to below 45 dB CNEL in outlying "quiet" fringes of the community. According to the Department of the Air Force Compatible Use District Map (see Appendix 10.3, 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. In general, the primary noise sources in the area are currently and will continue to be associated with major transportation corridors and facilities (City of Palmdale, 1975).

The predominant noise source in the immediate vicinity of the project site is the Antelope Valley Freeway, although, the existing noise environment is also influenced by residential related traffic along Tierra Subida Avenue and Rayburn Road. The proposed basin site is situated immediately west of the Antelope Valley Freeway and within a noise impact corridor generally above 60 dB CNEL. Approximately the western half of the site is located just outside this corridor and falls in the 45 to 60 dB CNEL zone (City of Palmdale, 1975).

- Sensitive Receptors

The residential development immediately north of Rayburn Road represents the only sensitive noise receptor in the project vicinity. The Antelope Valley Public Landfill northwest of the site represents a noise source rather than a receptor under existing conditions. Heavy equipment operating at this facility is audible at the site. Low hills surrounding the basin site on the south and west effectively serve as noise barriers.

Existing Noise

In estimating existing roadway noise levels along adjacent arterials, the FHWA Traffic Noise Prediction Model was utilized. Traffic volumes, roadway geometrics and estimated speeds

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1 dB and CNEL refer to scales for measuring noise. A description of noise exposure measurement methods is presented in Appendix 10.3.

were input into the Model to estimate the distances to the 60 CNEL contour. Roadway configurations (width, speed and number of lanes) were developed from empirical observations and information in the project traffic report (see Section 4.5, TRAFFIC AND CIRCULATION and Appendix 10.4, TRAFFIC STUDY). Refer to Appendix 10.3, Noise Data, for additional assumptions.

Table 4.4-3, 60 CNEL PROJECTIONS, lists the estimated distance to the 60 CNEL from the roadway centerline, along various roadway segments in the vicinity of the project site. The exterior living areas (yards and patios) of residences along this roadway situated less than 104 feet from the centerline may currently be exposed to noise levels in excess of 60 CNEL. It should be noted, however, that the masonry wall which borders the perimeter of this residential development serves as a noise barrier minimizing potential noise impacts.

IMPACT ANALYSIS

Impacts associated with implementation of the proposed project include short-term and long-term impacts. Short-term impacts would result from all construction related activities, while long-term impacts would result from project operations from both stationary and mobile sources.

Short-Term Impacts

4.4-1 *Project construction activities will temporarily increase local noise levels.* **Significance: Less than significant with mitigation.**

Discussion 4.4-1. Construction related noise would be generated during both phases of construction at the proposed project site and during routine maintenance activities. Noise would be generated by the transport of workers and equipment to the construction site (i.e., 18-wheelers), mechanical equipment and materials handling (including the operation of excavation equipment, bulldozers, graders, and other heavy equipment) and ultimately loading and hauling of debris/excess fill to a disposal site.

TABLE 4.4-3

60 CNEL PROJECTIONS
(Distance from Centerline, Feet)

	Existing	Existing + Project	Future	Future + Project
Rayburn				
•E/O Tierra Subida	33	40	354	358
Tierra Subida				
•N/O Rayburn	104	110	302	306
•Rayburn/Project Entrance	39	50	275	282
•Project Entrance/Avenue S	39	44	275	278

Development of the proposed project would occur over a period of approximately twelve months in two phases. Noise would be generated by two primary sources during the construction phase. The transport of workers and equipment to the construction site and the noise related to construction itself. Construction activities occur in various steps, each of which involve different types of equipment and distinct noise characteristics. These steps would alter the character of the noise levels surrounding the construction site as the project is developed. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow noise to be categorized according to three work phases. The first work phase category, earth moving equipment, will include excavation machinery (backfillers, bulldozers, draglines, front loaders, etc.). Typical operating cycles may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Noise levels at 50 feet from earth moving equipment range from 73 to 96 dBA. Although noise ranges during all phases of construction are similar in level, the second phase, erecting the structure, varies from 79 to 89 dBA at 50 feet from the source. The third category, grading and site preparation, ranges from 88 to 96 dBA at 100 feet from the source. However, this noise level does not take into account the project site topography, which will further reduce noise levels over the line-of-sight value calculated above. Furthermore, as embankments are developed, noise at the project boundary should be further reduced. Nonetheless, the potential exists for intermittent noise levels along Rayburn Road and Tierra Subida Avenue. These activities are not anticipated to significantly impact the noise sensitive receptors situated north of Rayburn Road due to the distance which exists between the site and these residences.

Excessive noise levels resulting from construction activities generally would occur in the daytime hours only since the City noise ordinance exempts construction noise if construction activities are limited to the hours of 6:30 a.m. to 8:00 p.m., Monday through Saturday. Construction noise would last the duration of construction, although it would be most noticeable during the initial months of site-intensive grading and building construction. However, noise sensitive receptors in proximity to the construction site, be temporarily annoyed by the increase in ambient noise levels produced by construction activities.

Other potential sensitive receptors in the vicinity include passing motorists, cyclists, and pedestrians on Rayburn Road and Tierra Subida Avenue and motorists on the Antelope Valley Freeway. Construction noise would be most discernible to people on foot (pedestrians, joggers) near the project boundary, but such use of the area does not currently appear heavy

and the impact under present conditions would be insignificant. Cyclists using the California Aqueduct bikeway could experience increased background noise from construction activities at the proposed site, but this increase would be negligible considering the existing noise sources (Palmdale Landfill, Antelope Valley Freeway) and the distance between the bikeway and the site (approximately one mile south at the closest point).

Project implementation will require the export of excess fill to an offsite disposal site. An estimated maximum 240 loads per day will be transported offsite for disposal. Trucks will exit the site traveling southerly on Tierra Subida, proceeding easterly on S Street and ultimately onto the Antelope Valley Freeway. Noise impacts from the hauling of excess fill are not anticipated since no noise sensitive receptors are located along the proposed haul route.

Long-term Impacts

4.4-2 *Project implementation would attract additional vehicle travel on the surrounding road networks.* **Significance: Less than Significant**

4.4-2 Discussion. Project noise impacts would result from attracting additional vehicle travel on the surrounding road networks. As the majority of the project traffic would travel along Tierra Subida and Rayburn Road, the project would contribute to future noise level increases along these roadways. The only fixed sensitive receptor in the site vicinity is the residential development immediately north of Rayburn Road. A masonry wall, installed as acoustical and visual screening, borders the perimeter of this development. The projected traffic changes were applied to the FHWA Model to estimate future CNEL based on traffic noise. As detailed in Table 4.4-3, 60 CNEL PROJECTIONS, the 60 CNEL would extend an additional six (6) feet into adjacent sensitive receptor properties along Rayburn and Tierra Subida (N/O Rayburn). The outdoor living areas of these residences may be experiencing noise levels in excess of 60 CNEL, although as previously noted, the majority of the noise impact is related to existing conditions. Additionally, it should be noted that noise estimates do not account for potential noise reductions due to topography, barriers, or structures such as homes and existing noise walls.

4.4-3 *Implementation of the Sports Complex will increase noise levels indirectly.* **Significance: Less than significant.**

4.4-3 Discussion. The Sports Complex which includes ten soccer fields, is not anticipated to increase noise in the area to significant levels. The only sensitive receptor area is the residential development immediately north of Rayburn Road. A masonry wall acts as a noise barrier for the increased noise levels generated by activities occurring on the sports fields. In addition, noise from the Sports Complex is not anticipated to have any adverse impacts because the basin embankments will act as a noise barrier. Additionally, the possibility exists that the noise corridor associated with Antelope Valley Freeway may widen over the life of the project with increased development, thereby encompassing most or all of the project site and masking the impact of site-generated noise.

MITIGATION MEASURES

Short-Term Construction

#4.4-1a. Construction activities shall comply with City of Palmdale Municipal Code Section 8.28.030 relating to construction noise. If problems arise from construction noise, enforcement of the City's Municipal Code relating to construction-related noise discernable at residential boundaries will help minimize any potential noise impacts. Such noise is permitted between the hours of 6:30 a.m. and 8:00 p.m. Monday through Saturday.

#4.4-1b. All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers, to the satisfaction of the City Inspector.

#4.4-1c. Stationary construction equipment, if necessary, shall be placed such that emitted noise is directed away from sensitive noise receivers, to the satisfaction of the City Inspector.

#4.4-1d. Stockpiling and vehicle staging areas shall be located as far as practical from noise sensitive receptors during construction activities, to the satisfaction of the City Inspector.

Long-Term Stationary Sources

4.4-2. No mitigation required.

#4.4-3. Development of the proposed project shall adhere to the City of Palmdale and California State Noise Insulation Standards (California Administrative Code, title 25, Chapter 1, Subchapter 1, Article 4).

UNAVOIDABLE SIGNIFICANT IMPACTS

None have been identified.

4.5 TRAFFIC AND CIRCULATION

The following discussion is based on a Traffic Impact Study prepared by Robert Bein, William Frost & Associates, dated July 19, 1996. The entire study is contained within Appendix 10.4, TRAFFIC STUDY.

EXISTING CONDITIONS

Street System

Palmdale is a relatively flat city with collector streets laid out primarily in a grid pattern. Many east-west streets (e.g., Avenues Q, R, S) are designated by letters while many north-south streets (e.g., 10th Street East, 10th Street West) are denoted by numbers and are indicated as either east or west of Division Street.

Major roads in the Palmdale area include Palmdale Boulevard, an east west street which passes through the central portion of Palmdale; Pearblossom Highway, which travels primarily in an east-west direction in southern Palmdale and continues southeast from Palmdale (as Highway 138) to link with Interstate Highway 15 near San Bernardino; and Sierra Highway, a north-south road that travels through central Palmdale and is an alternate route to the Antelope Valley Freeway (State Route 14) through the Antelope Valley. The Antelope Valley Freeway travels north-south as it bisects the Antelope Valley and connects Interstate Highway 5 in the Los Angeles area with U.S. Highway 395 near the Sierra Nevada.

Other important routes in Palmdale include Avenues P, R, and S (east-west streets) and the north-south running streets-5th, 15th, 20th, and 30th Streets-East or West. Avenues P and M are important commuter routes used by employees at the U.S.A.F. Plant 42 complex.

The proposed site for the Anaverde Basin is located south of Rayburn Road, west of the 14 Freeway, bounded to the west by Tierra Subida Avenue. The closest interchanges with the 14 Freeway from the site are at Avenue S to the south and Palmdale Boulevard to the north.

Rayburn Road is a two-lane street, one block long, that runs beneath the Antelope Valley Freeway west to Tierra Subida Avenue. At Division Street, Rayburn Road becomes Avenue

R and continues east through Palmdale. Rayburn Road/Avenue R provides easy access from the southwest Palmdale area to the city center.

Tierra Subida Avenue is a two-lane street that travels from the hills in the south Palmdale area north through the city of Lancaster (north of Palmdale Boulevard, Tierra Subida Avenue is called 10th Street West). Tierra Subida Avenue is a main north-south route in western Palmdale that connects with major east-west streets to provide access to the Antelope Valley Freeway and central Palmdale.

Traffic Volumes

To determine the operation of the affected roadway circulation system in the vicinity of the project site, the following three intersections were identified for analysis by the City Traffic Engineer:

1. Tierra Subida/Rayburn Road
2. Tierra Subida/Avenue S
3. Division Street/Rayburn Road - Avenue R

Intersection turning movement counts were taken during the a.m. peak hour and p.m. peak hours at the identified study intersection on June 6, 1996 (detailed traffic count data sheets are included in Appendix 10.4, TRAFFIC STUDY).

According to the City of Palmdale General Plan Circulation Element, the targeted Level of Service (LOS) for the City roadway network is LOS C or better (i.e. LOS A or B), with LOS D acceptable for short periods of time during the peak hour.

Table 4.5-1 summarizes the existing volume/capacity (v/c) ratio and corresponding LOS for the study intersections during the a.m. and p.m. peak hours, utilizing the Intersection Capacity Utilization (ICU) analysis methodology; detailed ICU calculation sheets are included in Appendix 10.4, TRAFFIC STUDY.

TABLE 4.5-1
EXISTING PEAK HOUR V/C RATIO & LOS

Intersection	A.M. Peak Hour V/C Ratio - LOS	P.M. Peak Hour V/C Ratio - LOS
Tierra Subida/Rayburn Road	0.26 - A	0.46 - A
Tierra Subida/Avenue S	0.18 - A	0.37 - A
Division St/Rayburn Rd-Ave R	0.28 - A	0.37 - A

LOS Ranges:		
	0.00 - 0.60	A
	0.61 - 0.70	B
	0.71 - 0.80	C
	0.81 - 0.90	D
	0.91 - 1.00	E
	> 1.00	F

As shown in Table 4.5-1, all study intersections are currently operating at an acceptable LOS, at LOS A, during both the a.m. peak hour and the p.m. peak hour.

IMPACT ANALYSIS

The proposed project consists of a recreational use facility containing 10 soccer fields, with parking provided for 310 automobiles and four buses. Access to the project site is provided at Tierra Subida and Rayburn Road. It should be noted that the traffic study used in this EIR evaluated the project traffic impacts during the weekday p.m. peak hour since that is when the roadway system in Palmdale experiences its greatest congestion. However, the proposed project is likely to generate the greatest amount of vehicle trips (and parking spaces) on midday weekends, when the surrounding roadway system is much less congested than during the weekday p.m. peak hour.

Average Daily Trips

Trip generation rate assumptions utilized in this analysis to forecast trips to be generated by the proposed project site were derived through discussion with the City Traffic Engineer and based on field interview research with adult soccer personnel. Tables 4.5-2 and 4.5-3

summarize the forecast trip generation rates and the forecast project trip generation derived from these rates.

TABLE 4.5-2
PROJECT TRIP GENERATION RATES

Land Use	A.M. Peak Hour			P.M. Peak Hour			ADT
	Inbound	Outbound	Total	Inbound	Outbound	Total	
Soccer Field	0	0	0	31	39	70	140

TABLE 4.5-3
PROJECT TRIP GENERATION

Land Use	A.M. Peak Hour			P.M. Peak Hour			ADT
	Inbound	Outbound	Total	Inbound	Outbound	Total	
10 Soccer Field Facility	0	0	0	310	390	700	1,400

Parking Requirements

According to City of Palmdale parking requirements for public parks, ten parking spaces are required for each net acre of active recreational area, plus five parking spaces for each net acre of passive recreational area. While the project site is approximately 73 acres, 28 acres of the project site will be used for flood control, leaving 45 acres of developed park area. Based on soccer field dimensions, the project has approximately 15 acres of active recreation, leaving 30 acres of passive recreation. Thus, the proposed project would require 300 parking spaces according to City of Palmdale requirements.

Short-Term (Construction Impacts)

4.5-1 *Development of the proposed project would increase construction traffic on local streets.* **Significance: Less than significant with mitigation.**

4.5-1 Discussion. During construction, some road sections may be temporarily reduced in width or closed to traffic. Streets that may be affected by project construction and implementation are Tierra Subida Avenue and Avenue R. Detour routes could be easily set up, as neither street section bears high volumes of traffic at the present time.

Long-Term Traffic Impacts

4.5-2 *Implementation of the Sports Complex would increase traffic levels on local streets.* **Significance: Less than significant.**

4.5-2 Discussion. The proposed project consists of a recreational use facility containing 10 soccer fields, with parking provided for 310 automobiles and four buses. This would increase traffic along both Tierra Subida and Rayburn Road. Noticeable traffic increase would typically occur on the weekends and late afternoon when the Sports Complex would be used the most. There would be left-turn and right turn ingresses at all project driveways to alleviate the increased traffic. Table 4.5-4 compares the forecasted existing, plus project peak hour V/C ratios and corresponding LOS of the study intersections, with existing peak hour traffic conditions. As shown in Table 4.5-4, all study intersections are currently operating at LOS A, and are forecast to operate at LOS A or LOS B for existing plus project traffic conditions. Project activities would not significantly affect traffic conditions.

TABLE 4.5-4
EXISTING + PROJECT PEAK HOUR V/C RATIO & LOS

Intersection	Existing A.M. Peak Hour V/C Ratio - LOS	Existing + Project A.M. Peak Hour V/C Ratio - LOS	Existing P.M. Peak Hour V/C Ratio - LOS	Existing + Project P.M. Peak Hour V/C Ratio - LOS
Tierra Subida/Rayburn Road	0.26 - A	0.26 - A	0.46 - A	0.61 - B
Tierra Subida/Avenue S	0.18 - A	0.18 - A	0.37 - A	0.50 - A
Division St/Rayburn Rd - Ave R	0.28 - A	0.28 - A	0.37 - A	0.44 - A

Based on performance criteria contained in the City of Palmdale General Plan Circulation Element, no traffic mitigation measures are required for the proposed project since all study intersections are forecast to operate at Level of Service A or B with the addition of project-generated traffic.

Parking

4.5-3 *Due to the lack of parking data for the proposed use, it is difficult to estimate the exact number of parking spaces which can adequately serve the proposed use. Therefore, potential insufficient on-site parking may occur.* **Significance: Less than significant with mitigation.**

4.5-3 Discussion. The proposed project consists of a recreational use facility containing 10 soccer fields, with parking provided for 310 automobiles and four buses. This technically meets City parking requirements. However, on weekends, a possible worst-case scenario would involve back to back soccer games on all fields which would require not only providing parking for all 10 soccer fields in use, but also require parking for those vehicles associated with the following scheduled game before the current player trips exit the project site.

Preliminary information provided by the City of 5 soccer fields on the Domenic Massari City Park at peak usage time has yielded a demand of 700 to 900 parking spaces. With the proposed 10 fields on-site, a possible worst case scenario of back to back games would require approximately 1,400 to 1,800 parking spaces to adequately accommodate the approximate 30 to 40 minute overlap of vehicles associated with back to back games. This would result in a parking shortage on site. Therefore, the impact associated with parking is considered significant. In order to reduce the impacts of parking on site, the City of Palmdale should develop a parking mitigation plan which may include limiting the number of soccer fields in use at the same time, developing off-site parking facilities, and/or providing a minimum of one hour between games on the same field. The City should also utilize Phase II space as temporary parking during Phase I implementation while other alternatives are considered. With implementation of a parking mitigation plan, impacts to parking would be less than significant. Refer to Mitigation Measure No. 4.5-3a.

MITIGATION MEASURES

Short-Term

#4.5-1a Traffic specifications shall be submitted along with project plans and specifications for City approval prior to construction of each phase. Proper traffic management procedures should be employed during construction activities.

#4.5-1b To minimize impacts to traffic along Rayburn Road from trucks entering or exiting the project site during construction, the access road entrance should be of sufficient width to accommodate at least two trucks. Traffic management procedures (e.g., flagmen, signs) should be employed as needed. On-site parking should be provided for construction vehicles.

#4.5-1c Complete closure of streets should be avoided during construction.

#4.5-1d Consideration should be given to the provision of deceleration lane(s) at driveways along Tierra Subida Avenue and Rayburn Road near the project site during project construction. Implementation of this mitigation would reduce potential safety problems between vehicles and trucks. Coordination of this mitigation would be the responsibility of both the City of Palmdale and the County of Los Angeles.

Long-Term

#4.5-2 Prior to issuance of grading permits, the City shall revise the site plan to address detailed circulation improvements, to the satisfaction of the City Traffic Engineer, as discussed in a May 22, 1996 memo, including:

- Signage
- Turning Lane Provisions
- Driveway Provision
- Right-of-Way Requirements

#4.5-3a The City should develop a monitoring program to evaluate the parking situation upon operation of Phase I of the sports complex. This program would identify future parking concerns if any, and develop plans and/or strategies to mitigate such concerns as appropriate. Examples of mitigation plans and/or strategies may include but are not limited to: (1) limit the number of fields in use at the same time, (2) provide a minimum of one hour between when one game ends on a field until the next game on that same field begins, (3) utilize the existing Avenue S Park and Ride lots for the sports complex parking and provide shuttle service between the lots and the complex as appropriate, (4) provide additional on-site parking by means of acquiring additional land and/or achieving the same via developing fewer soccer fields than proposed, and (5) provide unimproved over-flow parking area on-site to accommodate unusual parking peaks (e.g. championship games). It is of critical importance to understand that strategy (4) "reducing the number of fields and providing adequate on-site parking" can have the effect of maximizing total hours of field use than can strategy (2) "provide a minimum of one hour between games."

#4.5-3b. The City shall submit the required Congestion Management Plan debit/credit reporting information to the Los Angeles Metropolitan Transportation Authority, as required, prior to project operation.

UNAVOIDABLE SIGNIFICANT IMPACTS

None have been identified.

4.6 AESTHETICS

This section evaluates the aesthetic impact associated with the Anaverde Flood Control Basin and Sports Complex Project. Information in this section was compiled from site visits conducted by Robert Bein, William Frost & Associates and a aerial photograph provided by Robert J. Lung & Associates, dated April 12, 1996. The purpose of this section is to describe the existing aesthetic environment on site, analyze potential impacts to visual resources associated with the project and recommend mitigation measures to reduce potential impacts, as appropriate.

EXISTING CONDITIONS

The Tehachapi Mountains, Ritter Ridge, and the Sierra Pelona and San Gabriel Mountains form the western and southern limits of Antelope Valley. The mountains enclose the valley with views of rugged terrain. The scenic qualities of the combined valley and mountain terrain have been recognized in the designation of scenic corridors on the valley floor and at the base of and atop the San Gabriel Mountains. In the valley, Elizabeth Lake Road and a portion of the Antelope Valley Freeway (State Route 14), south of Palmdale Boulevard, have been designated as scenic corridors. Along the California Aqueduct, a scenic bikeway has been established. Atop the San Gabriel Mountains, the Angeles Crest Highway (State Route 2) has also been designated a scenic corridor.

On-site

The site at which the detention basin and soccer fields would be constructed is at the base of A- averde Valley. Visually, the site appears to be the physical extension of the upstream desert wash terrain (refer to Exhibit 4.6-1 SITE PHOTOGRAPHS). The Antelope Valley Freeway abruptly interrupts the continuity of this landscape feature at the downstream end of the project site. Tierra Subida Avenue, which borders the site on the west, is not as elevated and does not have the same visual effect as the freeway. Vegetationally, the site resembles its surroundings. The sagebrush scrub on-site and upstream, along the floor of Anaverde Valley, is interspersed with California juniper and Joshua trees which extend down from the adjacent rocky slopes. Portions of the vegetation on-site have been disturbed by past excavation activities and stockpiling of debris (i.e. soil and concrete).

Off-site

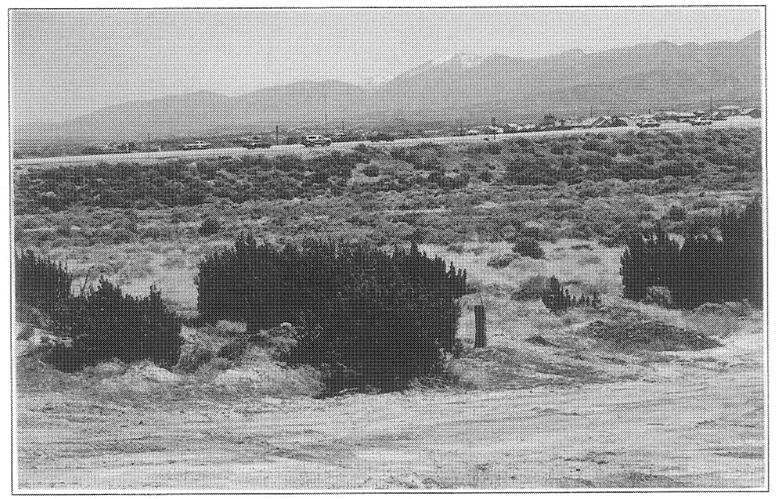
The site is visible from adjacent roads. From the Antelope Valley Freeway, the site is increasingly visible to southbound motorists from approximately one-half mile south of Palmdale Boulevard. From south of Avenue S, terrain blocks views of the project site to northbound motorists. Although the full valley is open to panoramic views, a 180-foot high hill immediately adjacent to the southern project site boundary partially screens the site from the view of northbound motorists. Views of the site are also available to east- and west-bound motorists on Rayburn Road, between the Antelope Valley Freeway and Tierra Subida Avenue; to west-bound motorists on City Ranch Road west of the site; and to both north- and south-bound motorists on Tierra Subida Avenue. Because the site is depressed with respect to these adjacent roads, views are taken from an elevated view perspective, into the lower lying project site.

Similar views down into the site are available to bicyclists on the bikeway along the California Aqueduct. East-bound (down slope) riders can see the site to the east and north between City Ranch Road and the junction of the aqueduct and Tierra Subida Avenue. Views to west-bound riders are partially obscured by vegetation along Lake Palmdale, the hill south of the site, and the elevated the Antelope Valley Freeway.

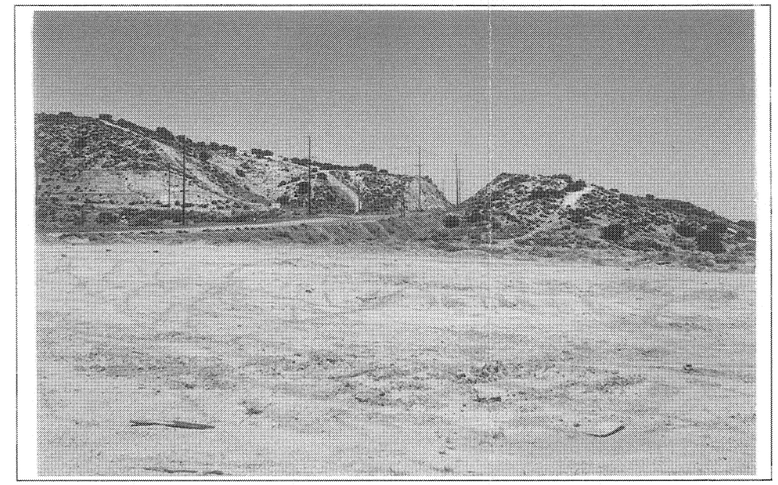
The primary residential developments in the project area are north of Rayburn Road and east of the Antelope Valley Freeway. Views of the project site from residential units to the east are obstructed by the elevated Antelope Valley Freeway. Views of the project site from residential units to the north are partially obstructed by sloping terrain between Rayburn Road and the residential development.

IMPACT ANALYSIS

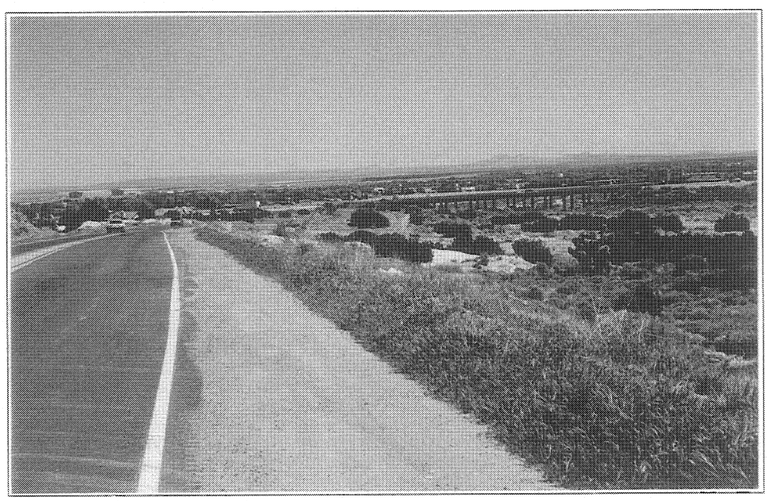
Appendix G of the State CEQA guidelines states that a project would have a significant effect on the environment if it would have a "substantial, demonstrable negative effect." The significance of an aesthetic effect, in terms of this project, can be determined by examining anticipated project effects from a number of vantage points including construction-related visual disruptions, observer position, and changes to the present visual character of the area. The following is a discussion of the above mentioned anticipated aesthetic effects of the proposed development.



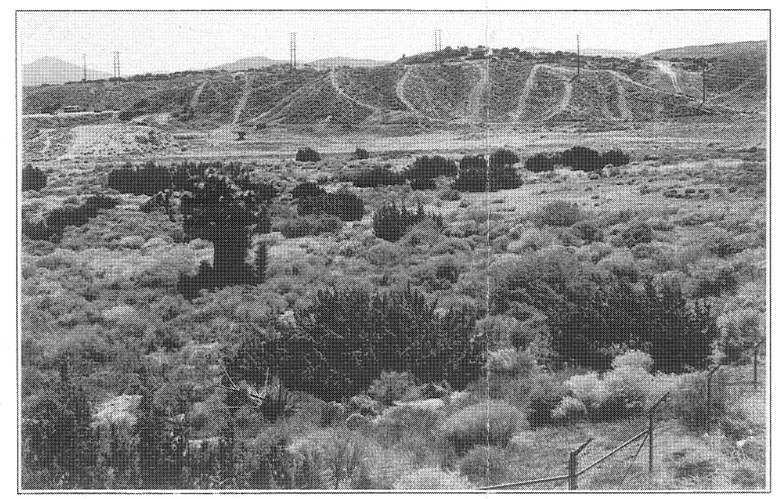
1 Easterly view of Anaverde Creek and the Antelope Valley Freeway.



2 Northwesterly view along Anaverde Creek towards the intersection of Tierra Subida and Avenue S.



3 Northwesterly view of Anaverde Creek along Rayburn Road.



4 Southeasterly view of Anaverde Creek.

ANAVERDE FLOOD CONTROL BASIN AND SPORTS COMPLEX EIR

Site Photographs

Impacts are grouped according to topic with numbered impact statements. The numbered mitigation measures at the end of this section directly correspond to these statements.

Short-Term

4.6-1 *Construction of the flood control basin, soccer fields and related improvements would create temporary aesthetic nuisances associated with project construction and grading activities for the adjacent residential neighborhood.* **Significance: Less than significant with mitigation.**

4.6-1 Discussion. Exposed graded surfaces, construction debris, the presence of construction equipment, heavy truck traffic, and stockpiled equipment may temporarily impact views of motorist and persons within the residential development to the north of the project site. Dirt would be stockpiled and equipment for grading activities would be stored at various locations within the site. The City of Palmdale will need to coordinate these locations with the grading contractor during the two construction phases of the project. Buffering along the perimeter of the project site during construction would reduce these visual disruptions. These impacts, however, would not be significant as they are short-term in nature, would cease upon project completion, and would be substantially mitigated by the recommended mitigation measures.

Long-Term

4.6-2 *Long-term development impacts would be permanent and significantly alter views across the site.* **Significance: Less than significant with mitigation.**

4.6-2 Discussion. The visual analysis of any project must consider the actual visual quality of the area. Visual quality on-site is defined by the open space value and rural character. These characteristics provide visual relief and rural atmosphere as a backdrop to the urban setting of the valley floor. Although the project site is not within the City's urban area, it borders the urban fringe and provides views of open space to the surrounding residential areas. Visual sensitivity is also a factor in visual analysis. Visual sensitivity is defined by public views of the project, the number of viewers and the duration of the view. Therefore, a project located on a site of high visual quality with high sensitivity would have the most significant impact.

The evaluation of aesthetic impacts is by nature a subjective exercise due to widely varying personal perceptions. Nonetheless, development of the flood control basin and sport complex

on the currently vacant site would permanently replace an existing natural open space view of the site with urban (man-made) uses, subsequently altering the site's visual quality. Views of the desert scape on-site are currently available for motorists on Tierra Subida Avenue, Rayburn Road and the Antelope Valley Freeway; and partially from existing homes located to the north of Rayburn Road. Because views from these areas will be direct, the change in visual character from open space to active recreational will be a significant visual impact. Proposed landscaping would provide a visual buffer between the site and off-site uses.

Uniform, engineered slopes would replace natural slopes, and natural sagebrush scrub would be removed over a greater portion of the project site as the basin is constructed to its ultimate capacity and the soccer fields and related improvements are built. Some sedimentation and natural revegetation would occur; however periodic clean out and regular flooding disturbance within the basin area would maintain a visual condition persistently different from adjacent natural areas. Revegetation of fill material along the basin embankments would lessen visual impacts of the basin.

From distant viewpoints where the site is part of a larger regional perspective and view, the impacts of the project would be minimal. The site may be visible from points along Angeles Crest Highway, but from a distance of 20 miles the difference in landscape conditions would not be detectable or would appear as an urban feature in an expanding urban setting.

Primary visual impacts would be on motorists using the Antelope Valley Freeway (which is a designated scenic corridor in the project area). Because the basin would be so close to the freeway, the impact of vegetation removal and terrain modifications would be very noticeable to the freeway users. The northern portion of the basin embankment which runs parallel to the freeway will partially block views of the interior of the basin, including the soccer fields. Revegetation of the embankment will soften views of the slope which rises a maximum of approximately 25 feet above the freeway.

Compared with the number of potential viewers on the Antelope Valley Freeway, the number of potential viewers on the local road network would be lower. However, the visual effect of the basin and sports complex will be greater as views will not be totally obstructed by the basin embankment. Motorists, bike riders, and joggers using Rayburn Road and Tierra Subida Avenue would be most aware of the changes in the visual environment because of the scale of the basin and the presence of soccer fields, a parking lot and concession stand. The loss of

natural and/or natural-appearing topography and vegetation would be most obvious to these people. However, the project does not represent an isolated intrusion into an exceptional or unusual visual environment since the freeway, its embankments, the telephone lines near the southern site boundary, the roads themselves, adjacent residential development, and past excavation and stockpiling of material on the project site already diminish the natural appearance of the site.

Light and Glare

4.6-3 *Implementation of the sports complex element of the proposed project would introduce a new light source into this rural setting.* **Significance: Significant with mitigation.**

4.6-3 Discussion. The illumination of all ten soccer fields and parking lots will introduce a new light source in this rural setting. The residential development north of Rayburn Road and motorists on adjacent roadways will be most affected by the lighted fields. As potential mitigation, the direction and intensity of lighting will be controlled by state of the art control devices which will focus the light on the parking lots and soccer fields, which will minimize light spilling into adjacent areas. Light and glare will also be controlled by the hours of operation of the sports complex which will end no later than 10:00 p.m. It should be noted that lighting levels will also be reduced due to the fact that the playing surfaces will be located within the proposed flood control basin, approximately 20 to 25 feet below the top of the basin embankments. For security, parking lot lights will remain on beyond 10:00 p.m. until approximately 10:30 p.m.

Due to the fact that the project will introduce significant new light sources into a rural area, this will significantly alter the natural landscape and affect the aesthetic character of the project site, even following implementation of available mitiga ion measures.

MITIGATION MEASURES

Short-Term

#4.6-1a. During construction, the contractor shall keep the site clear of all trash, weeds, etc. Compliance with this measure is subject to periodic site inspections by City Staff.

#4.6-1b. During construction, the contractor shall provide screening of the site's northern perimeter, along Rayburn Road, in order to partially screen views of the site from residential lots to the north.

#4.6-1c. The contractor shall establish construction staging areas at least 500 feet from the nearest residential lot. The equipment stored in the staging area shall be kept in a orderly fashion. Compliance with this measure is subject to periodic site inspections by City Staff.

Long-term

#4.6-2. The City of Palmdale shall review and approve the project's landscape plans. The landscape plans should include the planting of Native shrubs and California junipers along the northern, western and eastern project boundaries in order to partially screen the basin from view of motorists traveling along Rayburn Road, Tierra Subida Avenue and the Antelope Valley Freeway. Landscaping shall, at minimum, address the following:

- Use of native and/or drought-tolerant species;
- Proposed palette, size and placement; and
- Irrigation requirements.

Light and Glare

#4.6-3a. All lights used to illuminate the parking areas and soccer fields 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, unless specifically permitted by a special event permit on a case-by-case basis.

#4.6-3b. The Sports Complex hours of operation shall conclude no later than 10:00 p.m. All lights, except for security lighting within parking lot areas, shall be turned off.

UNAVOIDABLE SIGNIFICANT IMPACTS

Light and Glare

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.

4.7 BIOLOGICAL RESOURCES

Information contained in this section is based largely on the *Biological Assessment for the Palmdale Sports Complex Anaverde Basin, Palmdale, California*, prepared by LSA Associates, Inc. dated July 17, 1996 (see Appendix 10.5). This biological assessment report builds upon previous biological studies conducted on the project site and provides findings based on regional work conducted by LSA and others. Site surveys were conducted on May 23 and July 2, 1996. The purpose of these surveys was to determine the type and extent of plant communities present on-site and the potential for occurrence of sensitive species based on the presence of suitable habitats.

EXISTING CONDITIONS

VEGETATION

Plant Communities

A number of plant communities occur in the project vicinity, representing various expressions of desert scrub, riparian forest and seasonal marsh. The plant community types observed by LSA on the project site during their May and July 1996 site surveys are consistent with those previously recorded (as part of the 1986 EIR), with the addition of riparian and wetland habitats that have developed along the Anaverde Creek drainage subsequent to the site investigations in 1986 and 1988. Table 4.7-1 provides an acreage breakdown of the plant communities mapped by LSA. Exhibit 4.7-1, VEGETATION TYPES, shows the distribution of the various plant communities on the project site.

Willow Forest (WF). This plant community comprises a total of approximately 1.4 acres of the project site, limited to the bottom of the detention basin and the creek channel area. This plant community is dominated by developing red willows (*Salix laevigata*), which form a fairly dense, mostly continuous, riparian canopy that trends northeasterly from the small basin along the creek channel. Other sub-dominant species observed in this community include: Fremont cottonwood (*Populus fremontii*), narrow-leaved willow (*Salix exigua*), mulefat (*Baccharis salicifolia*), and scattered tamarisk (*Tamarix* sp.).

TABLE 4.7-1
PLANT COMMUNITIES

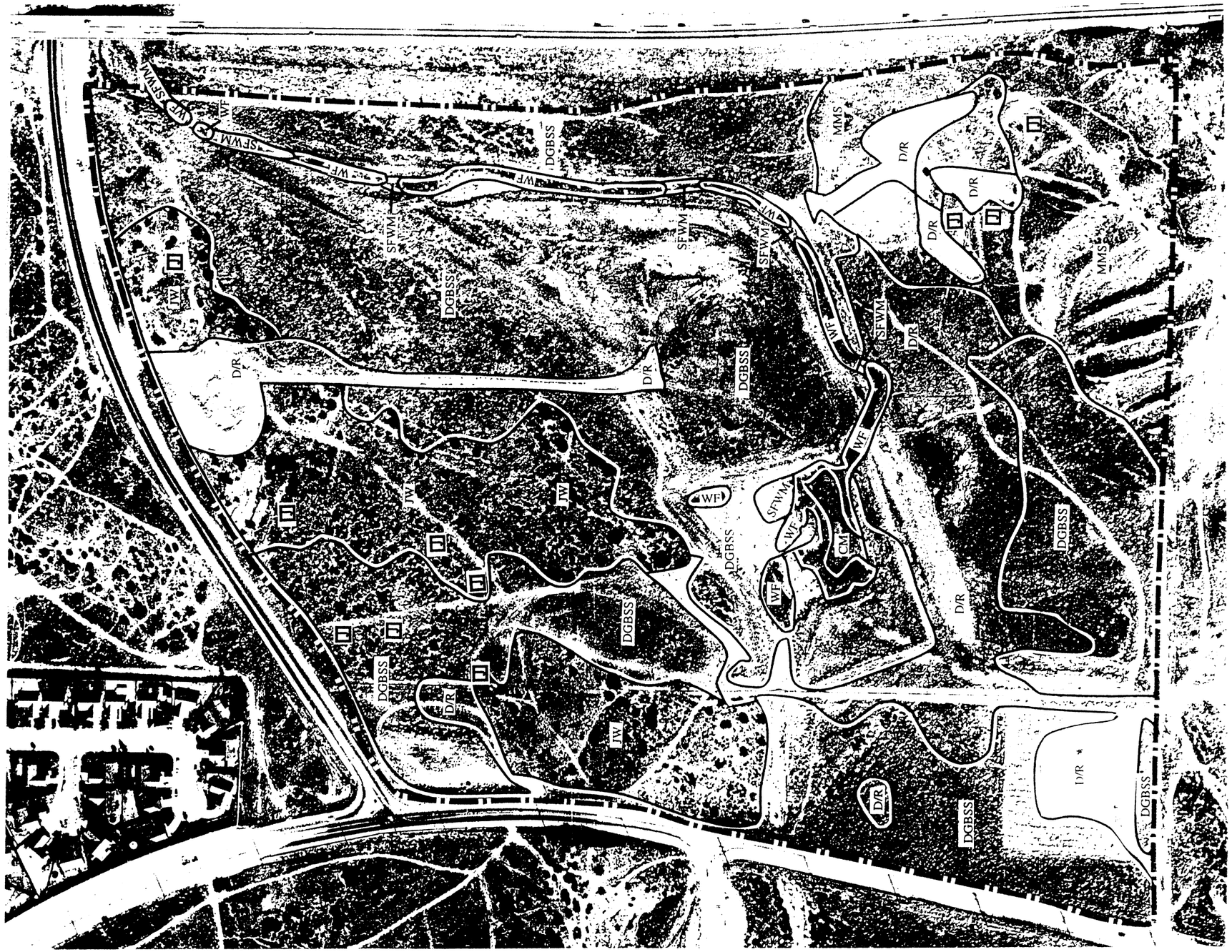
Plant Community	Approximate Acreage
Willow Forest	1.4
Seasonal Freshwater Marsh	0.3
Cattail Marsh	0.3
Disturbed/Ruderal	12.6
Juniper Woodland	12.0
Disturbed Great Basin Sage Scrub	44.3
Mojave Mixed Scrub	8.8
Total	79.7

Seasonal Fresh Water Marsh (SFWM). This habitat type is distributed intermittently along the creek channel in the openings of the willow forest and adjacent to the willow forest within the small basin. A total of approximately 0.3 acres is occupied by this plant community, which consists of low growing annual and perennial species adapted to growing in moist conditions.

Common species include bulrush (*Scirpus maritimus*), Mexican rush (*Juncus mexicanus*), and heliotripe (*Heliotropium curassavicum*). Other species less commonly observed include: beard grass (*Polypogon maritimus*), salt grass (*Distichlis spicata*), cockle bur (*Xanthium strumarium*), and frankenia (*Frankenia sp.*).

Cattail Marsh (CM). The cattail marsh is restricted to the excavated basin area. This plant community comprises a total of 0.3 acres and is dominated by Southern cattail (*Typha domingensis*). Included in this habitat type is a small area of open water where water apparently ponds seasonally.

Disturbed/Ruderal (D/R). This community type encompasses a total of approximately 12.6 acres within the project site and is typically dominated by nonnative ruderal species. The majority of this area is located in the southcentral portion of the site, (south of the small basin)



JW	Juniper Woodland
DGBSS	Disturbed Great Basin Sage Scrub
MMS	Mojave Mixed Scrub
D/R	Disturbed/Ruderal
J	Joshua Tree
CM	Cattail Marsh*
WF	Willow Forest*
SFWM	Seasonal Fresh Water Marsh*

* Potential Waters of the U.S.

Source: LSA Associates, Inc.

No Scale

ANAVERDE FLOOD CONTROL BASIN AND SPORTS COMPLEX EIR

Vegetation Types

Robert Bein, William Frost & Associates

7-96 JN 32668

Exhibit 4.7-1

and is dominated by a complex of several different species of mustards, native and nonnative grasses, and ruderal forbs. This classification also includes a few of the larger roads through the site that are devoid of vegetation and other recently disturbed areas that do not yet support established vegetation.

Juniper Woodland (JV). This plant community occurs in three distinct areas on the project site and comprises a total of approximately 12.0 acres. California juniper *(Juniperus California)* is the dominant vegetative feature in the community, however, the composition of the understory differs from area to area.

Disturbed Great Basin Sage Scrub (DGBSS). This habitat type is the most widespread on the project, including a total of approximately 44.3 acres. This designation encompasses a fairly broad range of habitat conditions, varying from a few well-established stands of mature scrub with relatively little invasion of introduced, nonnative weeds, to areas of less developed scrub with more widely scattered, smaller shrubs having a greater component of nonnatives in the interstitial openings. The quality of this habitat varies throughout the site depending on the overall distribution and development of native plant species and the abundance of nonnatives. Dominant native plants in this community type include: great basin sagebrush (*Artemisia tridentata* ssp. *parishii*), rubber rabbit brush (*Chrysothamnus nauseosus*), and fourwing saltbush (*Atriplex canescens*). A majority of this habitat type has a substantial ruderal component, generally including several species of mustard, nonnative annual grasses, and ruderal forbs.

Mojave Mixed Scrub (MMS). This plant community is found primarily on the steep slopes at the southeastern end of the project site, occupying a total of approximately 8.8 acres. Overall, this area has been substantially disturbed by off-road vehicle traffic and as a result, the plant community is dissected by many exposed roads and trails. The lowland areas adjacent to the steep slopes within this community are dominated by desert buckwheat, matchweed, and Mojave woolly-star with other less dominant plants including: interior goldenbush, cheat grass, red brome, bluegrass, squirrel tail and Mediterranean grass.

WILDLIFE

During the May 23 site visit, ponded water was present in the excavated basin and saturated surface soils were observed along Anaverde Creek. Water was no longer present in the basin by the July 2 site visit; dried exotic Centrarchid fish littered the open spaces among the cattails.

The only water observed on the site was in the bottom of a small 15 to 20 inch deep pit apparently dug by coyotes in the bottom of the debris basin.

Riparian vegetation that has grown in the basin and along Anaverde Creek was not present when previous surveys were conducted in 1986 and 1988. A number of the species observed during the July survey were clearly associated with the riparian vegetation. Nevertheless, the riparian habitat does not appear to be efficiently well developed to support any of the most sensitive species discussed below. Wildlife observed on the site during the May and July site visits include: Pacific tree frog, sideblotched lizard, Cooper's hawk, California quail, Costa's hummingbird, Say's phoebe, cliff swallow, cactus wren, California thrasher, black-tailed jackrabbit, California ground squirrel and coyote. Appendix 10.5 of this document provides a complete list of the species observed.

The white-tailed antelope squirrel, a common and distinctive desert rodent, was reported on the site in 1986. Only the much larger California ground squirrel was noted during the recent surveys, possibly indicating displacement due to an increased amount of disturbance at the site.

SENSITIVE SPECIES AND HABITATS

Sensitive species as defined herein are those species that are listed or proposed for listing as threatened or endangered at the federal or state level, or are candidates[1] for listing as threatened or endangered, or are otherwise considered sensitive by federal or state agencies or by recognized conservation organizations (e.g., California Native Plant Society). Sensitive habitats are those that are of limited extent and have experienced extensive loss or degradation resulting from development or land use practices in recent years. For a list of potential sensitive species in the Palmdale area, refer to Table 4.7-2, below.

Plants

Mojave Spineflower (*Chorizanthe spinosa*) Former 3C, CNPS 4. This member of the Polygonaceae is a prostrate annual found in dry, sandy or gravelly soils of desert areas. Several other species of spineflower were identified on the project site by Marsh (1988); however, this

[1] Candidate species discussed herein were, until recently, included on lists formerly maintained by USFWS. Although they no longer have any official federal status, these species are, for the most part, still considered sensitive.

TABLE 4.7-2

POTENTIAL SENSITIVE SPECIES IN THE PALMDALE VICINITY

SCIENTIFIC NAME	COMMON NAME	STATUS		
		Federal	State	Other
Plants				
Chorizanthe spinosa	Mojava spineflower	former C3C	NA	CNPS 4
Calochortus striatus	Alkali mariposa lily	former C2	NA	CNPS 1B
Calystegia peirsonii	Peirson's morning glory	former C2	NA	CNPS 4
Perideridia gairdneri ssp. *Gairdneri*	Gairdner's yampah	former C2	NA	CNPS 4
Wildlife				
Plebujus emigdionis	San Emigdio blue	former C2		
Scaphiopus hammondii	Western spadefoot	former C2	CSC	
Bufo microscaphus californicus	Arroyo toad	E	CSC	
Rana aurora draytonii	California red-legged frog	E	CSC	
Clemmys marmorata pallida	Southwestern pond turtle	former C2	CSC	
Xerobates agassizii	Desert tortoise	T	T	
Coleonyx variegatus abbotti	San Diego banded gecko	former C2		
Phrynosoma coronatum	Coast horned lizard	former C2 *(P.c blainvillei)*	CSC	
Cnemidophorus tigris multiscutatus	Coastal western whiptail	former C2		
Anniella pulchra pulchra	Silvery legless lizard	former C2	CSC	
Thamnophis hammondii	Hammond's two-striped garter snake	former C2		
Accipiter cooperi	Cooper's hawk		CSC	
Speotyto cunicularia	Burrowing owl	former C2	CSC	
Empidonax traillii extimus	Southwestern willow flycatcher	E	E	
Eremophila alpestris actia	California horned lark	former C3C	CSC	CSC
Lanius ludovicianus	Loggerhead shrike	NA		E

SCIENTIFIC NAME	COMMON NAME	STATUS		
		Federal	State	Other
Vireo bellii pusillus	Least Bell's vireo	E		
Dendroica petechia brewsteri	California yellow warbler		CSC	
Amphispiza belli belli	Bell's sage sparrow	former C2	CSC	
Agelaius tricolor	Tricolored blackbird	former C2	CSC	
Lepus californicus bennettii	San Diego blacktailed jackrabbit	former C2	CSC	
Onychomys torridus ramona	Ramona grasshopper mouse	former C2	CSC	
Neotoma lepida intermedia	San Diego desert woodrat	former C2	CSC	
Microtus californicus mohavensis	Mohave River vole	former C2	CSC	
Spermophilus mohavensis	Mohave ground squirrel	former C2	T	
Taxidea taxus	Badger		CSC	

Key to Status Codes

Federal :

E Endangered
T Threatened
C2 Former Category 2 Candidate - No Current Status
C3C Former Category C3 Candidate- No Current Status

State:

E Endangered
T Threatened
CSC California Species of Concern

Other:

CNPS 1B California Native Plant Society List 1B
CNPS4 California Native Plant Society List 4

particular species was not found at that time. LSA's survey effort did not reveal any evidence of this species on the project site.

Alkali Mariposa Lily (*Calochortus striatus*) Former C2, CNPS 1B. This plant occurs in alkali meadows and springy places and has been found as close as City Ranch (TMC 1990). This species typically flowers from April through June and is most conspicuous during flowering. All of the vernally wet areas on the project site are restricted to the detention basin and creek channel areas. These areas were thoroughly inspected for this species and no evidence of this species was observed during the recent site surveys.

Peirson's Morning Glory (*Calystegia peirsonii*) Former C2, 4. This species appears to be relatively widespread in the foothills of the transverse ranges in northern Los Angeles County. According to Marsh (1988) this species has been taken at Bouquet Canyon Reservoir and elsewhere in Bouquet Canyon in the vicinity of the project area. Typical habitats include yellow pine forest and chaparral but it is also known to occur in desert scrub habitat in the Antelope Valley (Marsh 1988).

The higher quality scrub habitats on the project site were surveyed for this species, however, because of the considerable disturbance throughout much of the project site these areas are fairly limited. No evidence of this species was observed on-site during the recent site surveys.

Gairdner's Yampah (*Perideridia gairdneri ssp. gairdneri*) Former C2, CNPS 4. Gairdner's yampah is a perennial herb that is found in broadleafed upland forest, chaparral, valley and foothill grassland, vernal pools and other mesic areas. This species was not located during LSA's survey of the project site.

Joshua Tree (*Yucca brevifolia*). Joshua trees are considered an important regional resource that is afforded protection by many of the jurisdictions in which the trees occur, including the City of Palmdale. A limited number of Joshua trees occur on the Anaverde Flood Control Basin and Sports Complex site. Joshua trees are scattered in small aggregations of two or more individuals primarily in the northwest, southwest, and southeast corners of the project site.

Joshua trees generally occur between pinyon-juniper woodland (at a higher elevation) and creosote bush (*Larrea tridentata*) scrub. The species' distribution is considered indicative of the

limits of the Mojave Desert. The project site is situated between the two types near the elevational upper limit of the Joshua tree's distribution. Joshua trees occur commonly on the valley floor north of Avenue P-8 where they are joined by creosote bush. Protection and/or relocation of Joshua trees would be required in accordance with the City's Native Desert Vegetation Ordinance.

Wildlife

San Emigdio Blue (*Plebujus emigdionis*) Former C2. This butterfly is primarily found along the Mojave River and riparian habitats near Santa Clarita. The San Emigdio blue is dependent upon its larval foodplant, Atriplex canescens. Although this plant is present on the project site, it is scattered and relatively rare, reducing the chances that this locally occurring blue is present.

Arroyo Toad (*Bulo microscaphus californicus*) FE, CSC. Historic populations of this species have been found on the desert slopes as close as Little Rock Creek on the north side of the San Gabriel Mountains (Schoenherr 1976), and it is known from a number of drainages to the northwest of the site in Los Padres National Forest. No arroyo toads were found during intensive aquatic sampling or focused nighttime surveys conducted by LSA along Amargosa Creek. Prime habitat (undisturbed, broad washes vegetated with mulefat, willow or sycamore) does not occur on the project site. Available water and cover were probably insufficient for this species under original conditions on this stretch of Anaverde Creek. The basin might serve as appropriate habitat for frogs for much of the year, but this area as well as the entire drainage is apparently dry for months at a time, a condition probably unsuitable for this species.

California Red-Legged Frog (*Rana aurora draytonii*) FE, CSC. This species was recently listed by the federal government as an endangered species. Historically, the California red-legged Frog was found as close to the project site as Soledad Canyon. Red-legged frogs are also known from the San Andreas Rift Zone in the vicinity of the project site (M. R. Jennings, pers. comm.). LSA observed California red-legged frogs along Amargosa Creek near the western end of Ritter Ranch during focussed, intensive surveys conducted in 1995. The basin might serve as appropriate habitat for frogs for much of the year, but this area as well as the entire drainage is apparently dry for months at a time, a condition probably unsuitable for this species.

Western spadefoot (*Scaphiopus hammondii*) Former C2, CSC. The western spadefoot is essentially restricted to cismontane California, entirely west of the Sierran-desert range axis (Jennings and Hayes 1994). No western spadefoots were found on the site and it is unlikely that they occur there.

Desert Tortoise (*Xerobates agassizii*) FT, ST. This species is found in the Antelope Valley, but is not expected well into the foothills where the project site is located. No tortoises or tortoise signs have been found during previous surveys of the Ritter Ranch and City Ranch areas. This area is now considered outside the range of the desert tortoise.

Southwestern Pond Turtle (*Clemmys marmorata pallida*) Former C2, CSC. Southwestern pond turtles are known to be present along Amargosa Creek. Pond turtles require water for a significant portion of the year, and thus are not expected to occur on Anaverde Creek.

Silvery legless lizard (*Anniella pulchra pulchra*) Former C2, CSC. This animal is generally restricted to cismontane California, but there are scattered desert records including one from Lancaster in the Antelope Valley (Mullen 1989), and Klauber (1932) reported this species from desert scrub at the western edge of the Mojave desert. This reptile was documented during spring surveys on Amargosa Creek in 1995. Legless lizards are associated primarily with sandy or loose loamy substrates with sparse vegetation and potentially occur on the project site.

San Diego Banded Gecko (*Coleonyx variegatus abbotti*) Former C2. Banded geckos are possibly present on the project site in scrub habitats. Habitats on-site may be marginal for this species due to the level of disturbance by previous cattle grazing and lack of rocky areas.[2] The desert banded gecko (*C.v. variegatus*) is found in the Mojave Desert from Inyo County south to Mexico; *C. v. abbotti* inhabits coastal and cismoı tane southern California. If it is present on the project site, it is not clear which subspecies(s) would occur.

Coast horned lizard (*Phyrnosoma coronatum*) Former C2 (*P.c. blainvillei*) CSC. Suitable habitat for coast horned lizards is present in the upland areas of the site. Which subspecies of the coast horned lizard (*P. c. blainvillei or P. c. frontale*) is present in the area is uncertain, but

[2]Biological Assessment - Palmdale Sports Complex Anaverde Basin, Palmdale, California. LSA Associates, Inc., July 17, 1996, page 18.

is irrelevant from a regulatory standpoint since both forms are considered California Species of Special Concern. Desert horned lizards (*Phyrnosoma platyrhinos*) may also occur in this area, but none were observed during recent site surveys.

Coastal western whiptail (*Cnemidophorus tigris multiscutatus*) Former C2. Western whiptails have been found on Ritter Ranch and along Amargosa Creek. They may occur in scrub habitat on the project site. It is uncertain what subspecies is involved: *C.t. tigris* of the Great Basin and Mojave Desert which is not considered a sensitive species, or *C.t. multiscutatus* of cismontane Southern California.

Hammond's two-striped garter snake (*Thamnophis hammondii*) Former C2. This aquatic snake is primarily limited to cismontane Southern California, but has been found at Little Rock Creek on the north side of the San Gabriel Mountains (Schoenherr 1976) and was captured along Amargosa Creek during surveys conducted in June 1995. The two-stripe garter snake requires essentially year-round water, and thus is not expected to occur on Anaverde Creek.

Southwestern Willow Flycatcher (*Empidonax traillii*) SE, (*E.t extimus*) FE. Willow Flycatchers are widespread migrants in Southern California, but very few remain to nest. This species could potentially breed in riparian habitat on the project site, but there are no recent nesting records for Los Angeles County. At this time, riparian habitat in the basin, and especially the downstream channel, does not appear to be extensive enough or complex enough to support nesting by this species. The little willow flycatcher (state listed as endangered) is expected to occasionally visit the site during migration.

Least Bell's Vireo (*Vireo bellii pusillus*) FE, SE. A least Bell's vireo was observed along Amargosa Creek in 1994. Like the wiliow flycatcher, this species requires well-developed riparian habitat. At this time, riparian habitat on the site does not appear to be extensive enough or complex enough to support nesting by this species.

Cooper's Hawk (*Accipiter cooperi*) CSC. This is a widespread but uncommon breeding species in Southern California. Typical nesting sites are heavily wooded riparian and oak woodland areas. One was noted on-site during the July site visit, but habitat on the site is not suitable for nesting.

Burrowing Owl (*Speotyto cunicularia*) Former C2, CSC. This species may be found in a number of open habitats, but is most often associated with ground squirrel burrows. Burrowing owls were observed on the eastern end of Ritter Ranch, west of the project site. No evidence of this species was found during the July site visit, but conditions appear suitable for migratory stopovers or wintering, and possibly even nesting.

Bell's Sage Sparrow (*Amphispiza belli belli*) Former C2, CSC. The Bell's Sage Sparrows, the cismontane California race of sage sparrow, was noted on the eastern portion of Ritter Ranch, west of the Anaverde Flood Control Basin and Sports Complex site. Previous reports of sage sparrows in the area (TMC 1990, PSBS 1990a) may also have referred to this subspecies. Bell's sage sparrows probably breed mainly or entirely in chemise chaparral occurring on-site as non-breeders, but could possibly breed on-site as well.

Tricolored Blackbird (*Agelaius tricolor*) Former C2, CSC. This species was regularly observed along Amargosa Creek during LSA's spring 1994 surveys. Flocks of roughly 150 and 100 birds were noted foraging in grassland on the eastern portion of Ritter Ranch, west of the project site. This species could occur on-site.

California Horned Lark (*Eremophila alpestris actia*) Former C3C, CSC. Horned larks were found to be common breeders on disturbed grasslands at Ritter Ranch during LSA's spring 1994 surveys, and have been recorded during previous surveys as well. It is unknown what subspecies the local breeders belong to; *E.a. actia* is primarily found in cismontane areas while *E.a. ammophila* is the Mojave Desert breeding form. In general, nesting birds (of all species) in the immediate project vicinity are more typical of cismontane Southern California than the Mojave Desert. The species is probably restricted as a breeder to open grassland areas. This species may be present on the project site.

Loggerhead Shrike (*Lanius ludovicianus*) CSC. This species was observed in the vicinity of Ritter Ranch on several occasions during LSA's spring 1995 surveys and was recorded during previous surveys as well. This species may potentially nest and forage on the Anaverde Flood Control Basin and Sports Complex site.

California Yellow Warbler (*Dendroica petechia brewsterimorcomi*) CSC. This subspecies is a widespread migrant and local breeder in Southern California; it is legally sensitive only in its role as a breeder. Many yellow warblers were found on LSA's spring 1994 surveys along

Amargosa Creek, but none appear to have remained to nest. Marginally suitable nesting habitat for this species occurs within the riparian area along Anaverde Creek.

Mohave Ground Squirrel (*Spermophilus mohavensis*) Former C2, ST. This species was recently reinstated as a state Threatened animal, at least temporarily. A trapping effort at Ritter Ranch, west of the project site, was conducted by ERS (1990) following CDFG protocol. ERS did not trap or observe any Mohave ground squirrels, and noted that Ritter Ranch appeared to be south and west of the range of this species. Additional trapping with negative results was done for the City Ranch Specific Plan and in similar habitat near Barrel Springs (TM C 1990). The Mohave ground squirrel is no longer believed to occur in the area.

San Diego Black-Tailed Jackrabbit (*Lepus californicus bennettii*) Former C2, CSC. Black-tailed jackrabbits are relatively ubiquitous in open county. Two black-tailed jackrabbits were seen during the July site visit. It is unclear whether local animals are typical of *cismontane bennettii* or *L.c. deserticola* of the Mojave Desert.

Ramona Grasshopper Mouse (*Onychomys torridus ramona*) Former C2, CSC. Grasshopper mice trapped by TMC (1990) on the adjacent City Ranch may have been either cismontane *O.t. ramona* or *O.t. pulcher* of the Mojave Desert; taxonomic uncertainty clouds the issue for this species. These predatory mice may be present on the project site.

San Diego desert woodrat (*Neotoma lepida intermedia*) Former C2, CSC. These rodents have been reported by PSBS (1990a) in the Ritter Ranch Specific Plan Area. The local population may have been intermedia of cismontane Southern California, or one of the more interior races: *Nl. gilva* or *Nl. lepida*. A woodrat nest observed during the July site visit was probably that of a desert woodrat. Taxonomic uncertainty clouds the issue for this species.

Mohave River Vole (*Microtus californicus mohavensis*) Former C2, CSC. Voles have been trapped upstream in the Anaverde drainage at City Ranch, but conditions are probably too dry for the species at the project site. In addition, taxonomic uncertainty clouds the issue for this species.

Pallid Bat (*Antrozous pallidus*) CSC. This species lives in a range of habitats in Southern California, and thus may be present in the project vicinity.

Badger (*Taxidea taxus*) CSC. The remains of a badger were found by PSBS (1990b) along Amargosa Creek and Marsh (1988) reported a large den, possibly of a badger, on the project site. Habitat on-site appears suitable for the badger.

Sensitive Habitats

Sensitive habitats present on the site are limited to wetlands. Wetlands have generally suffered extensive losses both on a national and statewide basis. The relative importance of wetlands in performing an array of physical and biological functions makes them particularly valuable resources in any context. Accordingly, a number of programs exist at the federal, state and local levels for wetlands protection and regulation.

The U.S. Army Corps of Engineers (COE) regulates discharges of dredged or fill material into waters of the United States. These waters include wetlands and non-wetland bodies of water that meet specific criteria. The COE typically regulates any body of water displaying an ordinary high watermark.

The California Department of Fish and Game (CDFG), through provisions of the State of California Administrative Code, is empowered to issue agreements for any alteration of a river, stream or lake where fish or wildlife resources may adversely be affected. Streams (and rivers) are defined by the presence of a channel bed and banks, and at least an intermittent flow of water. CDFG regulates wetland areas only to the extent that those wetlands are part of a river, stream or lake as defined by CDFG.

A formal wetland delineation according to COE standards was conducted on the site by the COE, confirming that the vegetation associations present on the site support wetlands. Wetland areas include willow forest, cattail marsh and seasonal marsh habitats. Based on he COE site visit, approximately 1.6 acres of the project area is considered wetlands and approximately 1.2 acres is considered waters of the United States (see Appendix 10.5).

IMPACT ANALYSIS

VEGETATION

4.7-1 *Implementation of the proposed project would result in the loss of some existing plant communities and Joshua trees.* **Significance: Less than significant with mitigation.**

4.7-1 Discussion. Impacts resulting from the proposed Anaverde Flood Control Basin and Sports Complex project would include the loss of existing plant communities. Native vegetation would be removed for construction of playing fields, parking areas and associated amenities, and for implementation of the proposed flood control improvements. The proposed improvements would affect primarily upland scrub habitats, which are relatively common and widespread plant communities. It should be noted that existing habitats present on-site are currently moderately degraded due to previous development in the project area. Implementation of the proposed project would involve extensive landscaping for the sports complex areas and surrounding slopes. In order to mitigate against impacts to existing vegetation, landscaping design plans for the proposed project would be required to be consistent and blend with natural vegetation patterns on-site. Basin slopes and similar areas outside of the active recreation areas would also be required to be revegetated with native plant materials upon completion of project grading (refer to recommended mitigation measures). As a result, the potential for significant impacts to existing plant communities occurring on the project site would be less than significant.

Approximately ten Joshua trees were found on the project site, and all of these trees would be impacted by the proposed project. Although the Joshua tree is not an endangered species, the trees have been removed in increasing numbers on the valley floor and the adjacent alluvial fans, as development around Palmdale has progressed. Thus, per City guidelines, removal of the Joshua trees would be considered a significant impact. In order to mitigate against impacts to Joshua trees, and in compliance with the City's *Native Desert Vegetation Ordinance*, appropriate mitigation would be implemented with development of the proposed project. A management plan would be required to offset the loss of this regionally sensitive habitat. This plan would provide mitigation measures including the transplanting of individual trees to preserved habitat areas and/or replacement with nursery-grown trees at an appropriate ratio (i.e., 5:1) (refer to recommended mitigation measures).

Minor off-site effects on vegetation would result from the project, including some insignificant changes resulting from the reduction in surface waters flowing north in the short section of existing wash between the Antelope Valley Freeway and Division Street toward Palmdale Boulevard. The sagebrush scrub habitat type would encroach on and become established in this area, and the total cover would likely increase. No significant changes to vegetation or wildlife habitat in the downstream service area would result from reduced flows.

WILDLIFE

4.7-2 *Implementation of the proposed project could potentially affect wildlife in this habitat area.* **Significance: Less than significant with mitigation.**

4.7-2 Discussion. Impacts resulting from construction of the proposed project would include the loss and disruption of wildlife on-site. The intrusion of people and use of equipment during construction activities would have the most immediate impact on wildlife, both on-site and in adjacent off-site habitat. However, construction-related impacts are anticipated to be less than significant, as construction activities would be temporary, and would terminate once the basin is completely excavated.

Long-term effects would be much greater; removal of the vegetation on the project site would result in the loss of wildlife habitat. Operation of the sports complex would also displace wildlife from the site and in the immediate site vicinity (i.e., night lighting of the soccer fields would result in indirect impacts to off-site wildlife). Although some of the more human tolerant wildlife species may benefit from the replacement of natural desert vegetation with turf and artificial landscaping, the overall effect on wildlife would be negative.

To facilitate discussion of project affects on sensitive wildlife, the species listed in Table 4.7-2 may be divided into the following three categories: 1) species potentially present that may be adversely affected by the project; 2) species that may potentially use the site on an occasional basis, but are not likely to be impacted by the project; and 3) species unlikely to be present due to lack of appropriate habitat.

As listed in Table 4.7-2, 11 species are known to use the project site, or are potentially present based on the habitat types available. If present, these species may be adversely impacted by the Anaverde Flood Control Basin and Sports Complex project. Species falling in this category

include the following: Silvery legless lizard; San Diego banded gecko; Coast horned lizard; Coastal western whiptail; Burrowing owl; Bell's sage sparrow; Loggerhead shrike; San Diego black-tailed jackrabbit; Ramona grasshopper mouse; San Diego desert woodrat; and Badger. Of these species, only the San Diego black-tailed jackrabbit has positively been identified on the project site. However, the taxonomic status of a number of these species is uncertain, which clouds the issue of sensitivity.

Five species were also identified as potentially occurring on-site. This category includes more wide ranging species that may occasionally roost or forage on the project site. The territories and/or home ranges of these species are quite large or their foraging or migratory movements are extensive, and the habitat provided by the Anaverde Flood Control Basin and Sports Complex site is not extensive or unique. Thus, adverse effects to the site's habitat resources would not be expected to adversely impact these species. Included in this category are the following species: Cooper's hawk; Tricolored blackbird; California homed lark; California yellow warbler; and Pallid bat.

Other identified species are either unlikely to be present on the project site or are not expected to be significantly affected. No formally listed species are expected to occur on the project site. Although not expected to occur on the site, the western burrowing owl is in sufficient decline such that any impact to nesting birds would be considered significant. As a result, construction activities will include monitoring and, if necessary, relocation of nesting birds.

In addition, although not expected to occur on site, least Bell's vireo and southwestern willow flycatcher should be surveyed for in the spring prior to any activities affecting riparian habitat. Surveys are recommended because of the presence of riparian habitat on-site and the slight potential for these listed species to be present. A spring survey is also recommended to more fully consider the federally listed arroyo toad and red-legged frog, as well as the western spadefoot. If any listed species are determined to be present, project impacts would be considered significant. However, with implementation of the mitigation measures provided below, impacts of this nature are anticipated to be less than significant.

The project would prevent long-term establishment of typical desert wash habitat on-site and, by reducing flooding downstream, favor continuing dominance of desert sagebrush scrub communities north of Rayburn Road.

Anaverde Creek is an intermittent watercourse on the USGS topographic map and, because its bed and banks would be altered, a stream alteration agreement would be necessary with the CDFG under Sections 1601-1603 of the State Fish and Game Code.

SENSITIVE SPECIES AND HABITATS

4.7-3 *Implementation of the proposed project could potentially affect existing wetland habitats.* **Significance: Less than significant with mitigation.**

4.7-3 Discussion. Sensitive habitats on the site are limited to wetlands. The project, as proposed, would impact approximately 1.6 acres of wetlands consisting of willow forest, cattail marsh and seasonal freshwater marsh, in addition to approximately 1.2 acres of waters of the United States. This is a significant project impact. In order to mitigate against the disturbance of wetland habitat on-site, a wetland mitigation plan based on the COE's delineation would be required, in conformance with Corps Habitat Mitigation and Monitoring Proposal Guidelines. Also, any impacts to wetland areas would be required to be mitigated in kind and within the same watershed at a minimum 1:1 replacement ratio. Any proposed alteration to stream channels and/or wetland areas would also require a COE Section 404 Permit and/or CDFG Section 1603 Streambed Alteration Agreement. With implementation of the proposed mitigation measures, impacts to wetland habitats would be reduced to less than significant levels.

MITIGATION MEASURES

PLANT COMMUNITIES AND WILDLIFE

#4.7-1a. Prior to grading activities, project limits shall be fenced or otherwise clearly marked to avoid potential encroachment outside of the designated project impact area.

#4.7-1b. Basin slopes and similar areas outside of active recreation areas shall be revegetated with native plant materials upon completion of grading. Native species should be specified in landscaping plans wherever possible. Landscaping should be designed to be consistent, and blend with, natural vegetation patterns.

#4.7-1c. A habitat restoration specialist shall participate in the development of the landscaping plans. Landscape plans and specifications shall address the following elements, designed to enhance the successful restoration of natural plant communities.

- Topsoil preservation and reapplication
- Site preparation including soil decompaction
- Weed control
- Use of fertilizers, herbicides, and pesticides
- Plant palettes
- Sources for plant materials
- Performance standards

#4.7-1d. Impacts to Joshua tree woodlands shall be mitigated by protection of Joshua tree woodland habitat on the site, or, at the option of the City, acquisition of off-site habitat within the City sphere of influence. Prior to project grading, Joshua trees within the project area shall be accurately counted and evaluated, and a management plan developed to offset the loss of this regionally sensitive habitat. Mitigation measures shall include transplanting of individual trees to preserved habitat areas and/or replacement with nursery-grown trees at an appropriate ratio (e.g., 5:1).

WILDLIFE

#4.7-2a. Construction shall be limited to the hours of 6:30 a.m. to 8:00 p.m. to minimize indirect impacts to crepuscular (active at dusk/dawn) and nocturnal wildlife. Any night lighting used for security purposes shall be confined to project impact areas.

#4.7-2b. Night lighting shall be designed to be non-intrusive into adjacent, off-site areas to the maximum extent possible, per City of Palmdale standards.

#4.7-2c. Focussed spring surveys shall be conducted to confirm the absence of the least Bell's vireo and southwestern willow flycatcher prior to grading in riparian areas. If these species are identified within project impact areas, work shall be

deferred in these areas and appropriate mitigation measures shall be developed and implemented in consultation with USFWS and CDFG.

#4.7-2d. Focused spring surveys shall be conducted to confirm the absence of the arroyo toad and red-legged frog prior to grading in aquatic and marsh areas. If these species are identified within project impact areas, work shall be deferred in these areas and appropriate mitigation measures shall be developed and implemented in consultation with USFWS and CDFG.

#4.7-2e. Prior to grading activities between the months of February and August, focused surveys shall be conducted to determine the presence of nesting burrowing owls. If burrowing owls are detected, potential impacts on burrowing owls (*Speotyto cunicularia*) shall be mitigated as follows: (1) have a qualified biologist conduct pre-construction surveys; and (2) if burrowing owls are present on the site, and impacts cannot be avoided by project modifications, relocate the owls passively. The methodology discussed below follows techniques for passive relocation of burrowing owls described in *Staff Report on Burrowing Owl Mitigation* (CDFG, October 1995).

Passive relocation consists of encouraging burrowing owls to move from occupied burrows to alternate burrows. The owls are moved passively by placing one-way doors, such as modified clothes dryer vents, on the burrow entrances that allow owls to leave the occupied burrows, but not return. The one-way doors should be left in place for a minimum of 48 hours to insure that the owls have left the burrow. The burrows should then be excavated carefully by use of hand tools and refilled to prevent reoccupation. During excavation, sections of flexible plastic pipe should be inserted into the tunnels to maintain an escape route for any animals inside the burrow.

Two natural or artificial burrows should be provided for each burrow excavated in the project area and must be within an adjacent area of sufficient size to meet the owl's foraging requirements (6.5 acres). The natural burrows used by burrowing owls are usually abandoned ground squirrel burrows. Specifications for building artificial burrows are available from CDFG.

Burrowing owls should not be relocated during the breeding and nesting season (February 1 - August 31) unless a qualified biologist verifies that either the birds have not begun egg-laying and incubation, or that juveniles from the occupied burrows are foraging independently and capable of independent survival.

In the event of delays in the start-up of construction activities, any new burrows that are constructed by ground squirrels should be excavated immediately to prevent their occupation by burrowing owls.

SENSITIVE SPECIES AND HABITAT

#4.7-3a. An Army Corps of Engineers Section 404 Permit and/or California Department of Fish and Game Section 1603 Streambed Alteration Agreement shall be obtained, as appropriate, for any proposed alterations to stream channels and/or wetland areas.

#4.7-3b. Any impacts to wetland areas shall be mitigated in kind and within the same watershed at a minimum 1:1 replacement ratio. If it is not possible to perform in kind mitigation within the same watershed, a higher mitigation ratio may be required. A wetland mitigation plan shall be developed in conformance with Corps Habitat Mitigation and Monitoring Proposal Guidelines.

UNAVOIDABLE SIGNIFICANT IMPACTS

No unavoidable impacts have been identified.

4.8 CULTURAL RESOURCES

Paleontological information in this section is based on the Updated Paleontological Environmental Analysis for the Anaverde Flood Control Basin Project, City of Palmdale, California, prepared by Petra Resources, Inc. in May 1996. The purpose of this section is to identify potential archaeological and paleontological resources on-site, analyze potential impacts to such resources and recommend potential impacts to reduce the significance of identified impacts.

EXISTING CONDITIONS

ARCHAEOLOGY

Regional Prehistory

Anaverde Flood Control Basin lies in the extreme western portion of the Mojave Desert. No single chronological sequence has been applied to the Antelope Valley, or to the Western Mojave Desert (Moratto 1984: 388). Therefore, the general and regional chronological framework proposed for the California desert areas (Warren 1984; Warren and Crabtree 1986) is used, as it provides a well researched framework to compare with those for Antelope Valley. These time periods include:

Lake Mojave	10,000 to 5,000 B.C
Pinto	5,000 to 2,000 B.C
Gypsum	2,000 B.C. to A.D. 500
Saratoga Springs	A.D. 500 to 1200
Shoshonean	A.D. 1200 to Contact

Although the Mojave Desert culture traditions have similar expressions in the Antelope Valley, there are unique aspects to the region's prehistory. These unique aspects developed because of the Valley's position between the heavily populated coastal California and the interior Southwest and Great Basin (major trade and exchange routes). Refer to Appendix 10.6 for a detailed discussion.

Archival and Field Review

Archival review of the project vicinity indicate there are no known prehistoric or historic sites located within the project area, yet several sites are located within a two kilometer radius of the project area. On May 21, 1994, a limited survey of the project area was conducted (Beth Padon, Dr. Fran Govean), in order to review the conditions of the property and re-examine the cut banks of the creek for any possible buried remains not exposed in 1985. The survey confirmed that no potentially historic structures or sites are present and no underlying prehistoric strata have been recently exposed within the Anaverde Flood Control Basin and Sports Complex project boundaries.

PALEONTOLOGY

Stratigraphy

The project area is underlain by granitic basement rock, sedimentary rocks of the Anaverde Formation of Miocene/Pliocene to Pleistocene Age, Quaternary stream deposits, potential Pleistocene Alluvium at depth, and Recent Alluvium. Igneous rocks, the Holcomb Quartz Diorite and Granodiorite, are present in an outlier at the southern end of the eastern boundary and along the western boundary.

Anaverde Formation. The Anaverde Formation is a sedimentary unit named for exposures in the Anaverde Valley; exposures of this geologic unit are located adjacent to Rayburn Road and along the northern boundary of the site. The Anaverde Formation contains paleosoils with a high potential for containing both large and small vertebrate fossils (Reynolds, 1985; Woodburne and Goltz, 1972). Similar sediments southwest of the City of Palmdale contain paleosoils that have a high potential for containing vertebrate fossil remains (Reynolds, written communication, 1989). The astragalus of a horse was collected by Noble in 1914 in a unit mapped as the Punchbowl Formation which has been subsequently called the Anaverde Formation (Reynolds, oral communication, 1996).

Nadeau Gravel. Overlying the Anaverde Formation in the project area are patches of the Nadeau Gravel. Exposures of this unit are of limited extent and are confined to the area adjacent to Rayburn Road. This poorly consolidated cobble/boulder gravel was laid down under fast flowing, high energy stream conditions. Fossil material has been recovered from

the Nadeau Gravel/Older Alluvium in the Palmdale area; however, fossils were not observed in either the Nadeau Gravel or alluvium on-site.

Quaternary Stream Deposits. Sands, silts, and gravels deposited from the Anaverde Creek are present in the project vicinity along the drainage areas. Quaternary stream deposits represent more recent deposits of streams flowing across the project area; these materials have been deposited within the last 10,000 ybp. The episodic silty sands are well exposed in the gully walls cut by the creek. Fossils typically associated with sediments of this type are those of "Ice Age" land animals. There are no records of these fossils from the alluvium within or near the study area.

Pleistocene Alluvium. The Pleistocene Alluvium in the Palmdale area, ca 10,000 ybp, is covered by a thin veneer of Recent fluvial and aeolian deposits, with varying thicknesses depending on the depositional processes in the area. Fossil microvertebrates, such as lizard and rabbit, have been recovered from these sediments during resource mitigation in Sections 22, 27, and the west half of Section 26, *Ritter Ranch* Quadrangle, localities SBCM 9-2-1 through 9-2-30. These deposits appear to extend onto the project area. It should be noted that Pleistocene Alluvium has not been mapped on the project site. However, as these deposits are generally present underneath the Recent Alluvium in the Palmdale area, there is a potential for Pleistocene Alluvium to be present at depths greater than three feet within the project area along the southern and northern boundaries.

Recent Alluvium. Gravelly sandy silts are exposed amid the vegetation over the basinal areas of the project site. The gravels and small pebbles are primarily metamorphic and granitic.

Slopewash and Artificial Fill. Slopewash drapes the lower reaches of the hills formed by sedimentary rocks. A linear body of artificial fill is present along the northeastern end of the project site near Highway 14.

Holcomb Quartz Diorite and Granodiorite. An outlier of igneous rock, the Holcomb Granodiorite, is present along the eastern boundary of the project site near the southeast corner. A small pod was also observed at the hill along the western boundary.

Paleontological Sensitivity

The known rock units on the project site range in sensitivity from high to moderate, to low, and no paleontological sensitivity. The City of Palmdale has a Paleontology Sensitivity Map, which depicts the distribution of paleontological sensitivity. Paleontological sensitivity is also presented in Table 4.8-1, PALEONTOLOGICAL SENSITIVITY.

TABLE 4.8-1
PALEONTOLOGICAL SENSITIVITY

GEOLOGIC UNIT	SENSITIVITY
Anaverde Formation (Tar, Tab)	Moderate
Anaverde Formation (Tac)	High
Pleistocene Alluvium	High
Nadeau Gravel/Older Alluvium	High
Recent Alluvium	Low
Artificial Fill/Slopewash	No
Holcomb Quartz Diorite and Granodiorite	No

IMPACT ANALYSIS

ARCHAEOLOGY

4.8-1 *Project construction and increased human disturbance on-site could impact existing archaeological resources.* **Significance: Less than significant with mitigation.**

4.8-1 Discussion. No known prehistoric or historic sites are located in the Anaverde Flood Control Basin and Sports Complex project. However, because buried remains go undetected during a pedestrian survey and given the alluvium deposits for the area, finding buried prehistoric artifacts or a buried site is still possible during the construction activities. As a result, accidental damage could occur to these resources. It is also likely that any prehistoric

remains may have been buried given the build-up of erosional sediments for this area over the past one hundred years. Based upon the type of prehistoric occupation in the area, it is likely that camp sites, single activity sites, and isolated tools could be found within the project area and along the former creek banks. Also, several prehistoric sites are known for Anaverde Creek drainage, therefore, encountering a buried sites would not be unexpected. Implementation of recommended mitigation measures, as provided at the end of this section, would reduce impacts to archaeological resources to a less than significant level.

PALEONTOLOGY

4.8-2 *Project construction and increased human disturbance on-site could impact existing paleontological resources.* **Significance: Less than significant with mitigation.**

4.8-2 Discussion. Although fossils are not known to occur on-site, there is a possibility that significant fossils may be encountered during excavations required to implement the proposed project. Grading, trenching, and other earth moving activities have the potential for the destruction of both vertebrate and plant fossil remains. Fossils in these rock units could be significantly impacted. The sediments within the flood control basin area range from high, to moderate, to low and no paleontological sensitivity. Vertebrate remains, both large and small, and plants are some of the fossil remains that could be found during excavation for the project. The alluvium is considered to have a low potential for the discovery of significant fossils.

Fifty-four (54) sites in the same geologic units are located within a three (3) mile radius of the project. These fossils are potentially significant for a number of reasons. Fossils are non-renewable scientific resources and their loss is considered to be significant. Scientists study fossils to determine changes in the environment, animals and plants through time. Many research questions on variability within a taxon and evc utionary lineages hinge on having populations of specimens. This becomes an even more limiting factor in the study of fossil vertebrates where scientists normally have limited fossil populations. Fossils are also an important tool, and in some cases, the only tool, in determining the age of sedimentary units. The age and amount of displacement of rock units along the San Andreas Fault Zone and associated faults is important in date movement. This data is important for seismic studies.

As indicated in Table 4.8-1, a potential for encountering fossils in the Nadeau Gravel and the alluvium exists on-site. The nature of these sediments suggests that the likelihood of

recovering fossils from this unit is very high. There is a high to low probability of encountering fossils in the alluvium depending upon the type of alluvium found.

The impact of development upon paleontological resources could be significant if not properly mitigated. In addition, increased human activity in the proposed development areas could have an adverse indirect impact upon fossil resources in the adjacent existing open space areas. However, with implementation of an appropriate management plan, as recommended in the following mitigation measures, impacts to such resources would be reduced to a less than significant level.

MITIGATION MEASURES

ARCHAEOLOGY

#4.8-1a A qualified archaeologist shall be retained to attend the pre-grade meeting and to monitor grading activities for evidence of buried cultural resource sites. During grading activities, the archaeologist shall conduct limited monitoring to observe and retrieve any buried artifacts that may be uncovered.

#4.8-1b If buried remains are encountered, the archaeological monitor shall have the authority to temporarily divert or direct grading to allow time to evaluate any exposed prehistoric material, and the Archaeological Survey at UCLA or some other public agency shall be contacted so that appropriate action may be taken to stabilize or salvage the remains.

#4.8-1c A final monitoring report, including an itemized inventory and pertinent field data, shall be sent to the Director of Planning, City of Palmdale as well as copies of the report to the Archaeological Information Center at the University of California, Los Angeles.

PALEONTOLOGY

The following recommendations are provided to identify and evaluate any significant prehistoric remains within Anaverde Flood Control Basin and to reduce any adverse impacts to these resources to a level of insignificance.

These mitigation measures shall meet the requirements of CEQA and the City of Palmdale concerning protection of paleontological resources.

#4.8-2a A qualified paleontologist shall be retained to produce a mitigation plan for the proposed project.

#4.8-2b The paleontologist shall attend the pre-grade meeting to discuss the monitoring, collecting, and safety procedures for the project and shall supervise the paleontological monitoring during earth moving activities in the area.

#4.8-2c Full time monitoring shall be conducted during earth moving activities in the clay shale member (Tac) of the Anaverde Formation. Half-time monitoring shall be conducted during earth moving activities within the moderate sensitivity units (Tar, Tab) of the Anaverde Formation and the Nadeau Gravel. The Recent Alluvium shall be monitored at depths below three feet on a half-time basis until the presence or absence of the high sensitivity Pleistocene alluvium has been determined. Any Pleistocene Alluvium, if present on the project area, shall be monitored on a full-time basis. Igneous rocks, artificial fill, disturbed soils, and slopewash would not require monitoring.

#4.8-2d Screening of sediments shall also be conducted under the supervision of the paleontologist during monitoring because many significant vertebrate remains are small. Up to a six thousand pound matrix sample can be processed for any single locality as recommended by the Guidelines in the Society of Vertebrate Paleontologists Bulletin.

#4.8-2e The paleontological monitor shall have the authority to temporarily divert or redirect grading to allow time to evaluate any exposed fossil material.

#4.8-2f During monitoring, any scientifically significant specimens shall be properly salvaged after evaluation by, and under the supervision of, the paleontologist. During fossil salvage, contextual stratigraphic data shall also be collected. This will include lithologic descriptions, localities plotted on a USGS 7.5' Series topographic quadrangle, photographs, and field notes.

#4.8-2g Specimens shall be prepared to the point of identification, stabilized, identified, and curated on a long-term loan basis in a suitable repository that has a retrievable storage system, such as the San Bernardino County Museum or the Los Angeles County Museum of Natural History.

#4.8-2h A final report shall be prepared at the end of earth moving activity, and shall include an itemized inventory of recovered fossils, an appropriate stratigraphic and locality data. This report shall be sent to the Lead Agency, signifying the end of mitigation. Another copy shall accompany any recovered fossils, along with field logs and photographs, to the designated repository.

UNAVOIDABLE SIGNIFICANT IMPACTS

None have been identified.

5.0 Long-Term Implications Of the Proposed Project

5.0 LONG-TERM IMPLICATIONS OF THE PROPOSED PROJECT

5.1 Significant Irreversible Environmental Changes

Approval of the proposed project would cause the following irreversible environmental changes:

- Commitment of land which will be physically altered to create flood control improvements to Anaverde Creek and create recreational facilities.
- Removal of existing botanical cover in order to develop various aspects of the project.
- Utilization of various raw materials will occur, such as sand and gravel. In addition, energy consumed in improving and maintaining the site for public use is 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.
- The physical change to the property, from vacant land to ten lighted soccer fields, represents an irreversible change in the character of the site.

5.2 Growth-Inducing Impacts

Development of the Anaverde Flood Control Basin and Sports Complex could remove an obstacle to development in the basin service area, but the proposed action is not expected to significantly encourage growth in the Palmdale area.

During the last several years, growth in the Palmdale area has been increasing significantly. Growth in Palmdale can be attributed to relatively good air quality, low housing prices (compared with the rest of Los Angeles County), local employment opportunities (particularly in aerospace and defense-related industries), and direct freeway access to Los Angeles.

Between 1990 and 1995, the population in Palmdale increased by approximately 52 percent from 68,842 to 104,656. On the average, the population growth rate in Palmdale has been much greater (approximately 12 times greater from 1990 to 1995) than that of the entire Los Angeles County area.[1]

The purpose of the proposed project is to reduce the flood hazard within a defined service area. Approximately one-half of the basin service area consists of federal government land (U.S.A.F. Plant 42) or airport property and is therefore not available for development. Of the remaining half of the service area, approximately half again (or one-quarter of the total service area) consists of parcels designated for industrial uses, and half consists of parcels designated for commercial and residential (primarily multi-family) uses.

Such development has occurred and is occurring regardless of the additional cost of including site-specific flood control measures in development plans (per City of Palmdale building requirements). By reducing the flood hazard in an already developed and developing area, the proposed project would decrease the flood insurance rates and eliminate the mandatory requirement for many already-built properties in the basin service area. A reduction in the flood hazard in these areas could remove an obstacle to development, and is therefore considered growth inducing in the technical sense. However, all "growth" would be in accordance with City General Plan and zoning requirements and will require separate environmental review.

5.3 Cumulative Impacts

This section has been included in the EIR to address the cumulative impacts associated with the proposed project and General Plan build-out.

CEQA Requirements

In accordance with CEQA Guidelines Section 15130, cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as much detail as is provided for the effects attributable to the project alone. The discussion

[1]Source: California Department of Finance, Demographic Research Unit, Report E-5, January 1, 1995, p. 21, and Southern California Association of Governments, Final Growth Forecast, May 16, 1994.

should be guided by the standards of practicality and reasonableness. The following elements are necessary for an adequate discussion of cumulative impacts:

1. **Either:**

   a. A list of relevant past, present and reasonably anticipated future projects, or

   b. A summary of projections contained 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.

3. A reasonable analysis of the cumulative impacts of the relevant projects. An EIR shall examine reasonable options for mitigating or avoiding any significant cumulative effects of a proposed project.

4. With some projects, the only feasible mitigation for cumulative impacts may involve the adoption of ordinances or regulations rather than the imposition of conditions on a project-by-project basis.

Cumulative impacts may be discussed in terms of project impacts, in combination with impacts anticipated for future development (including approved and planned development within the project area and surrounding affected area). The geographic area for each impact varies, depending on the nature of the impact, whether it is regional, such as air quality, or local such as noise.

Quantification is difficult for cumulative impacts, as it would require speculative estimates of impacts including, but not limited to, the following: the geographic diversity of impacts, as impacts of future development may affect different areas; variations in time of impacts, as many of the project's and future development impacts, particularly those that are short-term, would occur at different times, and would be reduced or removed before other short-term impacts occurred; complete data is not available for all future development; and data for future development may change following subsequent approvals. However, every attempt has

been made here to make qualitative judgement of the combined effect of, and relationship between, land uses.

The following cumulative impact discussion is based primarily on build-out of the City, in accordance with the General Plan. The City of Palmdale General Plan EIR contains substantial cumulative impact data, particularly regarding the General Plan elements and City-wide traffic model projections.

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 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 on-site 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 unhealthful regional air quality in the Antelope Valley due to increased vehicle travel and fossil fuel consumption. 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). 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 City General Plan land use designations and adopted policies.

Drainage/Water Quality

Future development within the project vicinity 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's Drainage Management Plan and the City of Palmdale Drainage Master Plan. In addition, implementation of the Anaverde Flood Control Basin project will assist in controlling the 4-day 50-year and 100-year storm flows generated in the upper watershed.

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.

Noise

Increased traffic will alter the rural character of the presently perceived noise environment to a noise environment more typical of an urban area. 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 on-site 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.

Traffic and Circulation

The proposed project in conjunction with other projects will allow for an incremental increase in local traffic volumes. 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 the creation of assessment districts and payment of traffic impact fees.

Aesthetics

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. As a result, views of the area will be more characteristic of an urban rather than rural area as residential units, streets/roads, recreational areas 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.

Significant light and glare impacts to the communities of Palmdale and are anticipated to result as a direct consequence of cars and lights associated with development. These impacts can be somewhat reduced to less than significant levels 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.

Biological Resources

Implementation of the proposed project (and the future development facilitated by the project) will result in incremental deceases in the quantity and range of regional biological resources. The most significant 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 area 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.

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."

Potential cumulative impacts of the proposed project, in combination with cumulative development projects, are discussed below. Precise impacts of future development have been or will be discussed in appropriate environmental documentation, depending on what stage of approval the project is in. The Final EIR for the City General Plan provides an analysis of City-wide cumulative impacts associated with General Plan build-out. The EIR and General Plan are available for review at the City of Palmdale.

6.0 ALTERNATIVES TO THE PROPOSED PROJECT

6.0 ALTERNATIVES TO THE PROPOSED PROJECT

In conformance with CEQA Guidelines Section 15126(d), the following discussion focuses on a range of project alternatives which could feasibly attain the basic objectives of the proposed project. In addition, it is intended to evaluate the merits of each alternative, relative to the proposed project.

The alternatives discussion shall focus on alternatives capable of eliminating any significant adverse environmental effects or reducing them to a level of insignificance, even if these alternatives would impede to some degree, or make more costly, the attainment of project objectives.

The following alternatives to the proposed project are evaluated below: 1) "No Project" Alternative, 2) "Channel" Alternative, 3) "Reduced Scale" Alternative, 4) "Alternative Site" Alternative.

6.1 "NO PROJECT" ALTERNATIVE

A "No Project" Alternative would maintain the site in its current state as vacant land. None of the impacts associated with recreational development, flood control improvements and construction activities would occur if the "No Project" Alternative were selected. Implementation of this alternative would retain the existing natural open space and undeveloped character of the project site and would avoid any adverse physical or environmental impact associated with development. Existing geologic, aesthetic, biological and land use conditions in the area would remain the same. In addition, traffic and noise impacts due to construction of a flood control basin and operation of ten (10) soccer fields would not occur with the "No Project" Alternative.

The "No Project" Alternative would not be environmentally preferable to the proposed project because no flood control/water conservation facilities would be constructed on Anaverde Creek and flood flows would continue to inundate portions of Palmdale. In addition, flood designations and insurance requirements in the proposed service area would remain unchanged. Under the "No Project" Alternative, as projects are constructed downstream of the Antelope Valley Freeway, incremental, project-specific measures would be necessary to assure flood protection of those projects. This could actually increase the off-site flood hazard

by passing storm runoff to adjacent lands. Such incremental flood protection would be contrary to the goals and objectives of the Antelope Valley Comprehensive Plan of Flood Control and Water Conservation and the City of Palmdale's plans for comprehensive rather than sporadic flood control. Project-specific flood protection measures would also result in reduced ability to manage water resources in the greater Palmdale area. Furthermore, the City General Plan identifies both flood control and recreational facilities as being deficient.

Due to the fact that the "No Project" Alternative would be inconsistent with planning documents which identify the need for flood control, this alternative is not presently being considered.

6.2 "CHANNEL ALTERNATIVE"

Under the "Channel" Alternative, a concrete-lined trapezoidal channel would be constructed to transfer storm water approximately 33,000 feet (6.25 miles) from the mouth of Anaverde Creek to the proposed Lockheed Basin which would be located southwest of U.S.A.F. Plant 42. The channel would be 60 feet wide at the top with a maximum depth of 12 feet to accommodate storm runoff from Anaverde Creek in the absence of the proposed Anaverde Basin. Existing drainage channels and culverts on the U.S.A.F. Plant 42 grounds would need to be enlarged to accommodate the floodwater brought by the Channel Alternative.

Current cost estimates for a comprehensive flood control program (AKM Consulting Engineers, July 1996), are an estimated $83 million, assuming implementation of the proposed Anaverde Flood Control Basin. In its absence, drainage channels, which are an estimated $62 million, would have to be redesigned to handle larger capacities, dramatically raising costs. Furthermore, the proposed Lockheed/Plant 42 basins, which will cost an estimated $21 million, would also have to be redesigned to handle larger volumes. These changes would incrementally raise costs associated with flood control, as compared to the proposed project.

The Channel Alternative would provide the same level of flood protection as the proposed basin project except for areas north of the proposed Lockheed Basin including U.S.A.F. Plant 42. The Channel Alternative would increase the amount of storm runoff conveyed to the U.S.A.F. Plant 42 Basin because runoff would no longer pond, infiltrate, and evaporate on its way from the mouth of Anaverde Creek to Lockheed Basin. Additionally, the developed areas

in need of immediate protection in the City of Palmdale and the County would be the last to receive protection.

Excavation of the channel would result in relatively minor changes in topography along the length of the alignment which traverses the proposed site as compared to development of the proposed Anaverde Basin. Similar to the proposed project, seismically induced ground rupture or associated vertical displacement could damage the channel.

The channel would not provide any flood protection for U.S.A.F. Plant 42 and would actually decrease the effectiveness of the existing drainage facilities within the plant because storm runoff would be more quickly conveyed from the mouth of Anaverde Creek to these facilities. The existing retention basin along the south side of Avenue M within U.S.A.F. Plant 42 would overtop with flood waters sooner than at present and inundate areas north of Avenue M in the City of Lancaster, as well as inundate areas in the City of Palmdale.

The channel alternative would require the permanent removal of approximately 68 acres of vegetation and wildlife habitat along the proposed alignment and temporary disturbance along the alignment during construction. Total removal would be 50 percent greater than that necessary on the project site for the basin project. This acreage does not include the five to ten acres that would be required if a sediment retention facility were judged necessary to maintain the effectiveness of this alternative. Because the channel would be concrete-lined, there would be no opportunity for the reestablishment of vegetation and wildlife habitat within the channel right-of-way or percolation for groundwater recharge. Potential reduction in groundwater recharge associated with this alternative could lead to legal challenges from local water purveyors, based on City experience with previous projects.

Excavation of the channel alignment would require the removal of approximately 525,000 cubic yards of material, thus resulting in a substantial increase in truck trips over a long period of time as compared to the proposed project. This will also increase impacts to air resources and local noise levels during construction of the channel alternative.

Environmental impacts associated with the "Channel" Alternative would result in an increase in impacts as compared to the proposed basin/sports complex concept. This alternative would result in impacts to earth resources, water resources (down stream flooding), biological resources and aesthetic resources due to the loss of vegetation. In addition, this alternative

would not provide recreation fields, which are deficiency identified in the General Plan. Therefore, the "Channel" Alternative is not considered the environmentally superior alternative.

6.3 "REDUCED SCALE ALTERNATIVE"

The "Reduced Scale" Alternative would reduce the number of soccer fields by 50 percent. Only five lighted soccer fields in the southern portion of the project area would be developed along with the detention basin. This alternative would serve to reduce required grading, thus reduce the loss of biological resources.

With the construction of fewer soccer fields, impacts to the biological, geological and aesthetic aspects of the site would be lessened through reduced slope grading and alteration of the site. In addition, traffic, noise and parking impacts would also be reduced by 50% with this alternative.

Although implementation of the "Reduced Scale" Alternative could potentially reduce the significance of project-related impacts, reductions in the proposed number of soccer fields would not eliminate these impacts. In addition, with fewer fields available for use at any given time, flexibility as to the type of field use (i.e., games, practice, maintenance/repair of fields on a rotating basis) would be limited. Nonetheless, the "Reduced Density" Alternative is considered to be environmentally superior to the proposed project.

6.4 "ALTERNATIVE SITE" ALTERNATIVE

According to the California Environmental Quality Act (CEQA) Guidelines Section 15126(d), a Lead Agency need only consider alternatives to a project that could reduce or avoid unavoidable significant impacts of the project, even if not fully meeting the applicant's objectives. Developing the project on a different site would not preclude development of this site in accordance with the existing General Plan. "Reasonable alternatives sites" for flood control improvements along Anaverde Creek, such as the formerly proposed City Ranch Basin, were considered in other technical documents and determined not to be feasible. In addition, developing an alternative site would not realize positive effects of the project including the fact that the project increases the areas recreational opportunities and provides

immediate and long-term flood control needs in the project area. Therefore, it is not considered necessary to investigate alternative sites for the subject project.

7.0 EFFECTS FOUND NOT TO BE SIGNIFICANT

7.0 EFFECTS FOUND NOT TO BE SIGNIFICANT

This discussion is based on the initial study completed by the City of Palmdale on April 25, 1996 (see Appendix 10.1, Initial Study/Notice of Preparation).

A. EARTH:

4a. *Would development of the project impede the extraction of significant mineral resource deposits?* **No.**

The project site is not located in a state designated Mineral Resource Extraction Zone. There is no evidence that the project could adversely impact mining quarry operations in the area. Therefore, the EIR will not be addressing this issue.

C. WATER:

2a. *Could the project result in a significant increase in runoff of storm or nuisance water toward the aqueduct?* **No.**

The project site is located down slope, to the northeast, of the California Aqueduct. Therefore, the project will not cause a significant increase in storm or nuisance water which could impact the aqueduct.

2c. *Is the project located above Lake Palmdale where urban runoff could significantly impact the lake?* **No.**

Anaverde Creek enters the project site from the west through a culvert beneath Tierra Subida Avenue. The creek changes from a defined natural channel at Tierra Subida Avenue to an unpredictable, undefined watercourse that fans out across the valley floor at Rayburn Road. The project site is located down slope, to the north, of Lake Palmdale.

2d. *Is the project located in an inundation area below Lake Palmdale dams, or Littlerock Dam?* **No.**

According to Exhibit S-6, "Inundation Areas", of the Palmdale General Plan the proposed project is not located in the inundation areas of the Lake Palmdale dams and Little Rock Creek Dam.

F. NOISE

1b. *If the project is residential or noise sensitive, will it expose people to severe noise levels because it is located within (b) 200 feet of the railroad?* **No.**

The project is not located within 200 feet of any railroad.

2. *Is the proposed project within the Plant 42 over-flight area, or the 65 CNEL boundary?* **No.**

The project is located outside the Plant 42 over-flight area and the 65 CNEL Boundary.

H. LAND USE

H3. *If the project is located within the Plant 42 AICUZ zone, does it conflict with the joint land use policies established for those zones?* **No.**

The project site is not within any Plant 42 AICUZ zones.

J. RISK OF UPSET

J3. *Is the site included on any known State Hazardous Waste Site list?* **No.**

No known state hazardous waste sites are located within or adjacent to the project site.

L. HOUSING

L1. *Will the project create a significant demand for additional housing?* **No.**

The project will not alter population characteristics because it will not affect residential land uses or increase residential development. Therefore, the EIR will not address this issue.

L2. *Will the project result in displacement of people from existing housing on the site?* **No.**

There is no existing housing within or adjacent to the proposed project site.

M. TRANSPORTATION/CIRCULATION

M5. *Could the project result in a significant alteration to rail or air traffic?* **No.**

The project will not impact either rail or air traffic.

N. PUBLIC SERVICES

2. Schools

2c. *Would the students generated by the project significantly contribute to the affected schools exceeding their designed capacity?* **No.**

The project will not alter population characteristics because it will not affect residential land uses or increase residential development. Therefore, the project will not contribute to the generation of additional students.

3. Library Services

Will the project result in a significant impact to library services due to increased population? **No.**

Refer to response 2c, above.

4. Police and Fire Protection

Will the project create a significant increase in police and fire protection? **No.**

The project would not significantly increase demand for police or fire protection services, and is in an area regularly patrolled by the Palmdale Recreation and Parks Department rangers.

5. Parks and Recreation

Will the project result in a significant negative impact to recreational facilities? **No.**

The project will be a beneficial impact by providing additional recreational facilities.

6. Public Facilities

Could the project result in a significant environmental impact maintenance activities typical of recreational facilities? **No.**

The project will require maintenance activities typical of recreational facilities, which is not considered a significant environmental impact.

7. Other Government Services

Will the project create a significant impact to Governmental Services? **No.**

There are no other anticipated significant environmental impacts to governmental services.

O. UTILITIES

Will the project create a significant demand for additional utilities? **No.**

The project site will require water, sewer, electrical and telephone connections. The physical environmental impact of these connections is addressed in the Draft EIR, and the utility line extensions are described in Section 3.4.3 of the Draft EIR. The project will utilize water for landscaping. As requested by the Palmdale Water District (Comment letter dated September 13, 1996), the City has estimated that the project will require approximately 140 acre-feet of water per year (see Response No. 2 in the Comments and Responses packet for a more detailed discussion).

8.0 ORGANIZATIONS AND PERSONS CONSULTED

8.0 ORGANIZATIONS AND PERSONS CONSULTED

LEAD AGENCY

City of Palmdale
38306 Ninth Street East
Palmdale, CA 93550
Mr. Paul Scheibel, AICP, Planner

ANAVERDE BASIN AND SPORTS COMPLEX DESIGN TEAM

AKM Consulting Engineers
101 Pacifica, Suite 150
Irvine, CA 92718
Mr. Morgan Ying

Lawrence R Moss & Associates
3458 Ocean View Boulevard
Glendale, CA 91208
Mr. Lawrence Moss, Landscape Architect

PREPARERS OF THE ENVIRONMENTAL IMPACT REPORT

Robert Bein, William Frost and Associates
14725 Alton Parkway
Irvine, CA 92618
Mr. Kevin Thomas, Environmental Services Manager
Mr. Trevor Smith, Senior Environmental Analyst
Ms. Rebecca Tolentino, Environmental Analyst
Mr. Mauricio Escobar, Assistant Environmental Analyst
Mr. Bob Matson, Transportation Planner

SUBCONSULTANTS

Geological
Leighton and Associates
2121 Alton Parkway
Irvine, CA 92714

Biological
LSA Associates Inc.
6721 Five Star Boulevard, Suite C
Rockland, CA 95677

Cultural
Petra Resources Inc.
15 Corporate Park
Irvine, California

9.0 BIBLIOGRAPHY

9.0 BIBLIOGRAPHY

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Biological Assessment-Palmdale Sports Complex Anaverde Basin, Palmdale, California. LSA Associates, Inc., July 17, 1996.

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Geotechnical Investigation for Anaverde Flood Control Facility and Sports Complex, City of Palmdale, California. Leighton and Associates, July 17, 1996.

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APPENDICES

10.0 APPENDIX

10.1 Initial Study/Notice of Preparation

Notice of Preparation

To: State Clearinghouse
(Agency)
1400 Tenth Street
(Address)
Sacramento, CA 95814

RECEIVED
APR 2 9 1996
ROBERT BEIN, WM FROST

Subject: Notice of Preparation of a Draft Environmental Impact Report

Lead Agency:

Agency Name City of Palmdale
Street Address 38306 9th Street East
City/State/Zip Palmdale, CA 93550
Contact Paul Scheibel, AICP

Consulting Firm (if applicable):

Firm Name RBF & Associates
Street Address 14725 Alton Parkway, P.O. Box 57057
City/State/Zip Irvine, CA 92019-7057
Contact Kevin Thomas

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 potential environmental effects are contained in the attached materials. A copy of the Initial Study (☒ 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 Paul Scheibel, AICP at the address shown above. We will need the name for a contact person in your agency.

Project Title: Palmdale Sports Complex

Project Location: Palmdale (City (nearest)) Los Angeles (County)

Project Description: (brief)

A sports complex (sports fields, lights, parking, picnic facilities, maintenance building, etc.) within a proposed regional drainage control facility, including an earthen dam to control the Anaverde Creek.

Date 4-25-96

Signature [signature]

Title PRINCIPAL PLANNER

Telephone (805) 267-5200

Reference: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375.

Revised October 1989

CITY OF PALMDALE
OFFICE OF THE
PLANNING DEPARTMENT

MEMORANDUM

TO: All Interested Parties

FROM: Planning Department

SUBJECT: REQUEST FOR REVIEW OF THE ENVIRONMENTAL INITIAL STUDY FOR A SPORTS COMPLEX AND REGIONAL FLOOD CONTROL BASIN WITHIN THE ANAVERDE CREEK, LOCATED GENERALLY AT THE SOUTHEAST CORNER OF TIERRA SUBIDA AVENUE AND RAYBURN ROAD

DATE: April 25, 1996

The attached Environmental Initial Study has been forwarded to you for review and comment. Comments will be received by the Planning Department until 5:00 p.m. on May 27, 1996. Comments should be directed to: Paul Scheibel, AICP, Associate Planner, City of Palmdale Planning Department, 38306 9th Street East, Palmdale, California 93550 or telephone (805)267-5200.

NOTICE OF PREPARATION

TO: All Interested Parties

FROM: City of Palmdale
Planning Department
38306 9th Street East
Palmdale, CA 93550

SUBJECT: NOTICE OF PREPARATION OF AN EIR

DATE: April 25, 1996

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 potential environmental effects are contained in the attached Initial Study.

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 - May 27, 1996.

Please send your response to Paul Scheibel, AICP, Associate Planner, at the address shown above. We will need the name of a contact person in your agency.

Project Title: Palmdale Sports Complex Project

Project Location: Generally bounded by Rayburn Road on the north, Antelope Valley Freeway (SR-14) on the east, the extension of Avenue R-8 on the south, and Tierra Subida Avenue on the west

Project Description: An Environmental Impact Report for a sports complex within a flood control basin encompassing approximately 73 acres in the southwestern portion of the City of Palmdale, located in the High Desert area of Los Angeles County. Proposed uses include an earthen dam for flood control purposes and a sports complex. The project will require the extension of utilities, and will require flood control and recreation infrastructure to be developed on the site.

Project Applicant: City of Palmdale

Date: 4-25-96 Signature: [signature] for

Title: Director of Planning

Reference: California Administrative Code, Title 14, Section 15082(a), 15103, 15375

Copies sent to:

- Air Resources Board
- Antelope Valley Landfill
- Antelope Valley Transit
- Antelope Valley Union High School District
- Caltrans
- Case Planner
- Department of Water Resources
- Planning Counter Copy
- City Hall Counter Copy
- Library
- Los Angeles County Dept. of Public Works
- Los Angeles County Fire Dept.
- Los Angeles County Regional Planning
- Los Angeles County Sanitation Districts
- Los Angeles County Sheriff's Dept.
- Palmdale Community Association
- Palmdale Homeowner's Association
- Palmdale Water District
- Regional Water Quality Control Board, Lahontan Region
- South Coast Air Quality Management
- Southern California Association of Governments
- State Clearinghouse, Office of Planning and Research
- State Division of Mines and Geology
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- U.S. Forest Service
- Westside Union School District

CITY OF PALMDALE

PLANNING DEPARTMENT

INITIAL STUDY

QUESTIONNAIRE

APPLICATION NO:	EIR 96-1
NAME OF APPLICANT:	City of Palmdale
LOCATION OF PROJECT:	Generally bounded by Rayburn Road on the north, Antelope Valley Freeway (SR-14) on the east, the extension of Avenue R-8 on the south, and Tierra Subida Avenue on the west
EXISTING GENERAL PLAN LAND USE DESIGNATION:	PF (Public Facility)
EXISTING ZONING:	PF (Public Facility)
PROPOSED ZONING:	No change
PRESENT LAND USE:	Vacant
LOCATION MAP:	Refer to Figures 1 and 2

I. APPLICABILITY OF THE INITIAL STUDY

A. Is the proposed action a "project" as defined by CEQA? (See Section I. of the City's CEQA Guidelines. If more than one application is filed on the same site, consider them together as one project.) _X_ 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 _X_ N/A

II. INITIAL STUDY REVIEW

A. Does the project require a 30-day State Clearinghouse review?
_X_ Yes ___ No

III. PROJECT ASSESSMENT

A. Project Description:

Los Angeles County has offered to give the City of Palmdale several parcels of contiguous land totaling approximately 73 acres in the southwestern portion of the City of Palmdale, located in the High Desert area of Los Angeles County (Figure 1). A sports complex with a flood control basin has been proposed for the site. Specifically, the proposal is to develop the site with an earthen dam structure with improved drainage control devices for the Anaverde Creek, and lighted recreation fields and appurtenant structures to be built in several phases.

The General Plan land use designation for the project site is PF (Public Facility).

B. Description of the Project Site:

The project site lies along the western side of the Antelope Valley Freeway (SR-14) in the southwestern portion of the City of Palmdale. SR-14 crosses over Rayburn Road and the Anaverde Creek channel at the extreme northeast corner of the project site. The logical extension of Avenue R-8

forms the southern boundary of the project site. Beyond the southern boundary, the project site is ringed by low, (less than 100 feet from the toe to crest), steep hills. Two parcels, totaling approximately ten acres on slightly higher ground, and Tierra Subida Avenue form the western boundary of the project site. The area west of Tierra Subida Avenue is hilly terrain designated for low density residential development. Rayburn Road is adjacent to the north. Adjacent to the north of Rayburn Road is vacant land designated for office commercial development, and two single family residential subdivisions are located farther to the north.

The project site lies in depressed ground approximately twenty-five feet below the adjacent roads. The project site is relatively flat, except for the Anaverde Creek channel which bisects the site from the southwest to the northeast. The channel contains a depression that was created as a result of previous efforts by the County of Los Angeles to dig a detention basin for flood control purposes in 1988. The project was halted because bedrock was reached after less than twenty-five feet of excavation.

There is a small graded area which contains approximately 100 cubic yards of concrete rubble of unknown origin in the northern portion of the project site.

Vegetation consists of relatively undisturbed desert scrub, stands of mature Juniper bushes and sparsely placed mature Joshua trees which appear to be in a healthy state. The entire project site is surrounded by a six foot high chain link fence. Consequently, the area is relatively undisturbed by human encroachment, except for the previously noted excavation and concrete rubble.

Anaverde Creek passes under the State Route 14 overcrossing of Rayburn Road and continues easterly along Avenue R to the railroad tracks at Sierra Highway. It then moves northerly parallel to the railroad tracks to Plant 42.

The current site for the Anaverde Basin, at the southeast corner of Rayburn Road and Tierra Subida Avenue, has been on the Master Plan of Drainage for this area since the first modern plan was developed in the Antelope Valley by Los Angeles County in 1984. Approximately 73 acres of land have been purchased at that site by Los Angeles County using county development impact fees.

The original concept for the basin was to fully excavate the basin and relocate the dirt so impoundment would be below existing grade. The current cost estimate for such a project is $16,000,000. This extreme estimate is due to the large amount of soil and rock to be removed and because of the distance necessary to haul and dispose of the material. The basin site is underlain by bed rock at fairly shallow depths.

The current alternative which constitutes the project, is to build an earthen dam at the lowest point of the site, using fill material from the property which would significantly reduce the amount of excavation required and also reduce the cost of the facility. A sports field complex within the remaining usable portion of the 73 acres would be developed. Ultimately, the project would consist of the flood control basin and the sports complex, including ten soccer fields (four of which would be lighted for night time use), parking, restrooms, and concession area, hiking trails, picnic and tot lot facilities, and maintenance facilities.

Since the County purchased the property, it has been entirely annexed into the City of Palmdale. The County has indicated that they will dedicate the property to the City for the purpose of a flood control basin and a joint-use recreational facility. Use of the property as a combination flood control facility and sports complex has been previously accomplished by the City of Palmdale on several projects, including Marie Kerr Park and Domenic Massari Park.

The detention basin will be designed and constructed to detain 1,117 acre-feet of storm flood. The dam height would be up to forty feet above the current natural grade of the project site.

Development of the project is proposed to occur in three phases. Phase I would include the flood control dam, including all fill and excavation, grading, channelization of the Anaverde Creek, bypasses, spillway, and grading. The four northern-most soccer fields, access parking, and concession stand and restroom buildings would also be built in Phase I. Phase II would consist of the remaining six soccer fields, additional restrooms and parking. Phase III would consist of the additional recreational amenities including the tot lot, central ramada, picnic tables, hiking trail, smaller dispersed ramadas and landscaping.

C. Surrounding Land Uses:

North:	Vacant commercial land, beyond is developed SFR (Single-family residential)
East:	SR-14, beyond is vacant SFR land
South:	Vacant, low density SFR Planned
West:	Vacant, Office Commercial and SFR

D. Is the proposed project consistent with:

	Yes	No	N/A
City of Palmdale General Plan	X		
Applicable Specific Plan			X
City of Palmdale Zoning Ordinance	X		
South Coast Air Quality Management Plan	X		
Congestion Management Plan	X		
Regional Comprehensive Plan	X		
Master Plan of Drainage	X		

E. Have any of the following studies been submitted?

X	Geology Report		Historical Report
X	Hydrology Report	X	Archaeological Report
X	Soil Report	X	Paleontological Study
	Traffic Study		Line of Sight Exhibits
	Noise Study		Visual Analysis
X	Biological Study		Slope Map
	Native Vegetation Preservation Plan		Fiscal Impact Analysis
			Air Quality Report
	Solid Waste Generation Report		Hazardous Materials/ Waste
	Public Services/ Infrastructure Report		

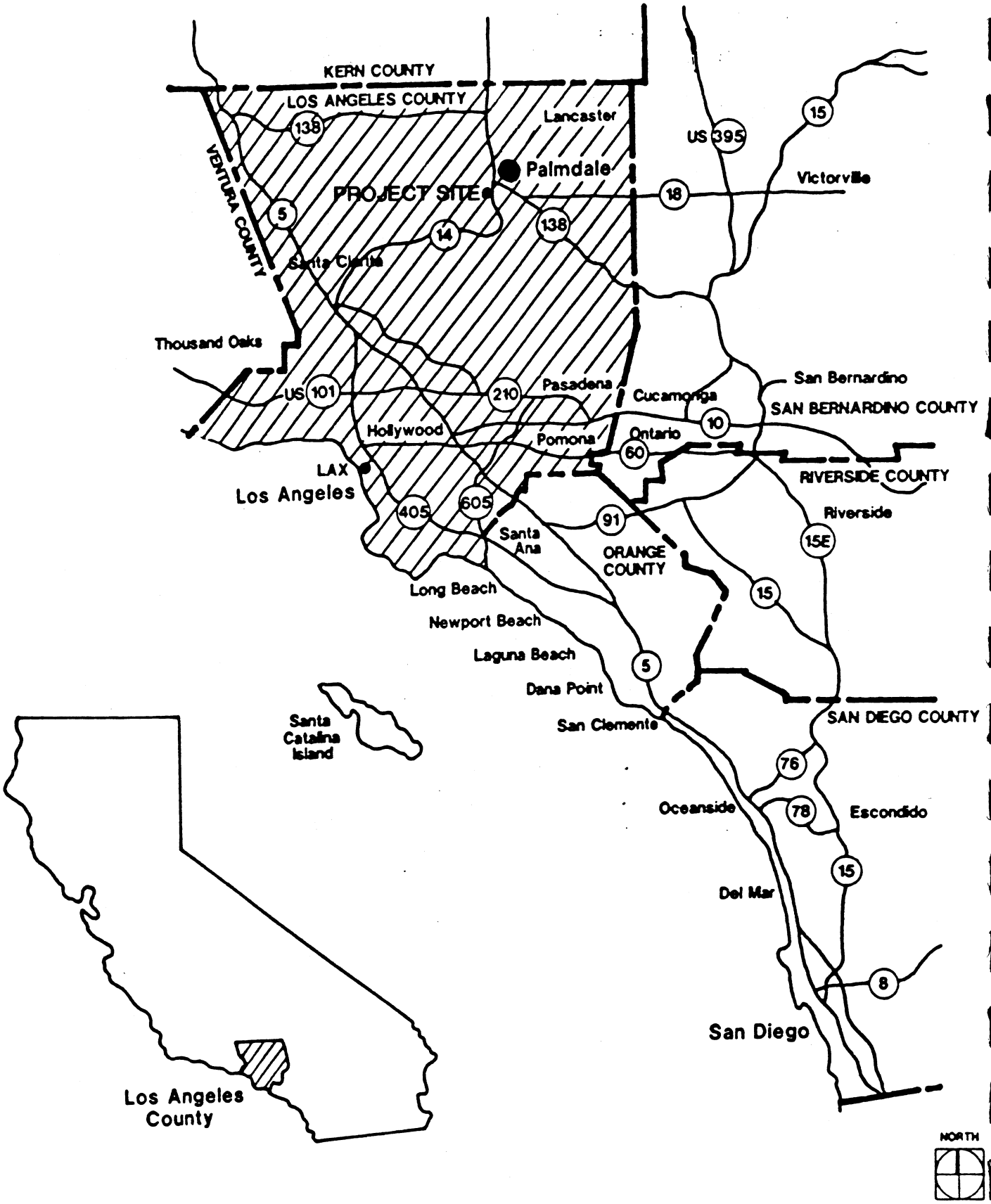
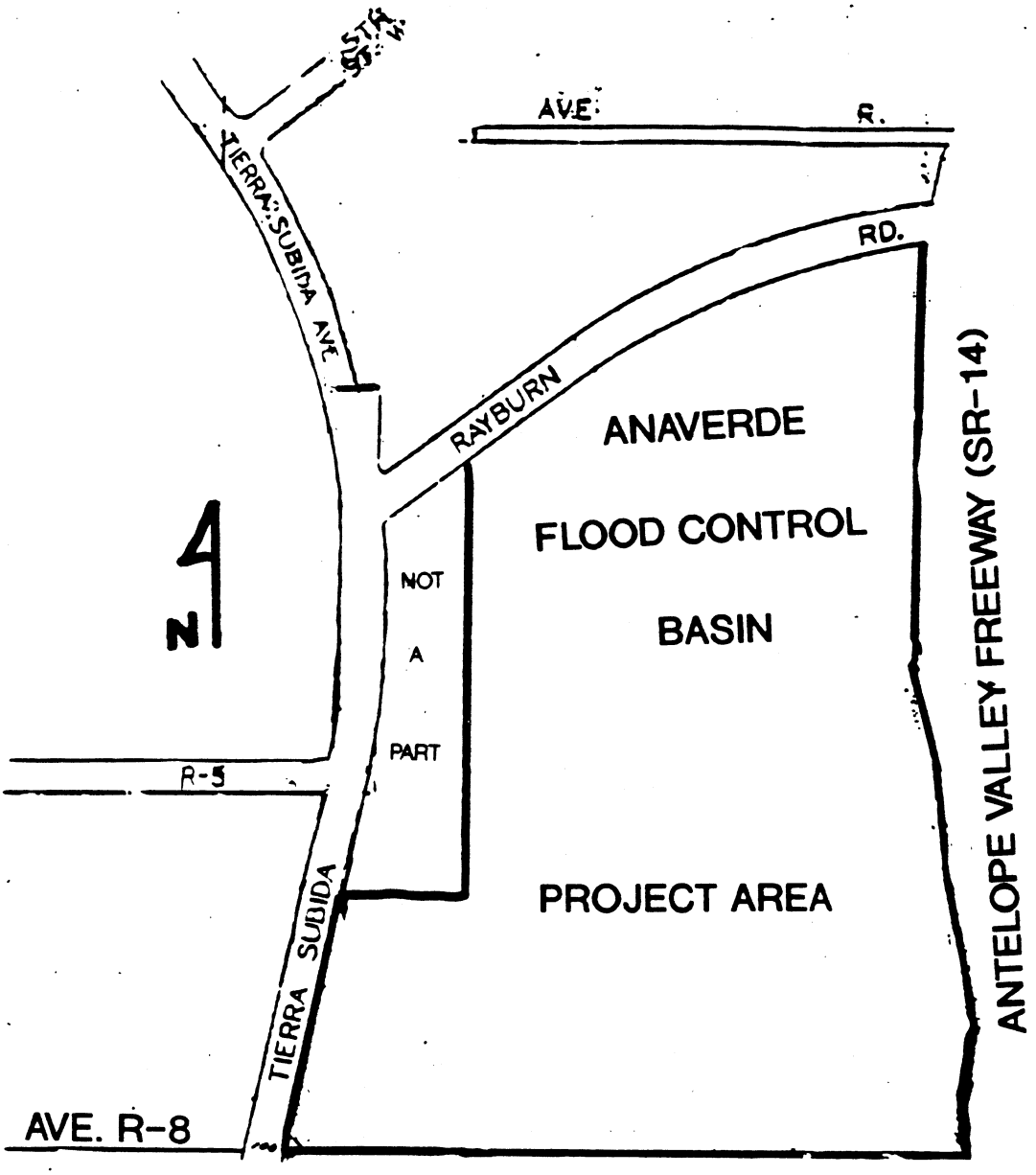


FIGURE 1
REGIONAL LOCATION MAP


AVE.
R.
RD.
TIERRA SUBIDA AVE.
RAYBURN
ANAVERDE
FLOOD CONTROL
BASIN
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PART
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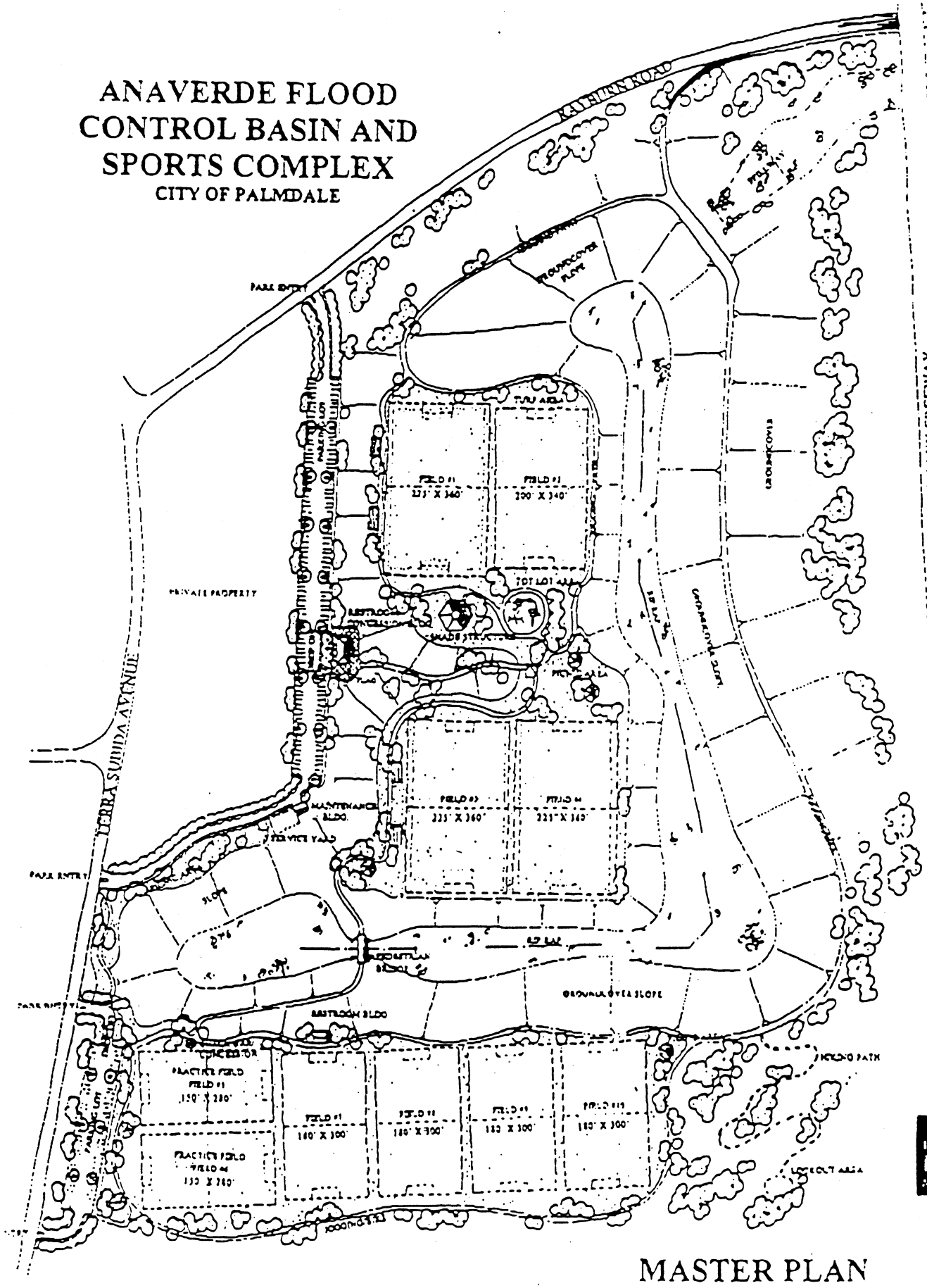
R-5
TIERRA SUBIDA
PROJECT AREA
ANTELOPE VALLEY FREEWAY (SR-14)
AVE. R-8

ANAVERDE FLOOD CONTROL BASIN AND SPORTS COMPLEX

CITY OF PALMDALE



MASTER PLAN

cubic yards of earth for the construction of a retention basin to a depth varying between 40 and 75 feet and associated flood channelization devices such as box culverts and an outlet drain. The first phase created a small basin with a capacity of 150 acre-feet and was completed in 1988. Also during Phase I, a perimeter fence was placed around the entire 73 acre site.

The EIR also considered and analyzed construction of an earthen dam as a project alternative. The earthen dam alternative was the alternative selected by the County in 1991 when excavation of the basin proved to be cost prohibitive. An Addendum to the 1986 EIR was prepared and adopted by the Los Angeles County Board of Supervisors on July 3, 1991. The EIR Addendum contained findings that the original 1986 EIR applied to the revised project, the Final EIR and the Addendum made the following conclusions with respect to significant environmental impacts resulting from the project and the revised project:

Topography

The proposed placement of excavated material at the project site would bring about minor topographic change. This change would not substantially change the topographic impact of the original project which was considered significant and not mitigable and for which a Statement of Overriding Considerations was adopted.

Seismicity

Because of its proximity to the San Andreas Fault, the proposed basin would be subject to severe ground shaking from earthquakes. The potential for ground rupture at the project site along Little Rock Fault, which extends across the approximate center of the site, is considered to be high. Worst case estimates for fault-related vertical displacement in the project area are on the order of 10 to 15 feet. Should the north side of the basin subside by this amount while filled with water, downstream flooding could result. While the potential for ground rupture is high, vertical displacements of this magnitude are considered unlikely.

(Studies may be reviewed by contacting the Case Planner at (805)267-5200.)

IV. DETERMINATION

On the basis of this initial evaluation:

I find that the proposed project MAY have a significant effect on the environment, and ENVIRONMENTAL IMPACT REPORT is required.

This initial study was prepared by:

Paul Scheibel, AICP, Associate Planner

Date

Laurie Lile
Principal Planner

4-25-96
Date

Molly Bogh, for
Director of Planning

V. EARLIER ANALYSIS

Anaverde Retention Basin Final Environmental Impact Report and Environmental Impact Statement

A. Earlier analyses used.

On October 23, 1986, the Los Angeles County Board of Supervisors certified the final Environmental Impact Report and Environmental Impact Statement for the Anaverde Retention Basin which was to be developed on the current project site. The Final EIR discussed the construction of a facility to control storm run-off from Anaverde Creek flowing uncontrolled from the southern portion of the Antelope Valley during rainstorms and into portions of the City of Palmdale and unincorporated territory in Los Angeles County. The project that was approved proposed the excavation of approximately 2.6 million

Biological Resources

Removal of vegetation prior to fill placement would require the removal of additional native plants and Joshua trees. The Joshua trees would be relocated on-site and slopes would be revegetated with native plants. Native vegetation would reestablish itself after fill placement. The biological impact would not be substantially changed and, after mitigation, would be reduced to an acceptable level.

Air Emmissions

Dust would be generated by construction equipment during fill placement activities. Dust reduction measures, such as frequent watering, would be employed during fill placement. After construction, dust from the fill would be mitigated by the revegetation measures.

Exhaust emissions would be produced by construction equipment during fill placement activities. Equipment would not be left idling and would be in proper tune. The air quality impact would not be substantially changed and, after mitigation, would be reduced to an acceptable level.

Visual Quality

The placement of excavated material would not substantially change the visual impact to the project. Revegetation of the fill would mitigate the visual impact. After mitigation, the impact to visual quality would be insignificant.

Paleontology

Excavation could destroy paleontological resources, although potential for encountering fossils is very low to moderate. A qualified vertebrate paleontologist would be retained prior to commencement of excavation operations. At the discretion of the paleontologist, the on-site excavations would be periodically monitored. Any and all fossils recovered as a result of implementing the mitigation program, along with all pertinent information, would be given to a recognized institution having a systematic or stratigraphic paleontological collection, at no cost to the institution. The impact to paleontology would thus be reduced to an acceptable level. The

placement of fill material at the project site would not change the impact to paleonotogical resources.

Cultural Resources

Excavation operations could destroy aboriginal sites, although the likelihood of such a discovery is minimal. An archaeologist would be retained to periodically monitor the excavation and grading operations for evidence of any buried cultural resource on the site. If buried remains are encountered, work would be halted and the Archaeological Survey at UCLA or some other public agency would be contacted so that appropriate action may be taken to stabilize or salvage the remains. The impact to cultural resources would thus be reduced to an acceptable level.

The placement of fill material at the project site would not change the impact to cultural resources.

Traffic and Circulation

Temporary increase in truck traffic would occur along Palmdale streets during excavation operations. Routes would be re-evaluated before each phase, with the City of Palmdale as a condition of their permit.

Truck traffic impacts are most noticeable at intersections and at entrances and exits to the excavation and disposal sites. Present conditions suggest the need for flag men or other traffic control measures.

The placement of fill material around some portions of the basin would reduce truck traffic to disposal sites, but would not substantially change the impact to traffic and circulation.

Air Quality

Dust would be generated by construction equipment during excavation, fill placement, and construction activities. Dust generated from the project could temporarily reduce visibility for vehicles traveling along Rayburn Road and Tierra Subida Avenue. Nearby residents with dust allergy problems could be affected. Dust reduction measures, such as frequent watering or load covers, would be employed during excavation, fill placement,

construction, and transport activities. In addition, revegetation on the fill slopes would mitigate dust generation from wind upon completion of construction.

The placement of fill material around some portions of the basin would reduce truck traffic to disposal sites, thus reducing exhaust emissions, but would not substantially change the adverse impact to air quality.

Noise

Noise would be generated by construction equipment during project activities. Truck hauling materials would produce a temporary increase in noise levels along haul routes. Calculations indicate that on-site and off-site noise levels could exceed standards for the designation of Noise Impact Management Areas. Noise levels would be evaluated as a condition of permit for each phase of this project. The Department would provide adequate data on ambient noise levels at the project site and along proposed haul routes and a quantitative assessment of noise level increases at these sites, as required by the City. Construction equipment and trucks would be adequately muffled. Noise barriers could be necessary to reduce noise levels. Truck speeds would be reduced to slowest speeds deemed safe for designated routes. Residential areas would be avoided, if possible. Consideration would be given to dividing truck traffic over multiple routes. Excavation and construction activities at the project site would be restricted to the hours between 7:00 a.m. to 8:00 p.m. on weekdays and 10:00 a.m. to 5:00 p.m. on weekends. Signs would be posted at key locations along roads passing through the area notifying motorists and other users of the potential for noise and vibration from blasting. Thus, the impacts to noise would be reduced to an acceptable level.

The placement of fill material around some portions of the basin would reduce truck traffic to disposal sites, thus reducing off-site noise, but would not substantially change the impact to noise.

Visual Quality

The basin would create a substantial visual change which cannot be mitigated. Short-term and periodic visual impacts would result from

construction activity associated with the initial excavation of the interim basin and its progressive enlargement to ultimate capacity. Native shrubs and California juniper would be planted along the north and west project site boundaries to partially screen the basin from the view of motorists traveling along Rayburn Road and Tierra Subida Avenue. These plants would be installed in areas disturbed during construction and along the chain link fence.

Hydrology and Water Quality

The potential impacts of the project would include: 1) alteration of on-site and downstream drainage patterns; 2) reduction of the frequency and extent of downstream flooding; 3) reduction in downstream sediment transport and deposition; and 4) increased on-site percolation and groundwater recharge. These impacts do not need mitigation as they would be either beneficial or, if adverse, would be minor and insignificant. The placement of excavated material around some portions of the basin would not substantially change any of these impacts.

The placement of excavated material around some portions of the basin would cause a temporary visual change. The fill slopes would be revegetated with native plants to mitigate the visual impact. The placement of excavated material would not substantially change the impact to visual quality.

Land Use

The northern portion of the project site lies within the City of Palmdale. The project would not be consistent with the residential land use desingation or the "light agriculture" zoning classification. The project would require the review and approval of the Palmdale Director of Development Services. The City of Palmdale has indicated support for the project.

The southern portion of the project site is in unincorporated Los Angeles County. The project would not be consistent with Los Angeles County's assigned residential land use designation, but would be consistent with County policies and objectives for flood control. The proposed project would be considered consistent with the assigned residential land use designation, if provisions relating to nonresidential users in non-urban areas (as described in the Antelope Valley Areawide General Plan) are met. The impact to land use would thus be reduced to an acceptable level.

The placement of fill material around some portions of the basin would not change the impact to land use.

Statement of Overriding Considerations

Section 15093 of the State CEQA Guidelines provides that, where the County's approval of the project allows the occurrence of significant effects which are identified in the Final EIR but which are not at least substantially mitigated, the County must provide a Statement of Overriding Considerations to support its action based upon the Final EIR or other information in the record. The County is required in the Statement of Overriding Considerations to balance the benefits of a proposed project against its unavoidable environmental risks in determining whether to approve the project. If the benefits of the proposed project outweigh the unavoidable adverse environmental effects, the adverse environmental effects may be considered acceptable.

The changes and additional information discussed in the Addendum to the Final EIR will not substantially impact the significant impacts previously identified in the Final EIR. All significant potential adverse impacts associated with the project continue to be mitigated to levels of insignificance

with the exception of three impacts. The following three impacts have been identified as significant and not capable of mitigation:

1. Topographic change by the construction of a retention basin with the following approximate dimensions: 45-acre, 40- to 75-foot deep basin.

2. Loss of vegetation and wildlife habitat from the excavated basin area.

3. Visual change by the removal of vegetation and excavation for the basin.

The benefits of the proposed project, when balanced against all adverse effects, cause the effects remaining after mitigation to be acceptable for the following reasons:

4. The proposed project meets the immediate and long-term flood control needs in the project area.

5. The proposed project provides an opportunity for substantial savings in construction cost to the people of the County of Los Angeles.

As previously noted, the Los Angeles County Board of Supervisors certified the Addendum to the 1986 EIR and approved the earthen dam alternative to the project. However, construction of the earthen dam alternative did not commence and the property was annexed to the City of Palmdale.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

I. EVALUATION OF ENVIRONMENTAL IMPACTS

A. Earth:

Based on the geotechnical or soils study for the project, review by the City's Engineering Department, and/or the 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 ___ ___ ___

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

Substantiation for responses to A.1.a-e: Based on a geotechnical report prepared by the Los Angeles County Department of Public Works on February 21, 1986, the soils in the project area are primarily silty clays and silty sands with no groundwater and with bedrock encountered between 28 feet and 52 feet below existing ground surface. Some surface soils have a high moisture content. The project could result in significant wind erosion of soils due to the proposed piling of excavated material but would be mitigated to an extent by revegetation of the slopes and/or other mitigation measures addressed in the EIR.

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		

b. Is the site in a zone subject to seismic ground shaking, ground failure, or liquefaction?

X			

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

Substantiation for responses to A.2.a.-b.: The proposed project borders the San Andreas Fault Zone and is contained in the San Andreas Rift Zone. The effect of an earthquake was analyzed in the previous EIR Addendum dated July 16, 1991. The earthen dam could rupture by a significant seismic event, thus releasing any stored runoff water. The EIR Addendum did not propose mitigation measures to reduce the risk to acceptable levels. The EIR should investigate potential measures to reduce the risk of downstream flooding due to dam rupture.

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	___

d. Will project grading create slopes, on- or off-site, that could be subject to landslides, mud slides, or erosion?

X	___	___	___

Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

Substantiation for responses to A.3.a.-d.: Construction of the earthen dam would create slopes greater than 10% in the project area. This would significantly alter the natural land form of the project site. The EIR should address the aesthetics and safety impacts of the project due to the creation of the earthen dam. Grading for the sports complex would be less significant in comparison to construction of the earthen dam.

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

Substantiation for responses to A.4.a.: The project site is not located in a state designated Mineral Resource Extraction Zone. There is no evidence that the project could adversely impact mining quarry operations in the area. Therefore, the EIR will not be addressing this issue.

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:

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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		

Substantiation for responses to B.1.a.-d.: Project construction could generate dust as a result of grading, excavation, material handling, and possible stockpiling. The impacts of this dust will be highly localized and short-lived during construction.

Air impacts resulting from sports complex related activities are unknown and should be addressed in the EIR.

C. Water:

1. Natural Streams, Springs, and Wetlands

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

Based on the type of project, the U.S.G.S. Topographics 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	___	___	___

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	___	___	___

1. 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 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

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
b. Will the project be significantly affected by storm or nuisance water runoff flowing through aqueduct culverts or pools?	___	___	X	___

Based on a review of the 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

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 affect the implementation of the City's Master Plan of Drainage or Drainage Management Plan?	X	___	___	___

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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	___	___
i. Will the project result in the significant alteration of the direction or rate of flow of groundwater?	X	___	___	___

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 or quality of groundwater, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?	___	___	X	___
k. Could the project result in a substantial reduction in the amount of water otherwise available for public water supplies?	___	X	___	___

Substantiation for responses to C.1.-C.2.: The Anaverde Creek enters the project site from the west through a culvert beneath Tierra Subida Avenue. The creek changes from a defined natural channel at Tierra Subida Avenue to an unpredictable, undefined watercourse that fans out across the valley floor at Rayburn Road. The site also serves as a natural retention or depression for Anaverde Creek as it traverses the site.

The watercourse on the project site was previously graded for more definition. Upon project completion, the natural retention capacity of the site

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

will be expanded and the purpose of the graded watercourse will be superseded by the basin. This will result in changes to absorption rates, drainage patterns, and the rate and amount of surface water runoff at the site and downstream of the site. The effect is probably not significant because the project will eliminate the threat of flooding in an existing urbanized area. Currently, storm runoff that reaches the downstream area is wasted to evaporation. The site will detain runoff after a major storm until it either percolates, evaporates, or flows through the metered outlet of the dam. Storm runoff exceeding the capacity of the basin will flow over the spillway in a manner similar to existing conditions. The EIR will address the overall effect of the proposed project on water resources. This overall effect is most likely beneficial.

However, permits for the alteration of streambeds will be a required element of implementation of the project.

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	___	___	___

2. Will the project result in a reduction of the numbers of any unique, rare, or endangered species of plants?

___	X	___	___

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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		

Substantiation for responses to D.1.-4.: A rare plant survey was prepared for the original project by Karlin G. Marsh on April 18, 1988. No endangered species were found on the site. However, a physical site inspection was conducted by City of Palmdale Planning Department staff on April 9, 1996. Sparsely distributed Joshua tree specimens were identified throughout the site, along with significant stands of Juniper bushes. The EIR should address methods to comply with City of Palmdale Native Desert Species Preservation Ordinance.

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			

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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			
4. Will the project cause significant deterioration of, or loss of, existing fish or wildlife habitat?	X			

Substantiation for responses to E.1.-4.: The 1986 EIR did not confirm the presence of endangered species on the site. A six foot high chain link perimeter fence was installed in 1988 which would tend to further reduce the likelihood for the presence of endangered species. However, the EIR should further investigate this environmental category.

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			

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
1. Is the proposed project within the Plant 42 over-flight area, or the 65 CNEL boundary?	___	___	___	X
2. 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	___

Substantiation for responses to F.1.-3.: The 1986 EIR addressed the potential for increases in existing noise and vibration in the project area during construction activities. However, no analysis of the potential for noise impacts as a result of ongoing sports complex operation has been conducted. The EIR should investigate and address this issue.

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	___	___	___

Substantiation for responses to G.1.: The sports complex is proposed to be lighted. This would potentially have a significant effect on surrounding properties and roadways and should be addressed in the EIR.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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 AICUZ zone, does it conflict with the joint land use policies established for those zones?				X

Substantiation for responses to H.1.-3.: The project site is presently vacant and does not conflict with the planned uses of the site. As discussed in Compatibility with General Plans, the proposed project addresses the flood hazard at the site and maintains the site for non-urban open-space uses as designated by the General Plans. The effect on land use is not significant. The proposed sports complex would be a significant alteration of the existing and proposed expansion of the flood control uses of the site and should be addressed in the EIR.

I. Natural Resources:				
1. Will the project result in a significant increase in the rate of use of any natural resources?			X	

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
2. Will the project result in the substantial depletion of any non-renewable natural resources?	___	___	X	___

Substantiation for responses to I.1.-2.: The project is not expected to result in a significant increase in the rate of use or the depletion of any non-renewable natural resource. Thereforee, the EIR will not address this issue.

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	___	___	___
2. Will the project result in possible interference with any emergency response plan or emergency evacuation plan?	___	___	X	___
3. Is the site included on any known State Hazardous Waste Site list?	___	___	___	X
4. Is the project within or adjacent to a high fire hazard area as shown in the General Plan, identified by the Los Angeles County Fire Department or based on a site inspection?	___	___	X	___

Substantiation for responses to J.1.-4.: See discussion on Earthquake, VI.A.2. Otherwise, the project is not expected to significantly affect the City's emergency response plan, is not a listed or known Hazardous Waste site,

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

and is not located in a high fire hazard area, as shown on the City's General Plan Safety Element Fire Hazard Map. Except for the earthquake risk, the EIR will not address other risks of upsets.

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	___

Substantiation for responses to K.1.: The project will not alter population characteristics because it will not affect residential land uses or increase residential development. Therefore, the EIR will not address this issue.

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

Substantiation for responses to L.1.-2.: See discussion of Population, Section K.

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

M. Transportation/Circulation:

Based on review of the type of project, project exhibits, a site inspection, and/or review of the Institute of Transportation Engineers, Trip Generation or the applicant's traffic study:

1. What is the estimated number of average daily vehicle trips, and a.m. and p.m. peak hour trips, generated by the proposed project?

   Unk ADT: Unk a.m. peak, Unk p.m. peak

2. Will the traffic generated by this project cause a reduction of Level of Service at an intersection or on a street segment?

   X ___ ___ ___

3. Does circulation within the project prevent the safe and orderly flow of people and vehicles, including emergency vehicles?

   X ___ ___ ___

4. Will the project create or experience access problems as designed, or create any obstruction to the safe flow of traffic?

   X ___ ___ ___

5. Could the project result in a significant alteration to rail or air traffic?

   ___ ___ ___ X

6. Will the project create a significant shortage of parking?

   ___ ___ X ___

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

Substantiation for responses to M.1.-6.: Traffic impacts due to the sports complex portion of the project are unknown at this time. The EIR should include a traffic analysis and evaluation of the effect of project generated traffic on the City's circulation network.

N. Public Services:

1. Fire Protection

What is the roadway distance and location of the nearest fire station: West Avenue P (2.0 miles)

a. Will the project result in a need for significant additional fire protection services?

___	___	X	___

1. Police Protection

Are there any aspects of the project that would create a significant impact to police protection?

___	___	X	___

2. Schools

a. In what elementary and high school attendance area is the project? Antelope Valley Unified High School District/Palmdale School District

b. Approximately how many students will the project generate? 0

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
c. Would the students generated by the project significantly contribute to the affected schools exceeding their designed capacity?	___	___	___	X
1. 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	___	___	___
2. 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	___	___	___
3. Library Services Will the project result in a significant impact to library services due to increased population?	___	___	___	X
4. Other Governmental Services Will the project have a significant impact on a government service or agency not listed above?	___	___	X	___

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact

Substantiation for responses to N.1.-7.: The project as proposed, including the proposed sports complex, is not beyond the capability of current police or fire protection. The sports complex will be patrolled on a routine basis by the Palmdale Recreation and Parks Department Rangers. Therefore, this issue will not be addressed in the EIR.

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	___

Substantiation for responses to O.1.-2.: There is no apparent substantial fuel or energy requirement for the project. However, the ability of utility companies to service the project site will be verified by the EIR circulation process.

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	___

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
2. Communications systems?	___	___	X	___
3. Water?	X	___	___	___
4. Sanitary sewer?	___	___	X	___
5. Solid waste disposal?	___	___	___	___

Substantiation for responses to P.1.-5.: See discussion for O. (Energy) above. In addition, water usage for sports fields could be considered significant, depending on the type and quantity of turf and landscaping proposed, and the proposed method of irrigating turf and plant stocks. Therefore, this could be a significant impact of the project, and will be analyzed in the 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	___

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
2. Will the project result in the exposure of people to potential health hazards?	___	___	X	___

Substantiation for responses to Q.1.-2.: The proposed project is not anticipated to adversely affect human health to a degree that would be considered significant, and will not be analyzed in the EIR.

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	___	___	___

Substantiation for responses to R.1.: The project would involve the creation of significant new structural features in the area. Specifically, the proposed earthen dam and the lighted sports fields may significantly alter the views of nearby residents and travelers on SR-14. Therefore, the EIR should investigate this environmental aspect in detail, including the identification of alternatives to 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: Paul Scheibel

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
2. Will the proposal result in potential adverse impacts on paleontological resources?	___	X	___	___

Substantiation for responses to S.1.-2.: The 1986 EIR for the original project did not indicate the existence of any archaeological or paleontological resources at or near the proposed site; therefore, no significant effect is expected, but the EIR should confirm this issue.

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	___	___	___

Substantiation for responses to T.: Certain aspects of the project have the potential to create significant public controversy. These aspects include, but may not be limited to the desirability of the proposed earthen dam, lighted sports complex, use of drainage assessment fees for a large scale project, traffic impacts on Tierra Subida Road and Rayburn Road, and loss of open space. It is anticipated that circulation of the Draft EIR will generate public input which will help clarify these issues or to identify other issues relative to the project's environmental impacts.

VII. 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

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
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		

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
300 NORTH LOS ANGELES STREET
LOS ANGELES, CALIFORNIA 90012

April 30, 1996

REPLY TO
ATTENTION OF:

Office of the Chief
Regulatory Branch

RECEIVED
MAY 1 3 1996
ROBERT [illegible], WM PROST

City of Palmdale
Planning Department
Attn: P. Scheibel
38306 9th Street East
Palmdale, California 93550

Dear Mr. Scheibel:

It has come to our attention that you plan to construct an earthen dam for flood control purposes in Anaverde Creek in the City of Palmdale, Los Angeles County, California. This activity may require a U.S. Army Corps of Engineers permit.

A Corps of Engineers permit is required for the discharge of dredged or fill material into, including any redeposit of dredged material within, "waters of the United States" and adjacent wetlands pursuant to Section 404 of the Clean Water Act of 1972. Examples include, but are not limited to,

1. creating fills for residential or commercial development, placing bank protection, temporary or permanent stockpiling of excavated material, building road crossings, backfilling for utility line crossings and constructing outfall structures, dams, levees, groins, weirs, or other structures;

2. mechanized landclearing, grading which involves filling low areas or land leveling, ditching, channelizing and other excavation activities that would have the effect of destroying or degrading waters of the United States;

3. allowing runoff or overflow from a contained land or water disposal area to re-enter a water of the United States;

4. placing pilings when such placement has or would have the effect of a discharge of fill material;

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MAY - 6 1996

Enclosed you will find a permit application form and a pamphlet that describes our regulatory program. If you have any questions, please contact Aaron Allen at (213) 894-0349.

Sincerely,

Aaron Allen
Project Manager
Regulatory Branch

STATE OF CALIFORNIA—THE RESOURCES AGENCY

PETE WILSON, Governor

DEPARTMENT OF FISH AND GAME
330 Golden Shore, Suite 50
Long Beach, California 90802
(310) 590-5113

RECEIVED
JUN 24 1996
ROBERT BEIN, WM FROST

RECEIVED
JUN 14 1996

June 10, 1996

Mr. Paul Scheibel
City of Palmdale
38306 9th Street East
Palmdale, California 93550

Dear Mr. Scheibel:

Notice of Preparation for Draft Environmental Impact Report
Palmdale Sports Complex
SCH # 96041093, Los Angeles County

The Department of Fish and Game (Department) appreciates this opportunity to comment on the above-referenced project, relative to impacts to biological resources. To enable Department staff to adequately review and comment on the proposed project, we recommend the following information be included in the Draft Environmental Impact Report:

1. A complete assessment of flora and fauna within and adjacent to the project area, with particular emphasis upon identifying endangered, threatened, and locally unique species and sensitive habitats.

   a. A thorough assessment of rare plants and rare natural communities, following the Department's May 1984 Guidelines for Assessing Impacts to Rare Plants and Rare Natural Communities (Attachment 1).

   b. A complete assessment of sensitive fish, wildlife, reptile, and amphibian species. Seasonal variations in use of the project area should also be addressed. Focused species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with the Department and U.S. Fish and Wildlife Service.

   c. Rare, threatened, and endangered species to be addressed should include all those which meet the California Environmental Quality Act (CEQA) definition (see CEQA Guidelines, § 15380).

d. The Department's California Natural Diversity Data Base in Sacramento should be contacted at (916) 327-5960 to obtain current information on any previously reported sensitive species and habitats, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code. Also, any Significant Ecological Areas (SEAs) or Environmentally Sensitive Habitat Areas (ESHAs) that have been identified by the County of Los Angeles or any areas that are considered sensitive by the local jurisdiction that are located in or adjacent to the project area must be addressed.

2. A thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources, with specific measures to offset such impacts.

   a. CEQA Guidelines, § 15125(a), direct that knowledge of the regional setting is critical to an assessment of environmental impacts and that special emphasis should be placed on resources that are rare or unique to the region.

   b. Project impacts should also be analyzed relative to their effects on off-site habitats and populations. Specifically, this should include nearby public lands, open space, adjacent natural habitats, and riparian ecosystems. Impacts to and maintenance of wildlife corridor/movement areas, including access to undisturbed habitat in adjacent areas, should be fully evaluated and provided.

   c. A cumulative effects analysis should be developed as described CEQA Guidelines, § 15130. General and specific plans, as well as past, present, and anticipated future projects, should be analyzed relative to their impacts on similar plant communities and wildlife habitats.

3. A range of alternatives should be analyzed to ensure that alternatives to the proposed project are fully considered and evaluated. A range of alternatives which avoid or otherwise minimize impacts to sensitive biological resources should be included. Specific alternative locations should also be evaluated in areas with lower resource sensitivity where appropriate.

   a. Mitigation measures for project impacts to sensitive plants, animals, and habitats should emphasize evaluation and selection of alternatives which avoid or otherwise minimize project impacts. Off-site

compensation for unavoidable impacts through acquisition and protection of high quality habitat elsewhere should be addressed.

b. The Department considers Rare Natural Communities as threatened habitats having both regional and local significance. Thus, these communities should be fully avoided and otherwise protected from project-related impacts (Attachment 2).

c. The Department generally does not support the use of relocation, salvage, and/or transplantation as mitigation for impacts to rare, threatened, or endangered species. Department studies have shown that these efforts are experimental in nature and largely unsuccessful.

4. If the project has the potential to adversely affect species of plants or animals listed under the California Endangered Species Act (CESA), either during construction or over the life of the project, a CESA-Memorandum of Understanding (CESA-MOU) must be obtained under § 2081 of the Fish and Game Code. CESA-MOU's are issued to conserve, protect, enhance, and restore State-listed threatened or endangered species and their habitats. Early consultation is encouraged, as significant modifications to a project and mitigation measures may be required in order to obtain a CESA-MOU.

a. Biological mitigation proposals should be of sufficient detail and resolution to satisfy the requirements for a CESA-MOU.

b. A Department-approved Mitigation Agreement and Mitigation Plan are required for plants listed as rare under the Native Plant Protection Act.

5. The Department opposes the elimination of watercourses and/or their channelization or conversion to subsurface drains. All wetlands and watercourses, whether intermittent or perennial, must be retained and provided with substantial setbacks which preserve the riparian and aquatic habitat values and maintain their value to on-site and off-site wildlife populations.

a. The Department has direct authority under Fish and Game Code § 1600 et seq. in regard to any proposed activity which would divert, obstruct, or affect the natural flow or change the bed, channel, or bank of any river,

stream, or lake. Early consultation is recommended, since modification of the proposed project may be required to avoid or reduce impacts to fish and wildlife resources.

b. A discussion of potential adverse impacts from any increased runoff, sedimentation, soil erosion, and/or urban pollutants on streams and watercourses on or near the project site, with mitigation measures proposed to alleviate such impacts, must be included.

Thank you for this opportunity to provide comment. Questions regarding this letter and further coordination on these issues should be directed to Ms. Chanelle Davis, Wildlife Biologist, at (909) 627-1613.

Sincerely,

for Patricia Wolf
Acting Regional Manager
Region 5

Attachments

cc: Ms. Chanelle Davis
Department of Fish and Game
Chino Hills, California

Ms. Mary Meyer
Department of Fish and Game
Ojai, California

U.S. Fish and Wildlife Service
Carlsbad, California

U.S. Army Corps of Engineers
Los Angeles, California

U.S. Environmental Protection Agency
San Francisco, California

State Clearinghouse
Sacramento, California

WASTEWATER RECLAMATION
SOLID WASTE MANAGEMENT

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (310) 699-7411, FAX: (310) 695-6139

CHARLES W. CARRY
Chief Engineer and General Manager

May 16, 1996

File No: 20-00.04-00

RECEIVED
MAY 20 1996

Mr. Paul Scheibel, AICP
City of Palmdale
Planning Department
38306 9th Street East
Palmdale, CA 93550

Dear Mr. Scheibel:

Palmdale Sports Complex Project

The County Sanitation Districts of the Los Angeles County (Districts) received a Notice of Preparation of a Draft Environmental Impact Report for the subject project on April 29, 1996. We offer the following comments regarding sewerage service:

1. A portion of the area in question is outside the jurisdictional boundaries of the 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. Margarita Cabrera, extension 2708.

2. The wastewater flow originating from the proposed project will discharge to a local sewer line, which is not maintained by the Districts, for conveyance to the Districts' 5th Street West Trunk Sewer, located in 5th Street West between Avenue Q-8 and Palmdale Boulevard. This 10-inch diameter trunk sewer has a peak capacity of 2.4 million gallons per day (mgd) and conveyed a peak flow of 0.2 mgd when last measured in 1994.

3. The wastewater generated by the proposed project will be treated at the Palmdale Water Reclamation Plant (WRP). The Palmdale WRP has a design capacity of 8.0 mgd and currently treats 7.7 mgd. In order to meet the projected service demand, the 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 1996.

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 Districts are empowered by the California Health and Safety Code to charge a fee for the privilege of connecting (directly or indirectly) to the Districts' Sewerage System or **increasing the existing strength and/or quantity of wastewater attributable to a particular parcel or operation already connected.** This connection fee is required to construct an incremental expansion of the Sewerage System to accommodate the proposed project which will mitigate the impact of this project on the present Sewerage System. Payment of a connection fee will be required before a permit to connect to the sewer is issued.

6. The design capacities of the Districts' wastewater treatment facilities are based on population forecasts adopted in the Southern California Association of Governments' (SCAG) 1994 Regional Comprehensive Plan and Guide (RCPG). The RCPG is part of the 1994 South Coast Air Quality Management Plan (AQMP). The AQMP and RCPG are jointly prepared by the South Coast Air Quality Management District (SCAQMD) and 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 will be consistent with the Growth Management Element of the RCPG. The Growth Management Element contains 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 RCPG which deal with the management of growth will be incorporated into the AQMP strategies to improve air quality in the South Coast Air Basin. The available capacity of the Districts' treatment facilities will, therefore, be limited to levels associated with approved growth identified in the RCPG. As such, this letter does not constitute a guarantee of wastewater service, but is to advise you that the Districts intend 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 the 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
Planning & Property Management Section

MLP:bes

Enclosure

TABLE1
LOADINGS FOR EACH CLASS OF LAND USE

DESCRIPTION	UNIT OF MEASURE	FLOW (Gallons per Day)	COD (Pounds per Day)	SUSPENDED SOLIDS (Pounds per Day)
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
Condominiums	Parcel	182	0.85	0.41
Single Family Home (reduced rate)	Parcel	156	0.73	0.35
Five Units or More	No. of Dwlg. Units	156	0.73	0.35
Mobile Home Parks	No. of Spaces	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
Indoor Theatre	1000 ft^2	125	0.54	0.28
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
Financial Institution	1000 ft^2	100	0.43	0.23
Service Shop	1000 ft^2	100	0.43	0.23
Animal Kennels	1000 ft^2	100	0.43	0.23
Service Station	1000 ft^2	100	0.43	0.23
Auto Sales/Repair	1000 ft^2	100	0.43	0.23
Wholesale Outlet	1000 ft^2	100	0.43	0.23
Nursery/Greenhouse	1000 ft^2	25	0.11	0.06
Manufacturing	1000 ft^2	200	1.86	0.70
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
Drive-in Theatre	1000 ft^2	20	0.09	0.05
Night Club	1000 ft^2	350	1.50	0.79
Bowling/Skating	1000 ft^2	150	1.76	0.55

STATE OF CALIFORNIA—BUSINESS AND TRANSPORTATION AGENCY

PETE WILSON, *Governor*

DEPARTMENT OF TRANSPORTATION
DISTRICT 7, 120 SO. SPRING ST.
LOS ANGELES, CA 90012-3606
TDD (213) 897-6610

May 21, 1996

IGR/CEQA 5025
NOP
Palmdale Sports
Complex
Vic: LA-14-59.80

Paul Scheibel, AICP
City of Palmdale
38306 9th Street East
Palmdale, California 93550

Dear Mr. Scheibel:

We have reviewed the above document. To assist us in our efforts to completely analyze and to assess the traffic impact on SR-14, traffic information should be submitted to this office.

The study/report should address the following issues:

a) Level of service before and after development.
b) Traffic impacts on freeways/highways and all significantly affected streets, crossroads and controlling intersections, as well as an analysis of existing and future conditions on mainline freeways/highways.
c) Traffic generation (AM and PM peak hours); distribution and assignment.
d) Future conditions which includes both project and project+ cumulative traffic generated up to year 2010.
e) Traffic mitigation, if any to be proposed.

If you have questions regarding this letter, please call me at (213) 897-4429.

Sincerely

Steve Buswell
IGR/CEQA Coordinator
Transportation Planning Office

RECEIVED
MAY 30 1996

TRAFFIC/ACCESS GUIDELINES

Generally, the Department staff is concerned with adverse impacts on traffic when: (1) traffic generated by a project considered alone or cumulatively with other projects, if added to existing traffic volumes, exceeds the design capacity of an intersection or roadway, contributes to an unacceptable Level of Service (LOS), or exacerbates an existing congested condition; and/or (2) project generated traffic interferes with the existing traffic flow (e.g., due to the location of access roads, driveways, parking facilities); and/or (3) proposed access locations do not provide for adequate safety (e.g., due to limited visibility on curving roadways); and/or (4) nonresidential uses generate commuter or truck traffic through a residential area; and/or (5) project generated traffic significantly increases on a residential street and alters its residential character.

(Note: Access as associated with the use of emergency vehicles is discussed under "Fire Hazard".)

These guidelines provide an outline of the information generally to be included in the Environmental Impact Report (EIR) you prepare or have prepared. Depending upon the specific concern(s) of the Department staff, all of the material listed may not be required. A traffic report should be prepared by a registered civil or traffic engineer. A traffic report is generally needed if a project generates over 500 trips per day unless other possible adverse impacts (see page 3) are identified.

Project Description

Note: This information may be included in another section of the EIR (e.g., Section I - Project Description).

1. A description of the project, including those factors which quantify traffic generators, e.g., dwelling units, square feet of office space, persons to be employed, restaurant seats, acres of raw land, etc. For residential developments, the description should indicate the type of residence, e.g., one level or townhouse condominiums, and if its use is for families, adults, or retirees.

2. A plot plan showing proposed driveways, streets, internal circulation, and any parking facilities on the project site.

Setting

1. A description of existing streets and roadways, both within the project site (if any) and in the surrounding area. Include information on the roadways' classifications, the number of lanes and roadway widths, signalized intersections, separate turn lanes, and the signal phases for turning movements.

2. Existing daily directional and peak-hour through and turning traffic volumes on the roadways surrounding and/or logically associated with the project site, including Secondary and Major highways and freeways. Local streets affected by the project should also be shown. If the proposed project is to be completed in several years, existing traffic volumes should be projected to that future date. Each report shall include appendices providing count data used in the preparation of the report. The source and date of the traffic volume information shall be indicated. Count data should not be over one and a half years old. Since peak volumes vary considerably, a ten percent daily variation is not uncommon, especially on recreational routes or roadways near shopping centers; therefore, representative peak-hour volumes are to be chosen carefully.

Analysis and Impact

1. Tabulate the estimated number of daily trips and peak-hour trips (a.m. and p.m.) generated by the proposed project entering and exiting the site. Trip generation factors and source are to be included. Institute of Transportation Engineers rates should generally be used, except in the case of condominiums/townhomes when the following rates should be used per unit: eight trips/day; 0.54 trips/a.m. peak, 0.48 outgoing, 0.06 incoming; 0.73 trips/p.m. peak, 0.26 outgoing, 0.47 incoming. Also, show a similar trip generation tabulation and a map of other nearby projects which would add traffic to the locations under study.

2. Diagrams should be provided showing the project and nearby project's peak-hour trips logically distributed on the roadway system, superimposed with current or projected peak-hour volumes. The study area should include arterial highways, freeways, and intersections generally within a one mile radius of the project site. (Note: This distance may be greater than one mile for rural areas depending on the proximity to nearby signalized intersections and the availability of master plan access routes).

3. If it appears that the project's generated traffic alone or together with other projects in the area, could worsen the LOS of an intersection or roadway a "before" and "after" LOS analysis is necessary. The Intersection Capacity Utilization (ICU) or Critical Movement Analysis are two methods often used to access existing and future LOS at intersections.

   If using the ICU method, a maximum of 1,600 vehicles per hour per lane should be used (dual left-turn lanes have a capacity of 2,880 vehicles per hour) and a ten percent yellow clearance cycle should be included. Intersection LOS analysis and calculation work sheets shall be included in the report for the following conditions: (a) existing traffic; (b) existing plus ambient growth to the year the project will be completed; (c) traffic in (b) plus project traffic; and (d) traffic in (c) plus the cumulative traffic other known developments. The project's impact on two-lane roadways should also be analyzed if those two-lane roadways are the principal or only access to more fully developed Master Plan Highways.

   LOS C (Volume to Capacity (V/C) ratio of 0.8) is considered acceptable. For most areas of the County, mid-range LOS D or V/C ratio of 0.85 is the point beyond which mitigation measures are required. For roadways in a highly urbanized area, such as East Los Angeles, LOS D (V/C ratio of 0.9) is the point beyond which mitigation measures are required.

   If it is assumed that new routes will alter traffic patterns, adequate backup including traffic distribution maps should be provided showing how and why these new routes will alter traffic patterns.

   Also, if it appears that the project's generated traffic, alone or with other projects in the area, could warrant traffic signals, signal warrant data should be provided.

4. Discuss other possible adverse impacts on traffic. Examples of these are: (1) the limited visibility of access points on curved roadways; (2) the need for pavement widening and left-turn lanes at access streets and driveways; and (3) the impact of increased traffic volumes on local residential streets.

5. Discuss conclusions regarding the adverse impacts caused by the proposed project on the roadway system. If the cumulative of this and other projects require mitigation measures, such as a traffic signal, estimate the percent share. When the proposed project and other nearby developments are expected to significantly impact adjacent roadways, the developer may be required to enter into a secured agreement to contribute to a benefit district to fund major roadway and bridge improvements in the region.

Mitigation Measures

Note: Identify mitigation measures which are to be incorporated into the project and those which will be implemented by others.

1. Locate access points to optimize visibility and reduce potential conflict.

2. Design parking facilities to avoid queuing into public streets during peak arrival periods.

3. Provide additional off street parking.

4. Dedicate visibility easements to assure adequate sight distance at intersections and driveways.

5. Signalize or modify traffic signals at an intersection.

6. Install left-turn phasing and/or multiple turning lanes to accommodate particularly heavy turning movements.

7. Widen the pavement to provide left or right turnout lanes to lessen the interference with the traffic flow.

8. Prohibit left turns to and from the proposed development.

9. Restrict on-street parking during peak hours to increase street capacity.

10. Widen intersection approaches to provide additional capacity.

11. Construct a grade separation.

12. Complete an alley to provide an alternate means of access.

13. Improve or construct alternate routes.

14. Complete proposed routes shown on the Los Angeles County Highway Plan.

15. Improve freeway interchanges (bridge widening, ramp modifications, etc.).

16. Transportation System Management

    a. Establish working hours which do not coincide with street peak-hour traffic.

    b. Encourage employee use of carpools and public transportation (specific measures must be indicated).

    c. Establish preferential parking for carpools.

    d. Restrict truck deliveries to Major and Secondary highways, and encourage delivery during the off-peak hours.

17. Contribute funds to a benefit district along with other developers to fund new routes in a region.

RM:df
T-2/ACCESS
02-09-93

COUNTY OF LOS ANGELES

FIRE DEPARTMENT

1320 NORTH EASTERN AVENUE
LOS ANGELES, CALIFORNIA 90063-3294
(213) 881-2481

RECEIVED
JUN 10 1996

P. MICHAEL FREEMAN
FIRE CHIEF
FORESTER & FIRE WARDEN

May 31, 1996

Mr. Paul Scheibel
City of Palmdale
Planning Department
38306 9th Street East
Palmdale, CA 93550

Dear Mr. Scheibel:

SUBJECT: ENVIRONMENTAL IMPACT REPORT -- (CITY OF PALMDALE) PALMDALE SPORTS COMPLEX -- (NOTICE OF PREPARATION) (EIR #336, 1996)

FIRE PROTECTION AND EMERGENCY MEDICAL SERVICE AVAILABILITY

The subject development will receive fire protection service from the County of Los Angeles Fire Department. Fire Station #24, located at 1050 West Avenue P, Palmdale, CA 93550-2932, is the jurisdictional engine company for this property.

EQUIPMENT	DISTANCE MILES	TIME MINUTES	STAFFING
Engine 37	2.3	4.0	3
Squad 37	2.3	4.0	2
Engine 24	2.8	4.8	3
Truck 24	2.8	4.8	4

PROJECT IMPACT ON SERVICES

Any development will increase the service on existing resources. Although this development would be in proximity to existing fire stations, it would increase service demand on the existing fire protection resources in the general area. Additional manpower, equipment, and facilities are needed in the area now. However, the degree of impact created by this project cannot be determined at this time.

DESIGN AND CONSTRUCTION

The development of this project must comply with all applicable code and ordinance requirements for construction, access, water mains, fire flows, and fire hydrants.

Fire flows will be based on the size of the building, its relationship to other structures and property lines, and the type of construction used.

FORESTRY DIVISION

We have reviewed the Notice of Preparation and Initial Study for an Environmental Impact Report for a Sports Complex located at Avenue R-8 on the South, and Tierra Subida Avenue on the West, in the City of Palmdale.

The statutory responsibilities of the Forestry Division of the County of Los Angeles Fire Department include erosion control, watershed management, rare and endangered species, vegetation, fuel modification for high fire severity areas, archeological and cultural resources and the County Oak Tree Ordinance. Potential impacts in these areas should be addressed in the Draft Environmental Impact Report.

A fuel management/modification and fire hazard reduction plan should be developed and implemented prior to construction.

Appropriate soil erosion control structures and vegetative cover must be provided to prevent erosion. Plants suited to the climate of the area should be considered including drought tolerant (xeriphytic), species.

The existing vegetation may be utilized to create a fire safe environment. A fuel management plan should be developed. Shrub species such as Sumac, Toyon, Elderberry and Holly Leaf Cherry, as well as tree species such as Oak Sycamore and California Bay can be maintained in a fire safe condition, provided they are not overtopping any structure. In order to limit the potential threat of wildfire, the use of native/low-fuel volume plants should be mandatory in the revegetative plan for this project.

The flora and fauna analysis should address any rare, endangered and/or construction impacting any of these species should be fully explained in the Environmental Impact Report.

An archaeological and historical records check and field survey should be conducted to determine potential impacts to these resources and to verify your statements in the Negative Declaration.

If you have any additional questions, please contact this office at (213) 881-2481.

Very truly yours,

DAVID R. LEININGER, ASSISTANT CHIEF, FORESTRY
PREVENTION BUREAU, FORESTRY DIVISION

DRL:jmb

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (818) 458-5100

HARRY W. STONE, Director

ADDRESS ALL CORRESPONDENCE TO:
P.O.BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

June 3, 1996

RECEIVED
JUN - 6 1996

IN REPLY PLEASE REFER TO FILE: P-4

Mr. Paul Scheibel
City of Palmdale
38306 9th Street East
Palmdale, CA 93550

Dear Mr. Scheibel:

RESPONSE TO A NOTICE OF PREPARATION (NOP)
PALMDALE SPORTS COMPLEX

Thank you for the opportunity to provide comments on the NOP for the proposed Palmdale Sports Complex. We have reviewed the NOP and offer the following comments:

Environmental Programs

The California Solid Waste Reuse and Recycling Access Act of 1991, as amended, requires each "development project" to provide an adequate storage area for collection and removal of recyclable materials. The Environmental Impact Report (EIR) should include/discuss standards to provide adequate "waste storage areas" for collection/storage of recyclable and green waste materials for this project.

Current estimates indicate that a shortfall in permitted daily land disposal capacity in Los Angeles County will occur within the next few years. The proposed development will increase the generation of solid waste and will negatively impact solid waste management facilities in the County. Therefore, the proposed EIR must identify what measures the project proponent will implement to mitigate the impact. These measures may include, but are not limited to, implementation of waste reduction, recycling and composting programs, as well as programs to divert the construction waste from the landfills.

The proposed EIR must identify what measures the project proponent will implement to mitigate the impact of construction and demolition waste generation. These measures may include programs to divert the construction and demolition waste from the landfills.

If you have any questions regarding these comments, please contact Mr. Thomas Brachko of our Environmental Programs Division at (818) 458-3567.

Materials Engineering

A geology and geotechnical engineering report should be prepared and incorporated into the EIR. The report should address, but not

be limited to: 1) the effect(s) of potential fault rupture on the project; and 2) recommendations for geotechnical mitigation.

If you have any questions regarding these comments, please contact Mr. Fred Gharib of our Materials Engineering Division at (818) 458-4928.

Traffic and Lighting

We believe a development of this magnitude could have a significant impact on the adjacent roadways and intersections. A traffic study should be prepared to identify the traffic impacts and ensure that appropriate mitigation measures are proposed. The study should also address the cumulative impacts generated by this and nearby developments and include level of service analyses for affected intersections and freeway interchanges. The County's significant impact threshold criteria should be used when evaluating roadways and intersections within the County. If traffic signals or other mitigation measures are warranted at the affected intersections, the developer should contribute to the cost. In addition, the developer should determine his proportionate share of signal or other mitigation costs and submit this information to this Department for review and approval. A copy of our Traffic/Access Guidelines is enclosed.

We recommend that the State of California Department of Transportation review this Project for impacts/mitigations within their jurisdiction.

If you have any questions regarding these comments, please contact Mr. Garland Seto of our Traffic and Lighting Division at (818) 458-5909.

If you have any questions regarding the environmental reviewing process of this Department, please contact Mr. Vik Bapna at the above street address or at (818) 458-4363.

Very truly yours,

HARRY W. STONE
Director of Public Works

Terri Grant for

DAVID YAMAHARA
Assistant Deputy Director
Planning Division

KD:my/km
108

Enc.

10.2 Geotechnical Reports

LEIGHTON AND ASSOCIATES, INC.

Geotechnical and Environmental Engineering Consultants

GEOTECHNICAL INVESTIGATION FOR ANAVERDE FLOOD CONTROL FACILITY AND SPORTS COMPLEX, CITY OF PALMDALE, CALIFORNIA

Project No. 1960072-01

July 17, 1996

Prepared for:

AKM Consulting Engineers
101 Pacifica, Suite 150
Irvine, California 92718

17781 COWAN, IRVINE, CA 92714

(714) 250-1421 • (800) 253-4567
FAX (714) 250-1114

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LEIGHTON AND ASSOCIATES, INC.

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1.0 INTRODUCTION

1.1 Proposed Development

The City of Palmdale plans to build a flood control basin and a sports complex consisting of several soccer fields as a part of their community development. The proposed flood control facility consists of a retarding basin which is anticipated to collect the flood waters from Anaverde Creek, in a basin created by excavation and construction of an earthen berm embankment built in the Anaverde Creek flood plane. As a part of this development, the city plans to build ten soccer fields in elevated areas of the proposed retention basin. These elevated fields are expected to be flooded for periods of less than a week on occasional flood conditions. The north and east sides of the approximately rectangular basin will be bounded by earthen berms constructed with onsite materials and the western and southern sides of the basin will generally consist of cut slopes excavated in the existing elevated terrain. The excavated cut slopes will have a maximum height of approximately 25 feet. The dam embankment will have a maximum upstream height of 55 feet and a maximum downstream height of 50 feet. The earthen embankment dam is approximately 1,500 feet long with the crest elevation at 2793 feet above mean sea level (MSL). A 500-foot-long spillway with a crest elevation of 2788 feet MSL is designed along the northerly side of the embankment and two discharge pipes, with diameters of 36 and 84 inches, discharge the basin at an elevation of approximately 2740 and 2755 MSL respectively.

The plans of the proposed facility have been prepared by AKM Consulting Engineers (AKM). Leighton and Associates, Inc. (Leighton) is responsible for the design of the embankment dam and the geotechnical investigation of the proposed facility. Hydrologic and hydraulic data analysis and the design of the reservoir spillway and outlet conduit structures were prepared by AKM.

1.2 Site Location and Description

The proposed project encompasses a 70-acre site located in the city of Palmdale. The boundaries of the site include Rayburn Avenue to the north, Antelope Valley Freeway (Fwy 14) to the east, and Tierra Subida Avenue to the west. The location of the site is indicated on Figure 1-1, Site Location Map. The site is approximately rectangular in shape and occupies the flood plain of Anaverde Creek and the surrounding high ground. Anaverde Creek flows to the east across the central portion of the site and flows to the northeast near the eastern margin of the site. The ground elevations range from approximately 2745 feet MSL at the northeast corner of the site to more than 2800 feet MSL in the eastern and southern portions of the site.

A conceptual plan for the proposed design is presented on Plate 1. As indicated in the conceptual plan, the proposed retention basin construction will require excavations below the present grade to elevation 2738 feet MSL in the northeastern corner of the basin. This portion will be inundated with every sizable rainfall. The western portion of the basin floor is planned at an elevation of 2770 feet, MSL. This area is anticipated to be flooded only under relatively moderate storms with return periods longer than 5 years. Four soccer fields are proposed in this area. The transition from the eastern portion to the western portion of the basin is through a maximum 30-foot-high slope with a slope rate of 2.5H:1V.

The southerly portion of the basin is planned at an elevation of 2775 MSL. This portion, which supports six soccer fields, will be inundated by floods with a return period of 50 years or longer. The southerly fields are separated from the bottom of the basin by a maximum 23-foot-high, 2.5H:1V slope.

Conceptual design sets the crest of the dam at an elevation of 2793 feet MSL with a width of 30 feet and upstream slope of 3H:1V and a downstream slope of 2.5:1. The dam will have a maximum height of 55 feet above the basin bottom, and a maximum height of 48 feet above the grade at downstream of the dam. The dam embankment will be built with onsite material borrowed from the basin excavation. With consideration of the engineering properties of the onsite material and the seismic setting of the area, Leighton proposes to design the dam as a homogenous earthen dam. The onsite excavations are expected to generate 1.3 million cubic yards. Based on the conceptual design, the volume of earthen fill required is estimated at 1.2 million cubic yards.

Since the proposed dam embankment will have a maximum height greater than 25 feet and impounding capacity greater than 50 acre-feet, the proposed retention basin falls under the jurisdiction of the California Department of Water Resources, Division of Safety of Dams (DSOD).

1.3 Scope of Investigation

The scope of the geotechnical investigation has evolved as earlier data was evaluated and through discussions and meetings with the design team. Our geotechnical investigation was conducted in two phases. The first phase concentrated on developing the general site geology and obtaining soil data from site areas northerly of Anaverde Creek. A second phase explored the Fwy 14 embankment and its foundation soils as well as other areas southerly of Anaverde Creek. The 100-scale conceptual plan, prepared by AKM, was utilized as the base map for presenting the results of our investigation. (Plate 1)

The scope of our geotechnical investigation included the following items:

- Review of available published and unpublished geotechnical reports pertinent to the subject area. (Appendix A)
- Geologic reconnaissance and field mapping of the site (Plate 1).
- Excavation, logging, and sampling of four backhoe trenches and seven test pits, seven hollow-stem-auger borings, three rotary wash borings, two borings that were drilled using a hollow-stem auger rig that were completed by a rotary wash rig, two bucket auger borings, and two rock core borings at selected key locations.(Appendix B)
- Packer permeability testing within the two rock core borings.
- Geophysical refraction surveys along six transect lines (Appendix D)
- Laboratory testing of the collected samples of representative earth materials. (Appendices C and E)

- Geotechnical analyses of collected field and laboratory test data to provide design recommendations.
- Preparation of this interim report presenting our findings, conclusions, and recommendations.
- Meetings and consultations with client and consultant team.
- Coordination with DSOD.

2.0 FIELD EXPLORATION

2.1 General

Leighton's subsurface investigation was conducted to supplement geologic and geophysical studies of the site performed by Los Angeles County (1986) and to provide geotechnical input and recommendations for the design of the Anaverde Retention Basin. Findings of this study, and from the previous investigation, were used to identify the major subsurface features at the site as applicable to the construction of the proposed retention basin. The major subsurface features at the site include alluvial deposits occurring over a major portion of the site, sedimentary bedrock units of the Anaverde Formation, and a granitic rock unit sandwiched between parallel strands of the Little Rock Fault Zone in the southern portion of the site.

2.2 Summary of Previous Subsurface Explorations

A subsurface investigation of the site was previously performed between September 9 and September 27, 1985, by the Department of Public Works, County of Los Angeles (Los Angeles County, 1986). Their investigation included field mapping at a scale of 1:100, drilling of five auger borings, and three geophysical seismic refraction lines, A, B, and C (Plate 1). In general, the borings were located in the proposed dam embankment and the major cut slope areas. The geophysical lines were located in the northwestern and southeastern portions of the site.

2.3 Present Investigation

Leighton conducted two phases of subsurface exploration between March 25, 1996 and March 29, 1996 and between May 28, 1996 and June 6, 1996. These two phases consisted of geologic mapping, drilling of seven hollow-stem-auger borings, three rotary wash borings, two borings that were drilled using a hollow-stem auger rig that were completed using a rotary wash rig, two bucket auger borings, two rock corings, and excavation of nine test pits, four relatively deep trenches and several shallow trenches. Locations of borings, deep trenches and test pits are depicted on Plate 1. In addition to the above, a geophysical study consisting of six seismic refraction surveys was conducted between March 13 and March 15, 1996 as a part of this exploration. Locations of the seismic refraction lines are indicated on Plate 1.

- Surface Mapping and Shallow Trenches: Geologic mapping was conducted to evaluate the geologic structures at the site using existing outcrops and exposures. Shallow trenches were excavated in the northeastern portion of the site to better expose and characterize the bedrock units and structure. The geologic data collected by the surface mapping and shallow trenches are depicted on Plate 1.

- Borings: The hollow-stem auger borings were 8 inches in diameter and the rotary wash borings 5 inches in diameter. Both were drilled from a truck-mounted drill rig. The borings were located in the vicinity of the proposed dam embankment and cut slopes in the northern, western and eastern portions of the site. One boring was located in the southwestern portion of the site. The depths of these borings ranged from 11 feet to 63 feet

below the existing ground surface. The borings were drilled to sample and characterize the alluvium and also to estimate the depth to bedrock in the dam and cut slope areas. The cuttings from these borings were continuously logged. Logs of the borings are included in Appendix B.

Two bucket auger borings were also drilled on the western slope of the southbound Antelope Valley Freeway (LB-6 and LB-7) embankment to investigate the characteristics of the freeway fill and the underlying alluvium. These borings extended to depths of 43 feet and 49.5 feet below the existing freeway embankment slope surface where excessive caving in saturated alluvium was encountered.

During the second phase of the investigation, groundwater was encountered in all hollow-stem borings in the eastern portion of the site (LB-8 through LB-12 and LB-14), and in the two bucket auger borings. In the hollow stem auger borings, the bottom started to heave when drilling was advanced below groundwater. They could not be drilled to bedrock. In the bucket auger borings the borehole started to cave below the groundwater. Therefore, rotary wash borings were drilled adjacent to LB-7 to obtain subsurface data, including establishing the depth to bedrock. These rotary wash borings were sampled only at depths below the bottom of the adjacent hollow-stem auger borings and therefore, were indicated in the hollow-stem auger boring logs as a continuation of the hole.

Relatively undisturbed drive samples were obtained using a 3.25-inch-outside-diameter California Drive Sampler lined with brass rings, each 1 inch long and 2.4 inches in inside diameter. A 2-inch-outside-diameter(1-3/8-inches inside diameter) split spoon sampler was used to obtain disturbed samples in conjunction with the standard penetration test (SPT). The undisturbed samples and SPTs were generally alternated at 3-foot intervals. In addition, bulk samples of representative site soils were also obtained from cuttings and surface exposures.

Field description and material classification used in logging the boreholes and trench pits are in accordance with the current American Society for Testing and Materials (ASTM) Methods. The terminology and methods of sampling are presented in Appendix B.

Two rock core borings were drilled to depths of 37 feet and 60 feet below the existing ground surface in the southeastern portion of the site and packer testing performed in order to characterize the rock quality and permeability characteristics of the bedrock within the Little Rock Fault Zone. Core samples totaling 62.5 feet in length were obtained using split, 5-foot long, HQ drill rods that had an inside diameter of 3.5 inches. Upon retrieval, the cores were characterized, Rock Quality Designations (RQD) calculated, and transferred to core boxes for transport and storage. Logs of these cored borings are presented in Appendix B.

- Packer Tests: Packer testing was performed in each cored boring (LB-P1 and LB-P2) in three separate 10-foot intervals using the single packer method in order to characterize bedrock and fracture permeabilities. Prior to each test, drilling mud was thinned and circulation continued in the hole until clean water flowed out of the hole. A single, 3-foot-long pneumatic packer was then lowered into the hole to a point directly above the desired 10-foot-length test section and inflated to a pressure of 125 pounds per square inch (psi). An even-flow pump that was capable of delivering 25 gallons per minute at a

maximum discharge pressure of 200 psi was used to create the desired pressure in the borings. In each boring, tests were intended at 25 percent, 50 percent, 75 percent and 100 percent of the maximum estimated hydrostatic head at that location given a full retention basin. In some of the tests, the pressure was increased to 150 percent of the maximum expected hydrostatic head. These test pressures ranged from 5 psi to 48 psi. Resulting water pressures were created and recorded, along with associated flow rates, at 1 minute intervals using an analog pressure gage and water meter located adjacent to the boring. Tests were performed for at least 10 minutes or until steady state conditions had been reached for a period of at least 5 minutes in both the readings.

- Test Pits and Trenches

Test pits (TP-1 through TP-9) were located at the foot of the hills near the southern and southwestern boundaries of the site, in order to characterize geologic units and structure of the bedrock for the stability evaluation of cut slopes, and to evaluate the suitability of the bedrock material for use in the dam embankment fill. Trenches (T-1 through T-4) located in the southwestern portion of the site were excavated in an attempt to locate and characterize splays of the Little Rock Fault Zone that cross the site. The depth of trenches ranged to 17 feet, while lengths ranged from 36 to 133 feet. The logs of test trenches are presented on Plates 2 and 3. The geologic interpretations from the test pits and trenches are reflected on Plate 1.

Samples of the Anaverde Formation Silty Shales (Tav-sh) were obtained in order to determine their suitability for use during construction of a possible clay core of the dam. Four charcoal samples, CS-1 through CS-4, were also taken from representative stratigraphic horizons in the southern bank of Anaverde Creek in order to provide temporal control on the most recent faulting observed at the site.

- Geophysical Survey

A geophysical survey was conducted with six seismic refraction lines to estimate the depth to bedrock materials, and the rippability characteristics of the bedrock units. The transects were also laid out to assist in locating and identifying faults and other geologic structures at the site. The locations of the seismic refraction lines are indicated on Plate 1 and a detailed description of the methods used and the results of the survey are presented in Appendix D. A discussion of the results of the survey is presented in Section 4.8.

3.0 LABORATORY TESTING

3.1 General

The soil testing program was developed to characterize the predominant soil types encountered at the site and to obtain their strength, permeability and other physical properties required for the geotechnical analysis. The laboratory tests were performed in general accordance of the current ASTM standards and are listed below:

- In-situ moisture content and dry density (ASTM D2216 and D2937).
- Grain-size distribution (ASTM D422)
- Standard Proctor (ASTM D698)
- Modified Proctor (ASTM D1557)
- Triaxial Permeability (ASTM D5084)
- Direct Shear (ASTM D3080)
- Triaxial Compression (ASTM D4767)
- Consolidation (ASTM D2435)
- R-value (ASTM D2844)
- Expansion Index (Caltrans 354/U.B.C. 29-2)
- Corrosivity: Soluble Sulfate Content (Caltrans 417); Soil pH (USEPA 9045); and electrical resistivity (Caltrans 532)

In-situ moisture content and dry density test results are presented on the boring logs in Appendix B. The results of other laboratory tests are summarized in Table 3-1 and the individual test data are presented in Appendix B.

3.2 Discussion of Test Results

Our test results indicated that in-situ densities of alluvium range from low nineties to over one hundred twenty pcf. The moisture contents of samples obtained during the Phase I of the investigation were generally lower than the moisture contents obtained during the Phase II. Moisture contents obtained in the Phase I ranged from 3 to 6 percent at shallow depths and occasionally over ten for deeper zones. In-situ moisture contents obtained in the Phase II range from 5 to 2 percent, above groundwater level and 16 to 21 percent, below the groundwater table. In-situ densities of bedrock materials tested ranged from over 100 to 125 pcf. Grain-size distribution and Atterberg limit tests indicate that alluvium consists mainly of clayey and silty sands with fines contents over 15%. A relatively smaller portion of alluvium consists of sandy clays and silty clays. Occasionally, the sandy alluvium has less than 15% fines. Four direct shear tests, performed on remolded alluvium samples representative of the anticipated fill material, indicated shear strengths with cohesions and friction angles ranging from 50 psf to 400 psf and 28 degrees to 40 degrees, respectively. Two direct shear tests on freeway embankment material indicated shear strengths with cohesions of 0 psf and 400 psf and friction angles of 41 degrees and 39 degrees, respectively. Triaxial compression tests on two remolded alluvium samples indicated cohesion of 0 psf and 1,000 psf and friction angles of 30 degrees and 35 degrees, respectively. Four flexible wall permeability tests, performed on alluvial samples, remolded to densities anticipated in compacted embankment fill, indicated

coefficient of permeabilities ranging from 1.9×10^{-6} cm/sec to 2.1×10^{-5} cm/sec. Three flexible wall permeability tests on relatively undisturbed alluvium samples indicated permeabilities of 3.1×10^{-6} cm/sec, 2.3×10^{-5} cm/sec and 1.5×10^{-4} cm/sec.

4.0 GEOTECHNICAL FINDINGS

4.1 Regional Geologic Setting

During late Precambrian and Paleozoic time, the Mojave Desert was the site of predominantly shallow marine deposition within a subsiding Cordilleran geosyncline that bounded western North America. A thickness of over 20,000 feet of sediments were deposited within this geosyncline. Mesozoic batholiths associated with the magmatic volcanic arc subsequently intruded these sediments. Late Cretaceous to Early Tertiary intrusion, uplift and erosion of the now crystalline complex of Precambrian to late Mesozoic rocks during the Laramide orogeny produced the deeply eroded basement complex upon which the Cenozoic sedimentary and volcanic rocks were deposited. The Cretaceous-early Tertiary uplift provided a source area for deposition of Paleocene to Eocene age non-marine rocks that were deposited in local basins adjacent to the San Andreas and Garlock faults. Pliocene and Quaternary age alluvial fan and playa deposits mark the final filling stage of the Pliocene northwest-trending Mojave basins (Dibblee, 1980). It is these Pliocene and Quaternary age sediments that were encountered at the site overlying Cretaceous-age granitics.

4.2 Site Geologic Setting

Based upon site reconnaissance and the excavation of trenches and test pits, the geologic units at the site were identified. The geologic units consist of artificial fill, younger and older alluvium, bedrock units of the Anaverde Formation and Granodiorite. These geologic units are described below. Stratigraphic nomenclature is consistent with that of Dibblee (1980) and County of Los Angeles (1986).

4.3 Geologic Units

4.3.1 Surficial Units

Artificial fill (af): Artificial fill surrounds the site to the west, north and east and was placed during construction of Tierra Subida Road, Rayburn Road and the Antelope Valley Freeway respectively. Minor amounts of end-dumped fill is also present along Rayburn Road and at the southwest corner of the site.

Younger Alluvium (C al): Holocene age alluvial materials were encountered throughout the site and represent channel and flood plain deposits associated with Anaverde Creek. In the walls of Anaverde Creek, the alluvial deposits consist of interbedded sands and silts with minor clay layers, each layer of which is no more than 4 inches in thickness. Logs of Borings LB-1 through LB-5 did not indicate the presence of the thinly bedded silt and sand layers. Boring logs indicate that in general, the alluvial deposits at the site consist mainly of silty, clayey sands and sandy clays/silts. Laterally discontinuous gravel lenses, representing small paleochannels, also occur. The silts, sands and clays show good lateral continuity and provided a good basis for fault delineation (Figures 4-1 and 4-2). Many of the sand units are cross-laminated.

Excavation of four trenches, T-1 through T-4, in the southeastern corner of the site allowed a delineation of two paleochannels, Qal_1 and Qal_2, that evidently flowed through the saddle in between the southeastern granodiorite uplift and the hills in the southeastern portion of the site. Unit Qal_1 is composed of a gravelly, coarse- to fine-grained, silty sand with scattered clasts of granodiorite and Pelona Schist that average 0.25 inches in diameter. Unit Qal_2 consists of a gravelly, coarse grained, poorly sorted sand with a silty matrix. The lateral extent of these paleochannels was not determined.

- Older Alluvium (Qn): In the Palmdale region, Dibblee (1960) distinguishes three separate facies within the Older Alluvium. Of these three facies, only one, the Pleistocene age Nadeau Gravel, crops out at the site.

  Older Alluvium Nadeau Gravel (Qn) exists as isolated deposits that mantle the underlying Anaverde Formation Pebbly Sandstone (Tav-ps) in the northern and western portions of the site. Typically, these deposits are loosely consolidated and consist of pebbly to boulder sized, Pelona Schist clasts with minor quartz and granitic clasts, within a red-brown silty clay matrix. Typically, the Pelona Schist clasts are tabular and were derived from the adjacent Sierra Pelona mountains located approximately one mile to the west of the site. The Nadeau Gravel is at least 10 feet in thickness, as exposed along the northeastern portion of Rayburn Road. A very well developed soil has formed in the Nadeau gravels.

4.3.2 Bedrock Units

Anaverde Formation (Tav): Three separate lithologic units can be recognized in the Palmdale area within the Pliocene age Anaverde Formation (Dibblee, 1960). Each of these units, Pebbly Sandstone (Tav-ps), Silty Shale (Tav-sh), and Sandstone (Tav-ss) crop out at the site and are described as follows.

Pebbly Sandstone (Tav-ps) was encountered in the northern and western portions of the site and is characterized as a buff to light red, well-bedded, poorly sorted, quartz-rich sandstone with minor pebble and cobble granitics.

Silty Shale (Tav-sh) was encountered in the southern portion of the site and consists of a moderate brown to dark reddish-brown, moderately to highly weathered, dry, soft to medium hard, thinly bedded siltstone with interbeds of hard silicified siltstone. Locally, irregularly shaped gypsum crystals up to 2 inches in diameter are present along the typically wavy bedding planes.

Sandstone (Tav-ss) is present in the southeastern portion of the site. It can be characterized as a light pink, weathered, massive, very hard, very coarse grained to pebbly, almost brecciated, sandstone with a medium to coarse grained matrix of quartz. The clasts generally consist of quartz and granitics. Bedding features are not discernable.

- Granodiorite (Gd): Granodiorite of Cretaceous age exists at the site as two prominent topographic uplifts in the northwestern and southeastern portions of the site, and also within a 75-foot long section of the Anaverde Creek. The granodiorite

is typically medium grained, weathers to a light grey-white color, and is highly weathered. It must be assumed that granodiorite is present in the subsurface between the two outcrops.

4.4 Geologic Structure

The Nadeau Gravel (Qn) that crops out along the northern perimeter of the site, is a channel deposit that unconformably overlies the Anaverde Formation Sandstone (Tps). The Anaverde Formation Pebbly Sandstone (Tav-ps) generally strikes northwest and dips at high angles (60° to vertical) to the northeast. Due to the massive nature of the sandstone and the high degree of weathering, attitudes of this sandstone unit could not be determined in the west of the site.

In the southern portion of the site, where bedding could be determined in the Anaverde Formation, bedding strikes to the northwest and to the west at angles ranging from 23° to 30° to the southwest and south-southwest. In the granodiorite, two dominant joint sets strike to the northeast and the north-northeast at angles ranging from 64° to 89° both to the northwest and to the southeast. Shearing in the southeastern corner of the site strikes north-northwest and dips at angles ranging from 29° to 86° to the west.

The contact between the Anaverde Formation Silty Shale (Tav-sh) and the Anaverde Formation Sandstone (Tav-ss) was not encountered during subsurface field exploration. However, Barrows et al., (1986) and County of Los Angeles (1986) portray this boundary as faulted. A faulted boundary is supported by the absence of the intervening stratigraphic member of the Anaverde Formation, the Anaverde Formation Pebbly Sandstone (Tav-ps), in test pits TP-1 through TP-9.

As illustrated by the Antelope Freeway roadcuts through the Anaverde Formation, we would expect the entire stratigraphic sequence along the site's southern boundary to be significantly deformed by folding, fracturing, and small-scale faulting.

4.5 Faulting and Seismicity

4.5.1 Regional Seismic Setting

Since early Miocene time, approximately 20 million years ago, dominantly right lateral motion has been occurring between the Pacific tectonic plate to the west and the North American tectonic plate to the east. This movement currently amounts to approximately 48 mm/year (Humphreys and Weldon, 1994) and is variously distributed across faults and folds that are located at the interface of these tectonic plates. This interface is termed the San Andreas Transform System, of which the San Andreas fault is a part having produced the greatest movement over geologic time of all the faults in California. The San Andreas Transform System can be separated into characteristic geomorphic provinces based upon the orientation of fault-bounded mountains and valleys. The Anaverde Retention Basin is located adjacent to the western margin of the Mojave Desert Structural Province. The Mojave Desert Structural Province is a wedge-shaped block bordered by the San

Andreas and Pinto Mountains faults to the south, the Garlock fault to the north and the Granite Mountain fault zone to the east (Dokka, 1983; Dokka et al., 1990). To the east the Mojave Desert Structural Province merges with the Basin and Ranges Province (Figure 4-3).

The San Andreas fault extends as a major topographic feature for over 600 miles, varying in width from approximately 500 feet to nearly 1.2 miles, from Point Arena north of San Francisco southward along the margin of the Mojave Desert into the Salton trough. It has been suggested that as much as 350 miles of right-lateral displacement has occurred along this fault zone, coupled with local dip-slip movement of several hundreds to thousands of feet (Hill, 1982). In 1857, the San Andreas fault ruptured for approximately 186 miles between Cholame and Cajon Pass producing a moment magnitude M=7.8 earthquake. Displacement in 1857 was primarily right-lateral and was greatest at Carrizo Plain (31 feet) over 44 miles to the northwest of Tejon Pass. An average recurrence interval of 134 years, with an average displacement of 14 (±5) feet has been proposed for the Mojave segment by the Southern California Earthquake Center (WGCEP, 1995). Near Lake Palmdale, 9.5 feet to 13.5 feet of right-lateral slip has been documented from the 1857 earthquake (Sieh, 1978).

Along the southern margin of the Antelope Valley, west of Palmdale, several splay faults associated with the Mojave Segment of the San Andreas fault have been mapped. These secondary faults extend parallel to the San Andreas fault and are related to a series of uplifted pressure ridges that have been mapped along the north side of the San Andreas. The northern margin of the southeastern portion of one of these pressure ridges, Ritter Ridge, is bounded by splays of the Little Rock Fault Zone, located approximately 1,500 feet to 2,000 feet to the north of the main trace of the San Andreas fault. Faults associated with the Little Rock fault bisect the project site (Figure 4-4). The northernmost of these faults has been included within an Alquist-Priolo Earthquake Fault Zone northwest of Tierra Subida Road (State of California, 1979). Sieh (1978) postulated that the lower than average displacements that have been determined on the San Andreas fault through the Palmdale area is because, in this area, the right-lateral displacement is spread over a zone and 3 feet of displacement occurred on the adjacent Little Rock fault in 1857.

The Little Rock fault initiated 4.5 to 5 million years ago, after the deposition of the Anaverde formation, as a 37-mile-long, through-going, right-lateral strike-slip fault that may have represented the ancestral main trace of the current San Andreas fault (Barrows, et al., 1985). Direct evidence that would provide estimates of the total amount of strike-slip movement has not been found. However, the juxtaposition along the fault of Portal Schist against Anaverde formation rocks that do not contain schist clasts, together with consideration of the likely northward source terrane for the Anaverde formation, suggests a minimum right-lateral separation of 13 miles. In addition, the presence of up to 100-foot-wide shear zones suggest repeated, long term movement.

At, or just prior to, early Pleistocene time, approximately 1.25 million years ago, most right-lateral motion jumped from the Little Rock fault to the Punchbowl fault southwest of the current San Andreas fault trace (Barrows, et al., 1986). At this time, a change in the style of movement across the Little Rock fault occurred such

that dip-slip movement became dominant. However, along the Little Rock fault there appears to be variability in both the relative sense of dip slip movement and the recency of activity. Discrete fault segments exhibit both north side up and north side down displacement, ranging from Holocene activity in places to pre-Quaternary activity in other places. This suggests that the Little Rock fault is now a fragmented representation of its original, pre-Pleistocene, through going predecessor and now expresses dip-slip movement in response to movement on the adjacent San Andreas fault (Barrows, et al., 1985).

Active to potentially active fault segments that may be part of the Little Rock Fault Zone extend discontinuously for 12 miles (Leighton, 1990) to as long as 24 miles (Jennings, 1994) along the San Andreas. Using regression graphs of fault length, fault displacement and earthquake magnitude, developed by Wells and Coppersmith (1994), various estimates of the Little Rock fault parameters can be made. Assuming the Little Rock fault to be 12 to 24 miles long, the average coseismic lateral displacement would range from 1 to 3 feet (W & C, 1994, Figure 13), and the maximum lateral displacement would range from 2 to 5 feet (W & C, 1994, Figure 12) in a Moment Magnitude 6.6 to 7.0 earthquake (W & C, 1994, Figure 9). These displacement values are in good agreement with Sieh's (1978) assignation of a maximum of about 3 feet of lateral slip to the Little Rock fault during the 1857 earthquake, given that the Little Rock's moment release would have occurred as part of the much larger earthquake. Given the lack of understanding of the characteristic style of motion that occurs across the Little Rock fault zone during an earthquake, it is prudent to assume equal lateral and vertical displacements for the design purpose.

4.5.2 Site Seismic Setting

Review of 1940s era stereo photography of the site suggests that fault splays within the Little Rock Fault Zone extend across the site from Tierra Subida Road in the west to the Antelope Valley Freeway in the east, and beyond. The fault zone is associated with two granodiorite knolls present at the site; these knolls define a zone that averages 400 feet in width across the center of the site and mark the southeastern margin of the Ritter Ridge compressional uplift (Figure 4-5). Site mapping confirmed this interpretation with the identification of northwest-trending shears within each of these knolls. In addition, observation of the west-facing portion of the road cut along Tierra Subida Road revealed highly faulted and folded granitics (Figure 4-6).

The location of the fault trace that bounds the northern side of the granodiorite is constrained by the saddle in the northwest of the site, and boring LACB-3 and the granodiorite outcrop in Anaverde Creek in the southeastern part of the site. Our mapping is in apparent conflict with the LACB-3 log in that we map granodiorite in the stream exposure while the county boring log indicate Anaverde Formation rocks. Unless the fault is more irregular than we would expect, we surmise that the county boring is plotted slightly too far to the south. At the time of their investigation, the site was a nearly featureless alluvial plain. A location error of 50 to 100 feet could have easily occurred. West and east of the site this fault splay is not laterally extensive and, at its western extent, it has been mapped as a thrust fault (Barrows et al., 1985).

The fault trace that bounds the southern side of the granodiorite was constrained by outcrop only in the northwestern part of the site, and by a precipitous drop-off in elevation of the Anaverde Sandstone in trench T-4 in the southeast of the site. It is possible that the fault may be exposed in a cut slope along the road to the landfill (as suggested in the aerial photographs) but additional confirmatory work would be required.

Four trenches, T-1 through T-4, were excavated in the southeastern portion of the site in areas that were identified as being crossed by a trace of the Little Rock fault. A northwest striking, southwest dipping fault plane was identified in Trench T-2 that displaced granodiorite over alluvium (Figure 4-7 and Plate 2). The fault could be traced upward through the overlying alluvium to the base of Unit Qal_1 to within 4.5 feet of the ground surface. The interaction, if any, between the base of Unit Qal_1 and the fault trace as exposed in the trench was indistinct and could not be characterized. This fault is not considered a part of the strike slip fault flower structure (Harding, 1973) associated with the granodiorite uplifts at the site, as the fault plane dips in the opposite direction to that expected. This fault is more likely related to the uplifted hills that bound the southern margin of the site.

In Trench T-3, a southerly dipping fracture (root zone?) was identified that seemingly terminates the boundary between units Qal_1 and Qal_2. To the south of this fracture, no distinction between these units could be found. In addition south of the fracture, the alluvial units changed in character to include several laterally discontinuous gravel/pebble lenses. The base of an approximately 3-foot thick root zone appeared unbroken throughout the trench. Due to the roots along the fracture, we were unable to conclude whether it is a fault, a paleochannel margin, or a desiccation fracture.

Traverse of a 600-foot-long section of the southern bank of Anaverde Creek in the south-central portion of the site revealed the presence of six distinct fault traces, F1 through F6, displacing thinly bedded silt, sand, and clay units. Plate 1 shows the locations of each of these faults. Due to a lack of well developed soil profile and due to the lack of laterally extensive gravel layers, the sediments in the creek walls are assumed to be Holocene in age. The presence of the faults within these creek sediments therefore suggest that the Little Rock Fault at this location is Holocene in age, and therefore active using State of California criteria (Hart, 1994). Lateral displacement was not determined but approximately 3 cm (1.2 inches) of vertical offset (down to the east) was noted across faults F1 and F2 (Figure 4-2). In an attempt to ascertain the age of the event that caused these ruptures, four charcoal samples, ^{14}C-1 through ^{14}C-4, were obtained from stratigraphic horizons that are displaced by the fault traces. The stratigraphic relationships of each of these samples to fault traces F5 and F6 are shown on Plate 4. Samples ^{14}C-1 and ^{14}C-4 were submitted for radiometric dating. The results showed that the sediments from which these samples came range in age from 4,340 to 4,705 years BC at the 95% confidence interval (Table 4-1), thus confirming the geologic epoch designation of the sediments as Holocene. The given age range of these sediments is therefore a maximum age of occurrence of the faulting. Charcoal sample CS-1 was considered the best candidate for dating as it was obtained from one of the highest (and therefore one of the youngest) stratigraphic horizons that is seen to be displaced by

fault F6. We were unable to obtain reliable strike orientations for these faults due to the soft nature of the affected sediments.

Regional geologic mapping performed by Barrows, et al., (1985) shows another trace of the Little Rock Fault Zone passing through the proposed soccer fields in the southern portion of the site (Figure 4-4) separating Anaverde Formation Silty Shale (Tav-sh) from Anaverde Formation Sandstone (Tav-ss). This is the same fault trace as that shown by Los Angeles County (1986). Data were not gathered during the current field investigation to further improve upon the location of this fault trace. The trace of this fault as shown by Los Angeles County (1986) therefore remains unchanged on our map. We have no information as to the status of activity of this fault, but would assume it to be at least potentially active, and very likely to still be active.

Mapping of the road cut that borders the northern boundary of the site along Rayburn Road revealed the presence of two shears (Figure 4-8) encompassing an upthrust block of Anaverde Formation Pebbly Sandstone (Tav-ps). The western shear extends upward through the sandstone and displaces the base of the overlying Pliocene age Older Alluvium Nadeau Gravel (Qn) by approximately 4 inches (up to the east). Correlation of these shears with a sandstone high in the hillside south of this road cut was not definitive, and the exposures were not adequate to determine the faults effect upon the soil horizons in the Nadeau gravels.

Active (Holocene age) splays of the Little Rock Fault Zone extend across the southern half of the site. Fault-bounded granodiorite defines a zone that averages 400 feet in width across the center of the site. Splays of this fault zone were found in Holocene age sediments in Anaverde Creek, clearly indicating that the entire width of the fault zone may experience displacements in an earthquake. Based upon regional fault mapping studies performed by others, another fault trace may extend across the proposed soccer fields in the southern portion of the site.

In summary, from studies of the San Andreas fault, it has been speculated that, during the 1857 Fort Tejon earthquake, up to 3 feet of right-lateral offset was produced across the Little Rock fault trace. Based on empirical relationships, the Little Rock Fault Zone is capable of generating a magnitude 6.6 to 7.0 earthquake, producing an average displacement of 1 to 3 feet up to a localized maximum of close to 5 feet. A recurrence interval is unknown, although it is probable that it ruptures co-seismically with the San Andreas fault . The San Andreas through the area is estimated to rupture every 134 years on average, but with a large degree of fluctuation (+123/-71 years). The sense of movement on the Little Rock fault is assumed to be dominantly right-lateral, but a reverse component has also been proposed. The exposures of the fault in the stream bank clearly show mismatched strata that would require a strike slip sense of motion to produce.

4.6 Seismic Design Considerations

The DSOD guidelines for the design of small embankment dams specifies that the embankment should be designed to prevent a catastrophic failure during a reasonably expectable earthquake. In general, earth dams in California have been designed for the

ground motions resulting from the maximum credible earthquake (MCE). The MCE, as defined in California Division of Mines Geology (CDMG) Note 43, is the maximum earthquake that can reasonably occur on a fault given the presently known tectonic framework (CDMG, 1975). The MCE on the San Andreas fault is estimated at magnitude 8 (Blake, 1993). The maximum credible peak ground acceleration (PGA) is the maximum ground motion at a site resulting from an MCE that occurs on a nearby fault. In this study, the design seismic conditions were considered to be the horizontal ground motion due to an MCE on the nearby San Andreas fault. The horizontal PGA of the site was estimated at approximately 1.0g based on the average of the attenuation relationships presented by Boore, et al. (1994), Campbell (1993) and Sadigh (1987). Computer program EQFAULT developed by Blake, (1993) was used for the site accelerations. The probability of occurrence of this PGA would equal that of a surface rupture along the San Andreas fault. Considering that the basin is designed to empty even the MPF flood within 5 days, the probability of concurrence of the PGA with any flooding condition is extremely low (less than 0.0004 percent in 50 years).

4.7 Ground Water Conditions

Ground water was not encountered during the first phase of field exploration or the previous field exploration program conducted by Los Angeles County in September, 1985. However, during the second phase of field exploration, ground water was encountered along the eastern margin of the site at depths ranging from 24 to 41 feet below the existing ground surface (elevations of 2735 feet to 2724 feet above mean sea level, respectively). In general, ground water steadily increases in depth from the east-central margin of the site to the northeastern corner of the site. Ground water was not encountered in the most southerly of these borings, LB-14. In the southwestern corner of the site, ground water was encountered at a depth of 42 feet below ground surface (elevation 2735 MSL). It is reasonable to assume that during wet seasons, ground water will rise in the upstream portion of the proposed retention basin. Furthermore, it may be argued that, through bedrock fractures, some of the foundation soils downstream of the earth embankment may become saturated. While the latter is theoretically possible, it is not considered likely.

4.8 Shear Wave Velocities

The geophysical survey conducted during the current investigation, interpreted three layers of subsurface materials at the site, each with differing shear wave velocities. The shear wave velocities measured in the top layer (Layer 1) were the lowest while the shear wave velocities measured in the bottom layer (Layer 3) were the highest. The shear wave velocities of Layer 1 (interpreted as alluvial deposits) range in general from 1,175 feet per second to 1,400 feet per second. Lower velocities were measured in the vicinity of the existing flow line. Depth of Layer 1 ranges from the surface to more than 40 feet below the present ground level. The thickness of Layer 1 and the thickness of alluvial deposits obtained from borings were used to estimate the base of the alluvial deposits. The estimated top elevation (MSL) of the bedrock at the site, i.e. the base of the alluvial cover, are shown on Plate 1.

The geophysical survey indicated that a second layer with shear wave velocities ranging from 2000 feet/sec. to 3,000 feet/sec underlies Layer 1 (the alluvial deposits) mainly in the northern and southern portions of the site. The thickness of this layer (interpreted as weathered bedrock) ranges from less than 0 foot to 35 feet. Layers 1 and 2 are underlain by Layer 3 (interpreted as less weathered to unweathered bedrock) with shear wave velocities ranging from 6,000 feet/sec to more than 10,000 feet/sec. A detailed description of the findings of the geophysical survey is presented in Appendix D.

4.9 Landslides and Slope Stability

No landsliding was mapped at the site. However, the potential for cut slope instability at the site can be inferred from the behavior of several road cuts that surround the site. Slopes within the Anaverde Formation Pebbly Sandstone (Tav-ps) along the Rayburn Road cut exist at slopes steeper than 1:1, although local wedge failures have occurred; the Anaverde Formation Silty Shale (Tav-sh) that is exposed in road cuts along the Antelope Valley Freeway southeast of the site was originally cut to slopes of 1:1, but have failed to shallower slope angles; the granodiorite that is exposed in the Tierra Subida Avenue cut has been subject to wedge failures and raveling. In addition, it should be assumed that cut slopes in the alluvial materials present at the site will be subject to raveling and gullying during inclement weather.

4.10 Rippability Characteristics

Subsurface material in Layers 1 and 2 (alluvium and the weathered bedrock materials) described in Sections 4.3 and 4.8 above are rippable with conventional earthmoving equipment. Layer 3 (less weathered bedrock) described in Section 4.8, in general, is not readily rippable with conventional earthmoving equipment. The depth to this non-rippable bedrock could range from 10 feet to 45 feet below the present ground surface.

4.11 Erosion

The majority of onsite alluvial soils are generally silty and clayey sands with a low cohesion. They are susceptible to erosion. Where unprotected (i.e., unvegetated) and oversteepened natural slopes are exposed to uncontrolled surface drainage, moderate to severe rilling and gullying may occur. Cut and fill slopes constructed from alluvial soils are expected to have similar characteristics.

While localized areas where proposed cuts would expose intensely sheared bedrock may have to be overexcavated and replaced with a stability fill blanket Most such cuts are anticipated to perform well with relatively thin zones of riprap at the toe to present lateral erosion.

4.12 Oversize Materials

Excavated material will consist of mainly alluvium and relatively smaller quantities of shale and sandstone bedrock units of the Anaverde Formation, plus Granodiorite in the southeastern area of the basin. The alluvial sediments encountered are generally free of boulders and are not expected to produce but occasional oversize (greater than 6 inches in size) materials. However, materials derived from the pebbly sandstone and granodioritic

bedrock units will contain oversize material. Based on our preliminary estimates, the quantity of oversize material is anticipated to be up to 3 percent.

4.13 Fill Materials

The majority of the fill material will be derived from excavation for the basin ranging up to 20 feet below the present ground level. However, a substantial quantity of fill materials may also be generated from the excavation of shear keys proposed for the dam embankment. Materials from shear key excavations are anticipated to be relatively wet. The bulk of these fill materials are expected to be from the alluvium throughout the site. A limited quantity of silty shale of Anaverde Formation material may also be available as borrow material from excavations planned at the southeastern corner of the basin.

4.14 Earthwork Shrinkage and Bulking

The change of volume of excavated material upon recompaction as fill is anticipated to vary considerably with the type of earth unit and its location. Most of the borrow materials for embankments and fill areas will be obtained from the cut areas in alluvium and bedrock units. Except for the bedrock units excavated, materials in the site area are expected to shrink to some degree upon recompaction. As a guideline for estimation of the earthwork quantities, the approximate volume change factors for different earth units present in the site are given below:

Earth Unit	Approximate Volume Change
Alluvium and Overburden Topsoil	10 to 15 percent shrinkage
Bedrock of Anaverde Formation	2 to 5 percent bulking

4.15 Expansion Characteristics of Embankment Soils

Expansivity tests conducted on two samples indicate expansion indices of 4 and 49. Sandy alluvium at the site is expected to have very low to low expansion potential while clayey and silty alluvium may have low to medium expansion potential.

4.16 Corrosivity

Corrosivity tests on three samples from relatively shallow depths indicated that the site materials could be mildly corrosive to concrete (sulfate content values were less than 150 ppm). Use of Type II cement is recommended for concrete in contact with on-site soils. Results of electrical resistivity tests (resistivity values ranging from 2,300 Ohm-cm to 3,900 Ohm-cm) indicate that the site soils are corrosive to metals.

5.0 GEOTECHNICAL CONSIDERATIONS AND ANALYSIS

5.1 Site Stratigraphy and Engineering Properties of Material

The site is underlain by alluvial deposits. The thickness of alluvium encountered in borings range from none to 59 feet. The alluvium at the site consists generally of loose to medium dense silty sands, medium stiff to stiff, low plastic sandy clays and medium stiff to stiff non- to low plastic silts. Most of the near-surface material (up to a depth of 10 feet BGS) are loose silty and clayey sands or medium stiff sandy clays and silts. Some of the deeper alluvial deposits, particularly those in the northeastern portion of the site, are dense. The western portion of the Freeway 14 embankment, fill adjacent to the proposed dam embankment, consists of very stiff to hard sandy clay. The bedrock units in the proposed embankment and slope areas consist mainly of dense, pebbly sandstone of the Anaverde Formation, and granodiorite. A subsurface profile along the proposed dam embankment was developed using borings and is presented in Figure 5-1.

The bulk of the material for construction of the embankment is anticipated to be derived from the excavations in the alluvial deposits, consisting of silty and clayey sands and sandy clays and silts. The fines content of these materials generally range from 15 percent to 65 percent. A limited quantity of Anaverde Formation silty shale consisting predominantly of silts is expected to be excavated in the southeastern corner.

Engineering properties of the subsurface and proposed dam embankment material were estimated based on laboratory test data. The results of laboratory test data are summarized in Table 3-1. Design parameters estimated, based on the above laboratory test data and our experience with similar material, are presented in Table 5-1. Engineering properties of fill material were estimated from laboratory tests conducted on alluvium samples compacted to the project specifications since the bulk of the fill material is likely to be derived from alluvium.

5.2 Geotechnical Design Considerations

Based on the results of the field explorations and laboratory testing program, conducted during the current and previous studies, the following key issues are considered significant for the design of the Anaverde Retention Basin.

- Seismic hazard due to seismic activity of nearby faults;
- Breach of embankment integrity as a result of faulting;
- Liquefaction potential of subsurface materials under the design earthquake (maximum credible earthquake);
- Stability and earthquake-induced deformations of embankments under static and seismic conditions;
- Seismically induced settlements;

- Seepage through and below the embankment;
- Settlement of outlet structures due to compressibility of subsurface materials under dam embankment loads and possible hydroconsolidation;
- Stability of fill and cut slopes of the basins;
- Settlement of the freeway embankment due to loading from the proposed dam embankment and hydroconsolidation;
- The impact of construction of the proposed facility on stability of the freeway embankment under static and seismic conditions.
- Lateral earth pressures on retaining walls and foundation recommendations for wall footings.

A summary of our analyses of the above issues is presented in the following paragraphs:

5.3 Seismic Hazard at the Site Due to Activity in Nearby Faults

Seismic Hazard due to a MCE on the San Andreas fault was considered for the design. Therefore, an MCE of magnitude 8 on the San Andreas fault is considered to cause a peak ground acceleration of 1.0g at the site.

5.4 Breach of Dam Integrity as a Result of Faulting

As stated in Section 4.5, the Little Rock fault zone traverses across the southern portion of the site across the dam embankment in a east-west direction. Although the Little Rock fault is considered to be an oblique-slip fault, the relative movements of the embankment portion separated by the fault are likely to be mainly horizontal. Maximum relative displacement across the fault under the design earthquake conditions are anticipated at approximately 5 feet. Potential hazards of such a fault movement will include a breach of dam integrity. Since the maximum lateral movement is anticipated to be approximately 5 feet, fault movement will not result in complete separation of dam segments across the fault zone. However, a breach will result in numerous cracks creating seepage paths through the dam. But, since the proposed downstream grade in the vicinity of the fault zone is relatively high (elevation ranging from approximately 2780 to 2785 feet), the potential for undermining of the dam due to seepage through cracks is considered low.

5.5 Liquefaction Potential

The factors known to influence liquefaction potential include grain size, relative density, ground-water conditions, effective confining pressures, and intensity and duration of ground shaking. Loose, saturated, near-surface cohesionless soils exhibit the highest liquefaction

potential, while dry soils, dense cohesionless soils and cohesive soils exhibit low to negligible liquefaction potential.

As stated in Section 5.1, in general, the site is underlain by loose to medium dense clayey and silty sands and medium stiff to stiff sandy silts and clays; Although Phase I borings did not indicate the presence of ground water at the site, ground water was encountered in all Phase II borings located in the vicinity of the proposed dam embankment. Elevation of ground water levels, encountered in the vicinity of the proposed dam, ranged from 2724 feet, MSL, to 2735 feet, MSL. During the operation of the retention basin, the ground-water level could rise and remain at elevations higher than the current elevations at least during a part of the year. Our analysis indicates that upon saturation, the loose to medium dense silty and clayey sands, and medium stiff sandy silts are potentially liquefiable under the design earthquake. Without mitigation, potential effects of liquefaction on the proposed project include excessive lateral and vertical displacement and probable failure of the proposed dam embankment and the associated structures.

Our liquefaction analysis was performed based on the conservative assumption that during the operation of the retention basin, the groundwater level at the site would rise to elevation 2740 feet, MSL, which is close to the lowest elevation of the basin bottom. Results of our analyses for materials encountered in Borings LB-7, LB-9, and LB-10 are presented in Figures 5-2, 5-3, and 5-4, respectively. Our analyses indicated that most of these materials are potentially liquefiable under seismic events smaller than the design seismic condition. Bedrock material and some of the deep alluvium in the northeastern portion of the site are dense and are considered non-liquefiable under the design seismic condition.

Strength parameters of the liquefied material were evaluated based on the procedure proposed by Seed and Harder (1990) and are presented in Table 5-1.

5.6 Seismically Induced Settlement

Loose and medium dense sandy alluvium at the site may settle under earthquake shaking. Factors affecting the magnitude of settlement include, the magnitude of the design earthquake, the thickness of deposits, consistency of the material and the ground-water conditions. An evaluation of the settlenment induced by the design seismic event was performed based on the design soil properties and groundwater conditions. Our analysis, performed based on subsurface conditions encountered under the freeway slope, indicated that alluvium left in place without recompaction (such as below Freeway fill) would experience an earthquake-induced settlement on the order of 6 inches.

5.7 Stability of Dam Embankment Slopes

5.7.1 Design Criteria

In accordance with DSOD and U.S. Army Corps of Engineers (US Army, 1970), guidelines, the stability of the dam embankment was evaluated for all critical

conditions. The conditions considered for the static analyses and the required minimum factors of safety are as follows:

Condition	Slope	Required Minimum Factor of Safety
End of Construction	Upstream and Downstream	1.3
Long Term Stability when Reservoir is Empty	Upstream and Downstream	1.5
Rapid Drawdown	Upstream	1.2

Due to relatively low permeability of the anticipated embankment fill material (on the order of 10^{-5} cm/sec), and that the retention basin is designed to empty in a matter of a few days, a steady state seepage condition may not develop at Anaverde Retention Basin embankment and therefore, was not considered.

Stability of the dam embankment under the design seismic conditions was evaluated assuming that the alluvium below the water table liquefies under the design earthquake. Our analyses indicated that the stability of the dam under the design seismic conditions is more critical than that under the static conditions, and the embankment configurations including foundation improvement measures are governed by the seismic design. Therefore, the results of the seismic analyses are presented below, preceding the results of the static analyses.

The civil design of the retention basin indicates that the interior basin side slopes are designed at a slope ratio of 3H:1V. Downstream embankment slopes are designed at a slope ratio of 2.5H:1V. The height of the interior side slopes varies from 47 feet at the southern edge to 55 feet at the northeastern corner. However, the height of the embankment above the natural ground surface downstream of the dam varies from approximately 0 to 43 feet.

Our stability analyses were performed using two critical cross sections (Cross Sections B-B' and C-C'). The locations of these cross sections are depicted in Plate 1. Geotechnical profiles indicating the dam embankment and major geologic units are presented in figures 5-5 and 5-6.

5.7.2 Methodology for Stability Analysis

Stability of the dam embankment slopes depends on the slope height and ratio and on the strength properties of the dam and embankment materials. The interior and exterior slopes of the dam are proposed at 3:1 (horizontal to vertical) and 2.5:1, respectively, throughout the length of the dam. The slope heights and the underlying alluvium thickness varies along the length. Therefore, two cross sections (Cross Section B-B'

and Cross Section C-C'), considered to be critical, were selected for the stability analysis. The locations of the cross sections are depicted in Plate 1. Cross Section B-B' is considered to represent the northeastern portion of the dam with high upstream and downstream slopes. Cross Section C-C' was selected to evaluate the impact of Freeway 14 fill on the proposed dam embankment under seismic conditions.

Stability analysis was performed by evaluating the factors of safety against failure under static and seismic conditions.

The computer program STABL (Siegel, 1975) was used to calculate factor of safety for the selected two-dimensional cross-sections. STABL is a computer program developed at Purdue University for the general solution of slope stability problems using two-dimensional limiting equilibrium theory. The potential sliding surface can either be randomly generated or prespecified. In our analyses, randomly generated circular surfaces were used to evaluate the factors of safety against failure. An updated PC version of STABL."PCSTABL5", developed at Purdue in 1985, was used for our analysis. The Modified Bishop method was utilized in this analysis.

Stability of dam embankment slopes under the design seismic conditions depend, to a large extent, on the properties of the liquified alluvium underneath the dam.

Factors affecting stability under seismic conditions include the intensity of ground shaking, the strength properties of embankment and foundation materials, and potential total or partial loss of strength in embankment or its foundation. Since the foundation material will potentially liquefy under the design earthquake, liquefaction impacts the calculated factor of safety.

The stengths of sandy and silty alluviums, following liquefaction, will depend on the relative density (as indicated by equivalent SPT values) of the material. The residual strength of liquefied alluvium was estimated based on procedures proposed by Seed and Harder (1990), correlating SPT N-values $[(N_1)'_{60}]$ to the post liquefaction residual strength. Residual strengths of the liquefiable material at the location of dam embankment evaluated using the Seed-Harder Chart are presented in Table 5-1.

Stability of a slope under seismic conditions can be evaluated by performing pseudo-static analysis with a design acceleration applied to the slope. A pseudostatic factor of safety of less than 1.0 under an average design acceleration does not imply slope failure in a conventional sense, but rather some earthquake-induced displacements that accumulate prior to the end of strong shaking since the factor of safety during an earthquake is a time dependent parameter. The Newmark (1965) procedure may be used to obtain rough estimates of gross earthquake-induced displacement during earthquake shaking. The Newmark procedure assumes that the sliding mass is a rigid body sliding along the critical failure plane. Permanent displacements are assumed to occur when the seismic acceleration in the downslope direction exceeds the yield acceleration (acceleration corresponding to a factor of safety of 1.0) of the sliding mass. The permanent displacement is calculated by double-integration of the acceleration response of the sliding mass, each time the acceleration exceeds the yield acceleration during a given time history of earthquake loading.

The charts developed by Franklin and Chang (1977) using Newmark's procedure were used for evaluating earthquake-induced displacements. A plot of yield acceleration versus displacement developed using above charts is shown in Figure 5-7. As a comparison, a yield acceleration-displacement plot developed using a representative earthquake record (time-acceleration data of the 1992 Landers Earthquake, Amboy Record, Figure 5-8) scaled to the design PGA of 1.0g, is also shown in Figure 5-7.

5.7.3 Stability Under Seismic Conditions

The stability under seismic conditions was evaluated assuming an empty basin since the flood water storage in the Anaverde Retention Basin is anticipated to be limited to a few days. The ground water level for the seismic conditions was conservatively assumed to be slightly higher than the lowest elevation of the basin bottom (elevation 2740 feet, MSL). As stated in Section 5.5, alluvium below the water table liquefies under the design earthquake. Stability of dam embankment was evaluated assuming that the alluvium underneath embankment liquefy. Residual shear strength parameters were used for the liquefiable material while effective strength parameters were used for non-liquefiable material. Parameters used are presented in Table 5-1. Our analysis shows that the post-earthquake factor of safety of the proposed embankment is less than one indicating that the proposed embankment could undergo uncontrolled flow failure following liquefaction of foundation material. Therefore, improvement of foundation soils using a shear key was considered to mitigate the magnitude of earthquake-induced displacements. A maximum earthquake-induced displacement of one foot was considered an appropriate allowable level for the design of the dam embankment. Our analyses indicated that the relatively large shear keys, extending all the way to non-liquefiable materials, are required for mitigating the displacements to less than one foot. The estimated shear key dimensions are depicted graphically in Figures 5-5 and 5-6.

As stated in Section 4.0, the Little Rock Fault Zone traverses through the site across the dam embankment resulting in a potential lateral movement of the dam embankment. The maximum movement of the fault is expected to be approximately 5 feet.

5.7.4 Static Stability

Stability of dam embankment under design static conditions stated in Section 5.7.1 above were evaluated using the design parameters presented in Table 5-1. Dam configurations, at Cross Sections B-B' and C-C' with shear key dimensions obtained from the seismic design, were used for the static analyses. A brief description of each design condition and the results of analyses are presented below.

End of Construction

This case represents the conditions of the dam immediately after the construction. Due to relatively low permeability of embankment and foundation soils, pore pressures generated due to fill weight may not completely dissipate during the construction. Pore pressures at the end of construction were evaluated using the design consolidation parameters given in Table 5-1. Stability analyses were performed using the effective

strength parameters and the estimated pore pressures. The results of our stability analysis indicate that the upstream and downstream slopes have factors of safety ranging from 2.5 to2.6 and approximately 2.2, respectively.

Rapid Drawdown

For this case, the stability of the upstream slope was evaluated for the conditions that may develop in the embankment as a result of a sudden decrease in the reservoir level after steady seepage conditions have been established. Since two low level outlets are proposed, the reservoir level was assumed to drop from the maximum reservoir stage for the spillway design flood (Elevation 2791.5 feet) to the bottom of the reservoir in a relatively short period. Although rapid drawdown of the flood level is very likely, storage at maximum flood level would usually not last long enough to develop a steady state phreatic surface within the embankment. Therefore, this scenario represents a very conservative design case. Effective stress parameters and a conservative phreatic surface (as shown in Figure 5-5 were used for the stability analysis. Results of the analysis indicate a minimum factor of safety of 1.6.

Long Term Stability with Reservoir Empty

This case represents the condition of the dam, following the complete dissipation of construction pore pressures. Effective stresses presented in Table 5-1 with a water table at an elevation of 2740 feet were considered appropriate for this case. Our stability analyses indicate that the minimum factors of safety of upstream and downstream slopes for the long term condition range from 2.6 to2.7 and approximately 2.5, respectively.

5.8 Stability of Cut and Fill Slopes of the Basin

Several cut and fill slopes are planned for the proposed project. These slopes are located predominately in alluvium and Anaverde Formation sandstone. Heights of these slopes range from 20 to 25 feet, with a slope ratio of approximately 2.5:1 (horizontal to vertical). Two cross sections (Cross Sections D-D', and E-E'), representing critical slopes were considered for our stability analyses.

The east-facing slope of the basin with toe elevation varying from 2735 feet, MSL, to 2745 feet, MSL, located east of the soccer field, consists of fill placed above the existing grade which is excavated to form the basin. The alluvium in the cut portion of the slope is potentially liquefiable under the design earthquake. Stability of this slope was analyzed using Cross Section D-D', depicted in Figure 5-9. Our slope stability analysis indicates that this slope has a static factor of safety of 2.8 when the basin is empty. However, due to liquefaction of alluvium underlying the slope, our analysis indicates that this slope and the adjacent soccer field could experience earthquake-induced displacements on the order of 10 feet under the design earthquake shaking. These displacements were considered unacceptable for the proposed project. Therefore, a shear key with a bottom width of 27 feet is proposed to mitigate the displacement. Our analysis indicates that with this remedial measure, the anticipated displacement is on the order of 3 feet or less.

Stability analysis of the Cross Section E-E' (Plate 1 and Figure 5-10) representing the north-facing slope of the basin (located north of the soccer fields in the southern portion of the site) indicates that this slope is grossly stable under static conditions with a factor of safety of 1.7 when basin is empty. Earthquake-induced displacements of this slope, under the design earthquake conditions is estimated to be on the order of 3 feet or less.

In the southwestern portion of the site, the cut slope in the vicinity of the inlet structure may contain a thin layer of alluvium occurring over the Granodiorite. This slope may experience surficial failure upon saturation of the alluvium. Therefore, the alluvium underlying this slope should be completely removed and backfilled with compacted fill as per specifications in Appendix I.

Bulk of the alluvium at the site consists of silty and clayey sands. Cut slopes planned in the alluvium, particularly in the areas containing silty sands may experience surficial instability. Although, surficial instability may not pose a significant hazard to the reservoir, they may cause damage to the proposed soccer fields. In our investigation sandy alluvium was encountered in all the borings. In general, remedial construction with stabilization fills are required in all cut slopes exposing sandy alluvium. Limits of stabilization fills should be established in the field , based on the observations of an engineering geologist during grading.

5.9 Seepage through Embankment and Foundation

Permeability tests on four alluvium samples compacted to the conditions anticipated in the dam embankment, indicated coefficients of permeability ranging from 1.9×10^{-6} cm/sec to 2.1×10^{-5} cm/sec. Considering the above permeabilities and the fact that the water storage in the basin to a level above the existing ground surface will be temporary (limited to a few days), we are of the opinion that seepage of water through the dam is unlikely. However, if the foundation material underlying the dam embankment becomes saturated as stated in Section 4.7, seepage gradients could develop through foundation material during the periods of water storage in the basin. Although, water loss due to seepage is not a concern in this project, if the exit seepage gradients (seepage gradients at the exterior slope toe area) are high, a potential for piping may exist. Therefore, seepage analyses for the foundation material was performed assuming a water level in the basin at an elevation of 2789.5 feet, MSL. Our analysis, performed based on design permeability values presented in Table 5-1, indicates that the maximum exit gradients range from approximately 0.15 to 0.2. These seepage gradients indicate a factor of safety of greater than 5 against piping. Therefore, the potential for damage due to piping is considered low. However, to migigate the potential for piping, the grading recommendations (Section 6-5) for the shear key construction should be followed.

5.10 Settlement of Embankment and Associated Structures

We are of the opinion that the dam embankment founded on shear keys containing compacted backfill will not experience large settlements due to static loading. However, structures associated with the proposed embankment dam could be affected by settlements resulting from embankment loading. The proposed spillway will be located on bedrock

material and is unlikely to undergo significant settlement. Along the alignment of the outlet conduits the alluvium will be removed to the dense non-liquefiable material. Therefore, outlet and conduit structures will be founded on compacted fill placed either on bedrock or in dense alluvium. Settlement analysis was performed using the design compressibility parameters presented in Table 5-1. Our analysis indicates that anticipated settlements (of the outlet pipes/conduits) at locations below the interior slope toe, the axis of the dam embankment and approximately at the middle of the spillway channel width are approximately ¼ inch, 4 inches, and 1 ½ inches, respectively for the 36-inch diameter outlet pipe, and approximately ¼ inch, 2 inches, and 1 inch, respectively, for the 60-inch-diameter overflow pipe.

The proposed inlet to the basin (culvert structure) is located in an area with variable alluvium thickness. Alluvium thickness underneath the structure varies across the width of the structure. Our preliminary estimate indicates that thickness could vary from less than 5 feet to more than 20 feet. Due to this variable thickness of alluvium, a differential settlement of 1 in 200 could be experienced across the structure..

5.11 Freeway Embankment Slopes

The proposed dam embankment is not anticipated to impact the stability of Freeway 14 embankment slopes, except during the excavation of shear keys adjacent to the freeway embankment. Therefore, in this study, the evaluation of the freeway slopes was limited to the temporary slopes created by the shear key excavations. These temporary slopes were analyzed at the locations of Cross Sections B-B' and C-C'. Our analysis indicates that existing freeway slopes should be steepened to 1¾ : 1 (horizontal :vertical) in the vicinity of the northeastern corner of the site and 2:1 in the vicinity of the southeastern corner of the site for the excavation of shear keys for the proposed dam embankment. Our stability analysis indicates that these temporary slopes of the freeway will have a minimum static factor of safety of 1.25.

Potential for hydroconsolidation settlement under the freeway embankment is considered minimal since the rise in ground water level due to the operation of retention basin is anticipated to be less than 5 feet (Section 5.5). The anticipated hydroconsolidation settlement is estimated to be less than ½ inch.

Using the design compressibility parameters given in Table 5-1, it was estimated that the additional stresses induced by the proposed construction would cause a settlement of approximately 1 inch at the crest of the Freeway 14 embankment.

5.12 Lateral Earth Pressures

The magnitude of lateral pressure on retaining structures depends on their freedom for lateral movement. If the wall is restrained against lateral movement at the top, the horizontal pressure approaches the values of at-rest conditions, and at-rest earth pressure should be used in design. If the wall is unrestrained and allowed to move at least 0.001H at the top of the wall, where H is the height of the wall, active pressure could be used in the design of retaining structures.

Passive pressure parameters are used to compute lateral soil resistance developed against lateral structural movement. Relatively large movements are required to mobilize the passive resistance. A safety factor of 3.0 should be applied to the ultimate passive resistance in cases of limited movement. If movement is not limited, a factor of safety of 2 should be used. If passive pressures and friction (sliding resistance) are combined to provide lateral resistance, a factor of safety of 3 should be used for the passive pressure.

The following lateral earth pressures (expressed in terms of equivalent fluid pressure) should be considered in the design of parts of the outlet structures, inlet culvert, spillway retaining walls, and the side walls of the spillway channel.

Soil Condition	Equivalent Fluid Pressure (pcf)	
	Level Backfill	**Backfill Sloping at 4:1**
Active	33	37
Passive	650	-
At Rest	52	-

These values are based on the assumption that granular soils with a friction angle of 37 degrees will be used for backfill, that backfill has a unit weight of 125 pcf and that there are no surcharge loads.

Dynamic lateral earth pressure due to earthquake loading should be considered in the design of walls in addition to the lateral pressures due to static conditions and surcharge loading. The dynamic lateral earth pressure distribution for level and sloping backfill may be considered to be in the shape of an inverted triangle with the resultant acting at a height of 2/3 H above the base of the wall, where H is the height of the wall. The inverted triangular pressure distribution for level backfill and sloping backfill may be evaluated using an equivalent fluid pressure value of 65 pcf and 87 pcf, respectively.

5.13 Structure Foundations and Footings

Specific foundation design recommendations for the concrete spillway channel and outlet structures are not made at this time since the structure details and the loads are not known. When structure details and loading are available, the anticipated bearing pressures should be reviewed by a geotechnical engineer to verify that the allowable soil bearing pressures are not exceeded and that the settlements under the expected loads are tolerable to the proposed structures.

5.14 Suitability of Excavated Materials for Embankment Fill

The materials obtained from the basin excavation are anticipated to consist predominantly of silty and clayey sands and sandy silts/clays, with the majority of the materials being silty and clayey sands. The excavated materials are generally suitable for placement as

compacted fill, provided they are free of organic material and debris. Fill materials used for embankment fill construction should contain at least 15 percent fines. Most of the excavated materials are expected to meet these criteria. If excavated materials with insufficient fines are found (minor amounts anticipated), they should be blended and processed with other soils.

The result of Modified and Standard Proctor compaction tests (from which the bulk of fill material will be derived) (ASTM D1557) indicate that the optimum moisture content of most of these materials range from 7.5 to 14 percent. The in-situ moisture content of the materials to be excavated are generally close to or above optimum. A significant quantity of the silty/clayey sands and sandy silts/clays may be too wet for placement at 100 percent of maximum dry density (ASTM D 698) at in-situ moisture content. Such materials will require moisture processing and blending with dryer materials prior to placement as compacted fill.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 General Conclusion

The existing major geotechnical constraints at the site, can be sufficiently mitigated to render it suitable for the proposed construction. It is our opinion that the proposed flood control facility and sports complex can be safely constructed provided the recommendations of the final report are implemented during design and construction.

6.2 Faulting

The Little Rock Fault zone crosses the southeastern portion of the dam embankment. Seismic activity in the area could cause a fault rupture with associated lateral displacement in the dam embankment, of up to a 5 feet. Since the proposed dam embankment section is relatively large with a crest width of 30 feet, this lateral displacement would not cause a thorough separation of the embankment.

Downstream grade elevation of the dam in the fault zone is relatively high and, therefore, cracks caused by rupture is not expected to cause piping failure of dam.

6.3 Seismic Exposure

The subject site is located in an area with high seismic activity. The proposed structures should be designed, at a minimum, in accordance with latest UBC and DSOD guidelines. For structural design purposes, an average seismic coefficient of 0.67g (corresponding to 2/3 of design PGA) is recommended. For critical structures, a vertical acceleration equal to the above horizontal design acceleration (0.67g) should be used.

During the operation of the proposed retention basin, the ground water table could develop at the site, at least during a part of the year. This potential future ground water table is estimated at elevation 2740 feet, MSL, for the design. Most of the alluvium lying below this ground water table is potentially liquefiable. Therefore, alluvium underlying all proposed structures (spillway channel, outlet pipes) should be removed down to non-liquefiable dense material and backfilled with compacted fill. Specific recommendations for removals and backfilling are provided in Section 6.5, grading recommendations.

6.4 Slope Stability

Dam Embankment

The interior and exterior slopes of the dam embankment are statically stable against deep-seated failure under all design conditions stated in Section 5.7.1, provided that the remedial measures with shear keys , recommended in Section 6.5.1.3 below, are followed. Under the design seismic conditions we estimate that the proposed embankment slopes could experience an earthquake-induced displacement on the order of one foot. This displacement may consist of horizontal and/or vertical components. Potential adverse effects of this displacement include reduction of the dam height.

Other Basin Slopes

East-facing slopes along the western periphery of the basin, north-facing slopes in the southern portion of the basin and the south-facing slope in the northwestern portion of the basin are grossly stable against deep-seated failure and do not require remedial grading. However, the east-facing slope separating the grades of the soccer fields and the basin bottom is underlain by potentially liquefiable material and will require remedial measures. We recommend providing a shear key as depicted in Figure 5-7, throughout the length of the slope. General recommendations for shear key construction are provided in Section 6.5.1.3. This slope with the proposed shear key is expected to be grossly stable under static conditions. Under the design earthquake conditions, this slope is estimated to undergo a displacement on the order of 2 feet. Potential damage to soccer fields due to such a displacement is anticipated to be relatively small.

South-facing cut slopes in the southwestern portion of the site (adjacent to the inlet structure) contain relatively thin layers of alluvium over Granodiorite. Surficial instability is anticipated in this slope. All alluvium in this slope area should be removed to the bedrock and backfilled with stabilization fill compacted to the project specifications stated in Section 6.5 and Appendix I. Backfill should be benched to the bedrock as per specifications in Appendix I.

Some of the cut slopes proposed in alluvium and part of the sandstone bedrock material may be susceptible to surficial instability and erosion. Stabilization fills may be required in these areas.

Abutment Slopes

The abutment slopes are anticipated to be grossly stable provided the removals recommended in Section. 6.5.1.4 are implemented. If highly fractured or sheared bedrock is exposed in the benches, overexcavation of the area should be conducted to competent bedrock.

6.5 Grading Recommendations

The grading recommendations provided herein apply to construction of the embankment, excavation of the basin, construction of shear keys and stabilization fills and foundation preparation for proposed structures. Grading should be performed in accordance with the applicable local codes (County) and DSOD guidelines, and specific recommendations provided herein.

6.5.1 Removals

6.5.1.1 General

Generally, complete removal of collapsible/compressible materials such as topsoil, colluvium, alluvium, and other unsuitable material will be required at the locations of the dam embankment, the spillway, and outlet works. Where no sensitive structures are planned, or seepage or liquefaction is not an issue, removals will be limited to the loose and medium loose alluvium. Dense older alluvium will be left in place. Actual depths of removals will be determined in the field during grading based upon ingrading inspections by the geotechnical consultant. Based on our geotechnical investigations, estimated removal depths are provided below as a guide.

6.5.1.2 Dam Foundation

The areas to be cleared and grubbed include the basin area, dam embankment area, a 25-foot wide strip adjacent to the downstream toe of the dam embankment and the spillway and inlet structure areas. Clearing and grubbing should include removal and disposal of all trees, stumps, roots and debris. In addition, all topsoil and compressible alluvium should be removed from the dam embankment area. Estimated removal depths in the embankment area, outside of the shear keys are approximately 10 feet.

6.5.1.3 Shear Keys

Shear keys are proposed along the dam embankment and underneath the east-facing slope separating grade between the soccer fields and the lowest portion of the basin bottom. The shear key for the embankment should be provided from the southeastern corner of the basin to the spillway location. Estimated shear key dimensions and configurations are provided in Figure 5-5. The shear key for the east-facing slope between soccer field and the basin bottom should extend throughout the slope from the southern end to the northern end. Proposed configuration and dimensions for this shear

key are shown in Figure 5-7. In general, excavations for the shear keys should extend to the bedrock. Some of the deep alluvial deposits (at depths below 25 feet BGS) in the northeastern corner of the site could consist of dense silty and clayey sands. These deposits at the shear key location could be left in place if identified by a geotechnical engineer during grading.

Sides of the shear key should be excavated to a slope no steeper than 1½ :1 (horizontal to vertical). Excavations for shear key adjacent to the freeway embankment should be performed to have an overall slope ratio (freeway embankment and shear key slopes combined) no steeper than 2:1 (horizontal to vertical).

Dewatering may be required for the construction of the proposed shear keys if it is not performed during the dry season. Even during the dry season some ground water could be present in deep alluvial deposits. Prior to construction, dewatering wells sump pits should be installed in the proposed embankment area and the ground water levels should be monitored.

6.5.1.4 Abutment Slopes

All surficial and highly weathered bedrock should be removed from the abutment slopes prior to placement of fill. The fill should be benched into the bedrock per specifications in Appendix I.

6.5.1.5 Spillway Foundation

All surficial material and alluvium should be removed from the spillway foundation to competent bedrock.

6.5.1.6 Outlet Works and Spillway Channel

All surficial material and loose to medium dense alluvium should be removed from outlet pipe and spillway channel alignments. Removals should extend to the bedrock or dense alluvium as identified in the field by a geotechnical engineer. Removal depths are estimated to be up to approximately 25 feet. Lateral limits of the bottoms of the removal should extend beyond the periphery of the structures for a distrance to the depth of

the removal but not less than 5 feet.. Actual vertical and lateral limits of the removals should be determined in the field by the engineer.

6.5.1.7 Other Areas (Areas To Receive Fill, Pavements And Light Structures

In the areas to receive fill and pavement, loose collapsible near-surface soil should be removed. Depth of removal is estimated at approximately 5 feet. The actual depth of the removals should be established in the field by a geotechnical engineer.

Depth of removal for construction of light structures (such as concession stands) should be based on specific foundation widths. We recommend overexcavating the locations of proposed foundations 5 feet or twice the width of the proposed footings. Excavation should extend beyond the perimeter of the footing by a minimum of 5 feet.

6.5.2 Backfilling of Overexcavations

Overexcavations should be backfilled to project specifications given in Appendix I. The minimum compaction level required for backfill is 95 percent relative density as determined by ASTM D698 test method. In addition, the average relative compaction for the shear keys should be no less than 100 percent as per ASTM Test Method D698. The as-placed moisture content of the fill should be between optimum moisture content and optimum plus 2%.

6.6 Dewatering

Dewatering may be required for the construction of shear keys and for the overexcavation underneath the structures, if not performed during the dry season. Prior to commencement of construction, piezometers should be installed in the required areas and ground-water levels should be monitored. If a dewatering program is required, pump tests should be performed to evaluate the pumping requirements.

6.7 Embankment Construction

In general, embankment construction should be performed in accordance with the Earthwork and Grading Specifications (Appendix I). Onsite materials from the basin excavation are, in general, suitable for construction of the embankment fill. Clayey and silty sands (with a fines content of at least 15 percent), and sandy silts and clays (with a high sand content) should be used for embankment construction. Sandy zones with less than 15% fine content, if encountered, should be blended with other excavated material

so that highly permeable fill are not included in the embankment or shear keys. Fill placement should be in accordance with the specifications provided in Appendix I. Mechanical compaction should be performed parallel to the axis of the dam wherever possible. The embankment should be brought up in layers such that the surface is essentially level at all times except for a slight slope for drainage.

6.8 Additional Work Required

Placement of Other Fills

In areas other than the embankment and its foundation and shear keys, the fills should be compacted to a minimum of 95 percent relative compaction, as determined from ASTM D698, Method A. Prior to placing fill, the exposed subgrade should be scarified to a depth of 6 inches, moisture-conditioned as necessary, and recompacted to 95 percent relative density as per ASTM D698, Method A. Specifications for fill placement are provided in Appendix I.

6.9 Inlet and Outlet Structures and Spillway Channel

Inlet and outlet structures and spillway channel should be founded on compacted backfill and placed as stated above. Conduits through the dam should be designed to accommodate the post-construction settlements presented in Section 5.10

Specific foundation design recommendations cannot be provided at this time since exact dimensions of structures are not known. The structural engineer should consider the seismic design factors given in Section 6.3 and the lateral earth pressures in Section 5.12 for the design of structures.

6.10 Corrosivity

Corrosivity tests indicate that onsite soils are mildly corrosive to concrete. Therefore, Type II cement should be used. Resistivity tests indicate that the site soils are corrosive to metals.

6.11 Expansion Potential

Site soils are mainly granular and have very low to low expansion potential. Therefore, expansion potential is not considered an issue.

6.12 Pavement Design

Areas to be paved with asphaltic concrete should be prepared in accordance with earthwork recommendations presented in Section 6.5.1.7.

A single R-value test indicates an R-value of 70. The near surface materials are generally clayey sands and silty sands with potentially high R-values. Structural pavement section design for parking lots and driveways were performed based on a design subgrade R–value of 60. We recommend sampling and testing of near surface soils following grading to verify or revise the design assumptions as appropriate. Actual design traffic indices for the site are not known at this time. The recommended minimum flexible pavement sections for traffic indices (TI) of 5, 6 and 7 are provided below.

Pavement Components	**Pavement Thickness (inches)**		
	TI = 5	**TI = 6**	**TI = 7**
a. Asphalt Concrete	**3**	**3**	**4**
Aggregate Base Course	**4**	**4**	**4**
Total Pavement Thickness	**7**	**7**	**8**

Asphalt concrete used for all paving work should conform to Class C, Grade AR-8000. Base course should be crushed aggregate base conforming with Section 200-2.2 of Standard Specifications for Public Works Construction. The granular base materials should be compacted to at least 95 percent relative compaction based on ASTM Test Method D 698, Method A.

TABLE 3-1. SUMMARY OF LABORATORY TEST RESULTS

File Name: LABTEST.XLS Last Modified: 07/25/98 @ 5:06 PM

Boring No	Sample No	Depth (feet)	USCS Classification	In-situ Moisture Content (%)	In-situ Dry Density (pcf)	Optimum Moisture Content (%)	Maximum Density (ASTM D698) (pcf)	Sand Equivalen	Grain Size Distribution GR:SA:FI	Atterberg Limits LL (%)	Atterberg Limits PL (%)	Atterberg Limits PI (%)	Triaxial Tests: CU tests on Undisturbed Samples (psf)	Triaxial Tests: CIU tests on Remolded Samples, Effective Stress: Cohesion (psf)	Triaxial Tests: CIU tests on Remolded Samples, Effective Stress: Friction Angle (degrees)	Direct Shear: Cohesion (psf)	Direct Shear: Friction Angle (degrees)	Expansio Index	Collapse (%)	Consolidation Characteristics: Cc	Consolidation Characteristics: Cr	Permeability (ASTM D 5084) (cm/sec)	R-Value	Corrosion Testing: Soluble Sulfates (%)	Corrosion Testing: pH	Corrosion Testing: Minimum Resistivit (ohm-cm
PHASE II																										
LB-6	R-6-6	6	CL	9.2	105.0					28	16	12				0	42									
	S-6-21	21	SP						:23																	
	R-6-24	24	SM	9.6	102.4														1.80							
	R-6-36	36	SM	12.9	122.6				:21																	
LB-7	R-7-9	9	CL	19.0	98.9					28	18	10				1100	37									
	R-7-21	21	CL	16.9	94.7				:62	32	17	15								0.12	0.014					
	R-7-33	33	SC	12.7	107.3				:40	39	15	24							0.35							
	S-7-45	45	SM						:28																	
LB-8	R-8-9	9	SM	12.5	110.4														0.03							
LB-9	B-1	1-3	SP/CL			14.0	113.0		:65					0	30.0			49				1.85E-06				
	B-10	1-3	SP/CL																					< 0.015	8.6	230
	R-9-6	6	CL	11.3						35	20	15														
	R-9-12	12	SM	14.4	99.8														0.37							
	R-9-18	18	ML	21.2	103.1															0.12	0.014					
	R-9-24	24	SM	10.8	109.1				4:80:16					400	32.0							2.31E-05				
LB-10	B-1	1-3	SM			10.5	123.5	27.0	:22					1000	35.0							2.10E-05				
	B-10	1-3	SM																			2.15E-05				
	R-10-12	12	CL	12.5	95.4					28	16	12								0.10	0.015					
	R-10-18	18	SM	20.6	87.3				0:25:75				3300									3.09E-06				
	R-10-36	36	SM	15.3	100.4				:29					400	32.0							1.47E-04				
LB-11	R-11-3	3	SM	7.6	107.9				:15																	
	R-11-27	27	SM	20.5	111.5				:25																	
	S-11-36	36	SM						:26																	
LB-12	R-12-6	6	SC/CL	11.7	97.2				11:39:50	35	20	15														
	R-12-18	18	SM	12.2	102.2				:47										0.68							
	R-12-24	24	CL-ML						:64																	
	R-12-30	30	ML	15.7	110.2					21	17	4														
	S-12-39	39	SM						:23																	
LB-13	Bag-1	0-2	SC-SM															4					60	< 0.015	8.4	390
	R-13-6	6	SC-SM	4.5	97.4				1:58:41	23	18	5														
	R-13-18	18	SC-SM	7.2	98.5														0.36							
	R-13-24	24	SC-SM	7.8	109.4														0.41							
LB-14	Bag-1	1-3	SM					8.0																		

TABLE 4-1

RADIOCARBON DATING ANALYSIS TEST RESULTS

SAMPLE NO.	LABORATORY NO.	RADIOCARBON AGE (YEARS BP†)	CALENDAR AGE (YEARS BC‡)
$^{14}C1$	Beta-92704	5600 ± 60	4540 to 4340 (4450)
$^{14}C4$	Beta-92705	5720± 50	4705 to 4460 (4540)

NOTES: † BP = radiocarbon years before present, i.e. 1950 A.D.

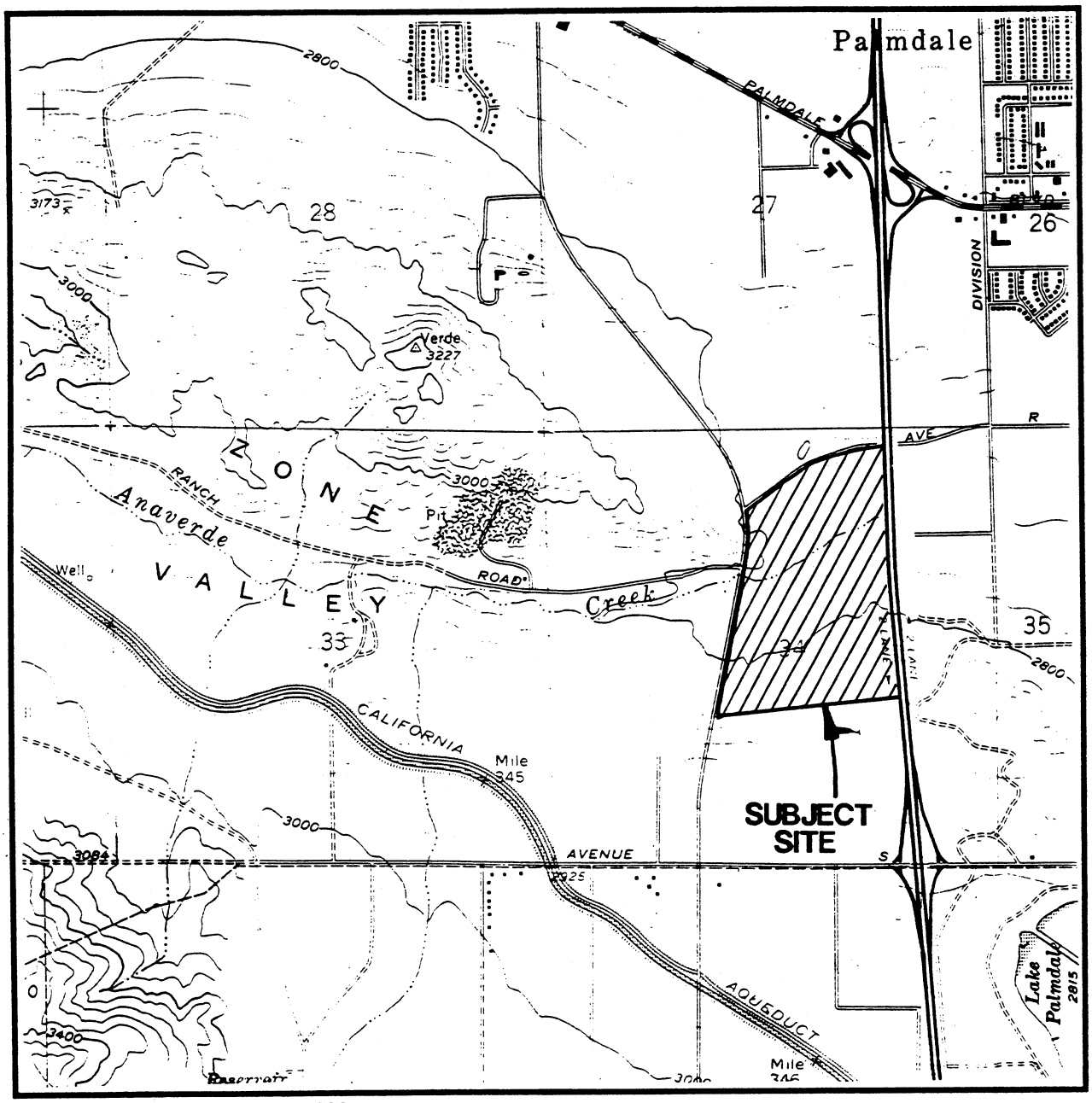
‡ BC = calendar years before Christ reported as two-standard deviation range, i.e. 95 percent probability. The calendar age, derived from the intercept of the radiocarbon age with a calibration curve (see Appendix E), is shown in parenthesis.

TABLE 5-1

GEOTECHNICAL ENGINEERING DESIGN PARAMETERS

MATERIAL UNIT	TOTAL UNIT WEIGHT (PSF)	SPT BLOW COUNT	EFFECTIVE SHEAR STRENGTH PARAMETERS		POST-LIQUEFACTION RESIDUAL STRENGTH (psf)	COMPRESSIBILITY CHARACTERISTICS		PERMEABILITY CM/SEC
			Cohesion (psf)	Friction Angle (degrees)		C_c	C_r	
Compacted Fill (Proposed)	130	35	140	37	_	0.08	0.01	$3X10^{-6}$ TO $1.5X^{-5}$
Compacted Fill (Freeway 14 Embankment)	130		400	38	_			
Alluvium								
Loose to Medium dense silty/clayey sand in the embankment areas	120	10	150	32	250	0.12	0.02	$1X10^{-4}$
Sandy clay/silt	120	_						
Medium dense silty sand in the northern and western portion of the site	120	15	150	32	550	0.1	0.01	$1X10^{-4}$

Note: C_c and C_r of the proposed fill material were conservatively estimated based on our experience with similar materials.



0 2000 4000
SCALE FEET

SITE LOCATION MAP

BASE MAP: U.S.G.S. PALMDALE, CALIFORNIA 7.5 MINUTE QUADRANGLE

ANAVERDE FLOOD CONTROL FACILITY
AND SPORTS COMPLEX
CITY OF PALMDALE, CALIFORNIA

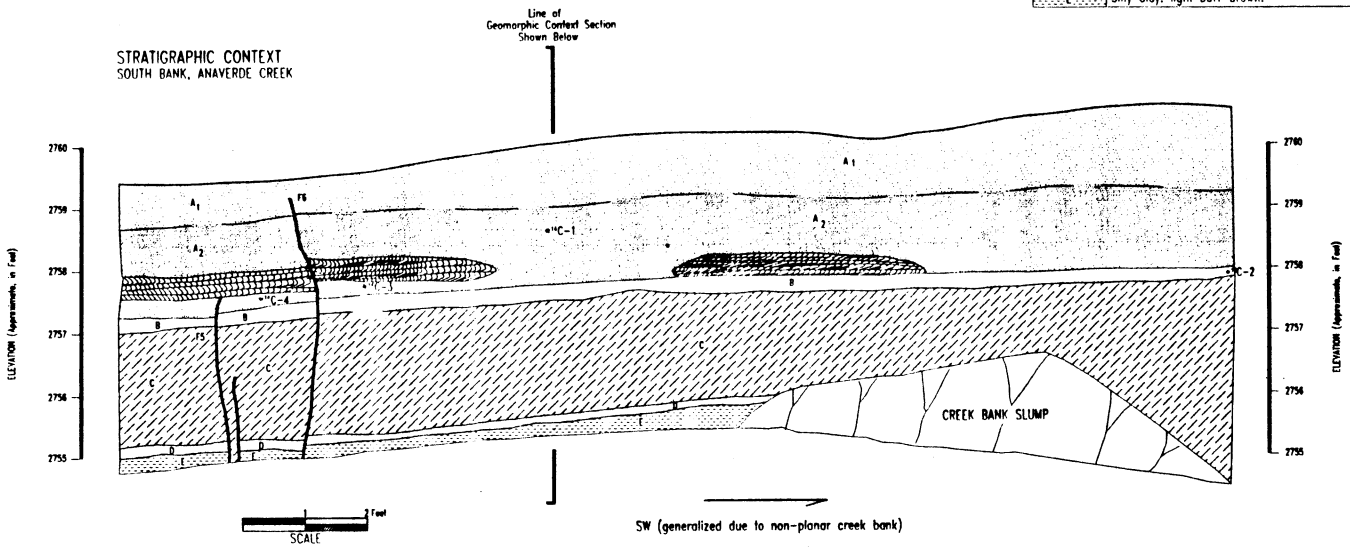
Project No. 1960072-001

Date 7/96

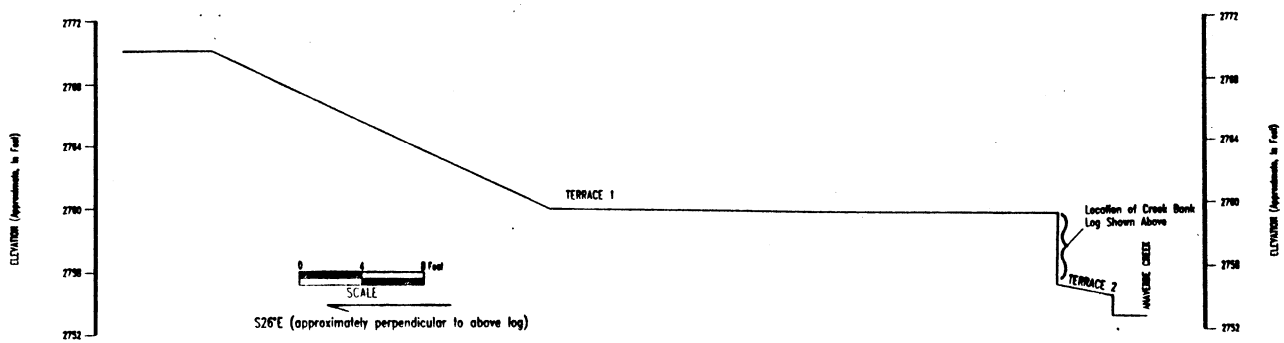
Figure No. 1-1

Stratigraphic Unit		Description
A	A_1	Clayey Silt: light buff brown, desiccated. Base of unit marked by sharp color change.
	A_2	Clayey Silt to Silty Clay: majority of unit characterized by 1/2" wide, brown, clayey silt/dark brown silty clay banding parallel to bedd Portions of unit at/near base consists of cross-laminated fine grained sand. Charcoal sample ^{14}C-1 obtained from near the top of this sub-unit; charcoal samples ^{14}C-3 and ^{14}C-4 obtained from base of this sub-unit.
B		Sand: coarse to very coarse grained, with fine grained sand matrix. Grains dominantly quartz and feldspar with approximately 10% P Schist grains. Base of unit generally planar; upper surface of unit scoured in places. Charcoal sample ^{14}C-2 obtained from this unit
C		Silty Clay: light brown, homogeneous.
D		Sand: medium brown, medium grained.
E		Silty Clay: light buff-brown.

STRATIGRAPHIC CONTEXT
SOUTH BANK, ANAVERDE CREEK



GEOMORPHIC CONTEXT
RIVER TERRACE SYSTEM



NOTE: Plate 1, Geomorphic Map, Shows Location of Section

CHARCOAL SAMPLE LOCATIONS
ANAVERDE FLOOD CONTROL FACILITY
AND SPORTS COMPLEX
PALMDALE, CALIFORNIA

Project No.	960072-001
Scale	AS SHOWN
Engr./Geol.	GEM/EMG
Drafted by	KP/CMM
Date	07/96

Figure No. 4-

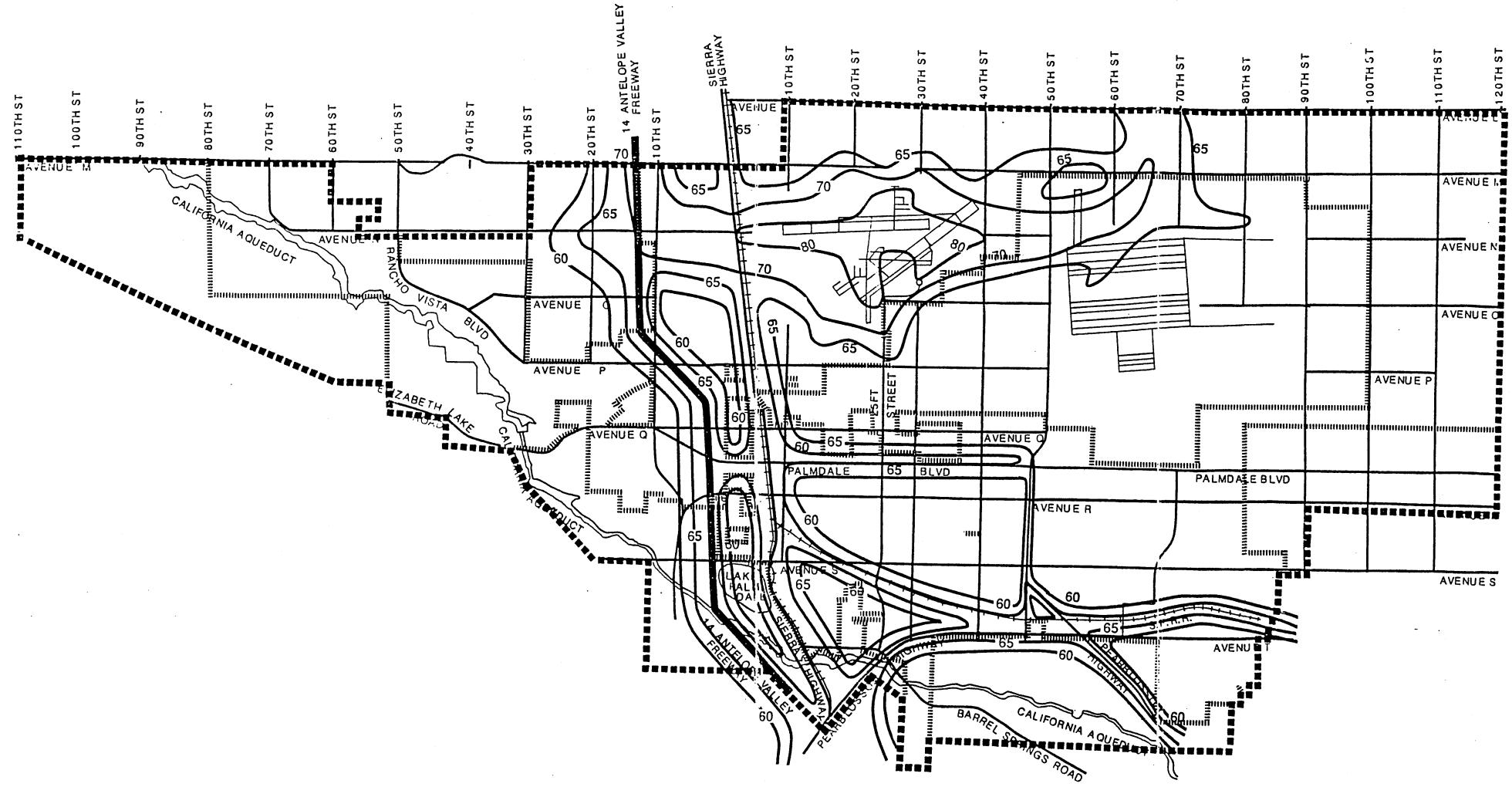
REMAINING PORTIONS OF THE

GEOTECHNICAL REPORT ARE

AVAILABLE FOR REVIEW AT

THE CITY OF PALMDALE

10.3 Noise Data



4010003 AUGUST 1989

0 1600 3200 FEET

Existing Transportation Noise Contours
Palmdale General Plan

Exhibit N-3

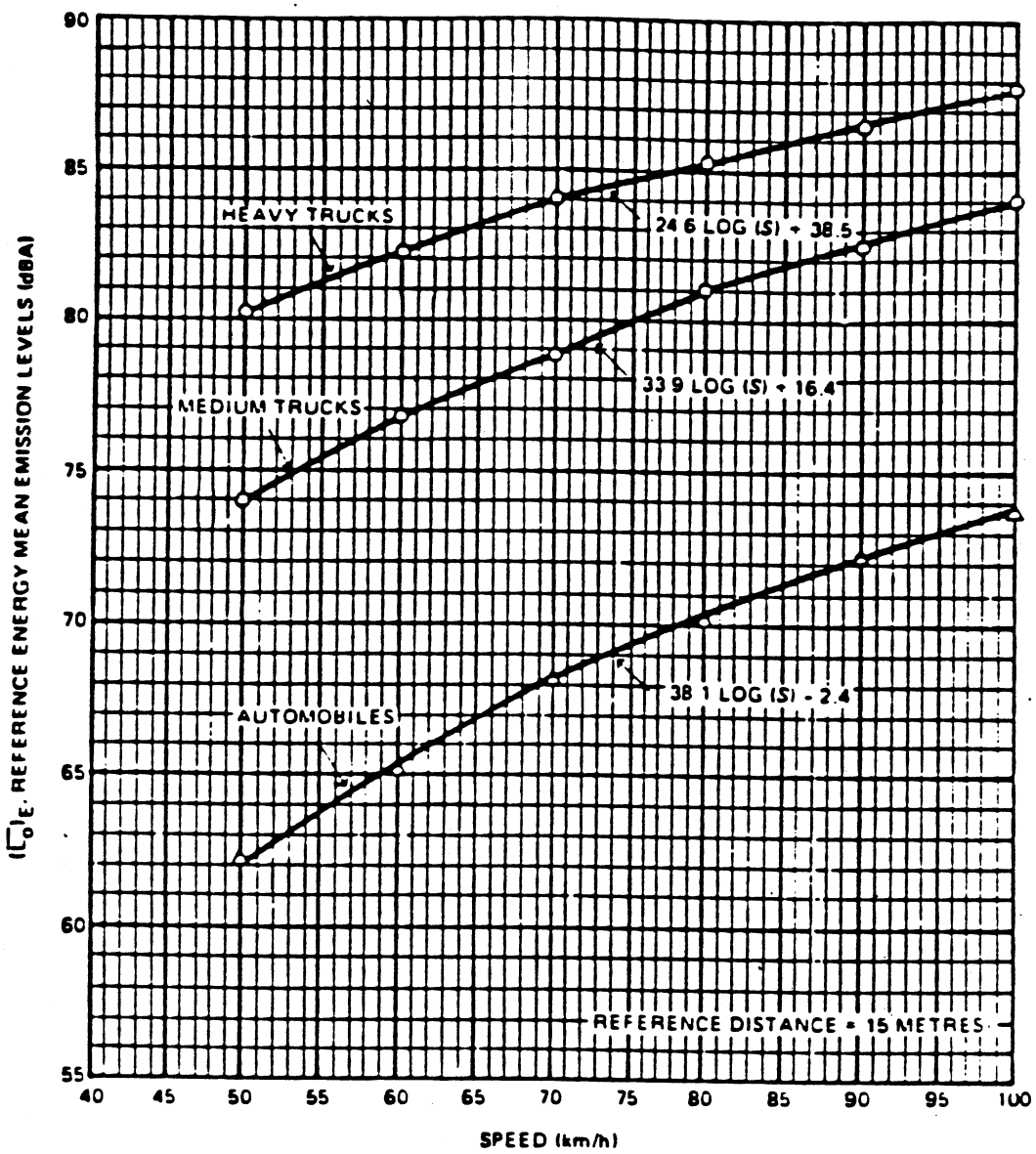


Figure 2. Reference Energy Mean Emission Levels as a Function of Speed

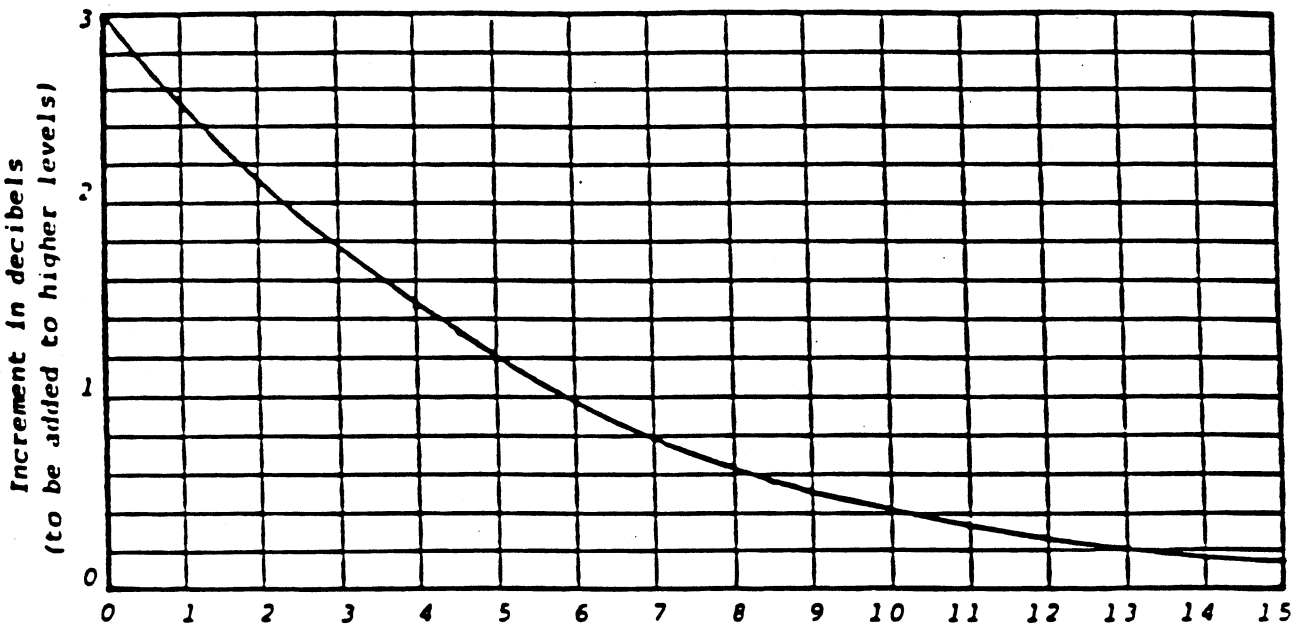
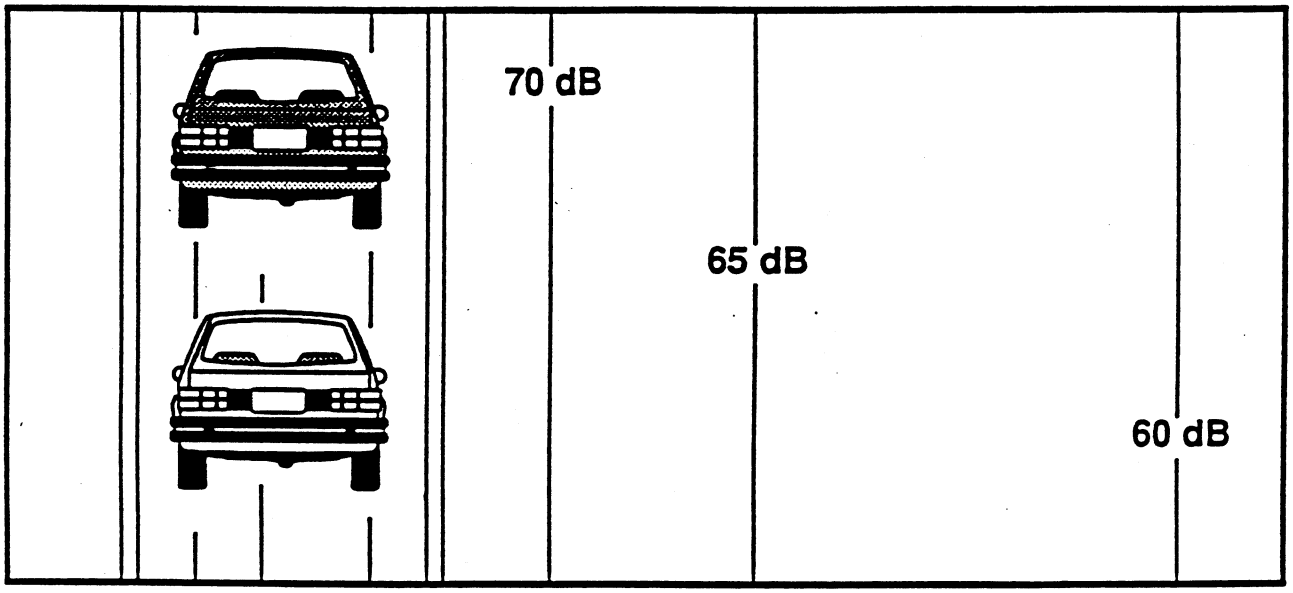


FIGURE 5 Chart for combining sound levels by "decibel addition".

Example: Add 50 and 56 dB. Since the difference between the two levels is 6, enter at 6 on the horizontal axis. Read up to the curve and read left to 1. Add 1 dB to the higher level, 56, to yield the answer, 57 dB.



4010003 AUGUST 1989

Michael Brandman Associates

Exhibit N-2

Example of Noise Contours
Palmdale General Plan

10.4 Traffic Study

ANAVERDE FLOOD CONTROL BASIN

SPORTS COMPLEX

TRAFFIC IMPACT STUDY

Palmdale, California

Prepared for

City of Palmdale

Prepared by

Robert Bein, William Frost & Associates

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JN 32668

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EXECUTIVE SUMMARY

The proposed project consists of a recreational park facility containing 10 soccer fields, located west of the SR-14 Freeway and south of Rayburn Road in the City of Palmdale. The proposed project is forecast to generate approximately 1,400 average daily trips and 700 p.m. peak hour trips; no a.m peak hour trips are forecast to be generated.

The study intersections examined in this analysis are currently operating at or are forecast to operate with the addition of project-generated trips at either Level of Service A or B during the critical p.m. peak hour.

Based on performance criteria contained in the City of Palmdale General Plan Circulation Element, which identifies the targeted Level of Service as Level of Service C or better, no traffic mitigation measures are required for the proposed project, since all study intersections are forecast to operate at Level of Service A or B with the addition of project-generated traffic.

INTRODUCTION

The proposed project is located in the City of Palmdale, in the Antelope Valley area of Los Angeles County. Specifically, the proposed project is located west the SR-14 Freeway, south of Rayburn Road and east of Tierra Subida in the southern portion of the City of Palmdale.

The proposed project consists of a recreational use facility containing 10 soccer fields, with parking provided for 310 automobiles and four buses. Access to the project site is provided at Tierra Subida and Rayburn Road.

EXISTING CONDITIONS

To determine the operation of the affected roadway circulation system in the vicinity of the project site, the following three study intersections were identified for analysis by the City Traffic Engineer:

1) Tierra Subida/Rayburn Road
2) Tierra Subida/Avenue S
3) Division St/Rayburn Rd-Ave R

Intersection turning movement counts were taken during the a.m. peak hour and p.m. peak hour at the identified study intersections on June 6, 1996; detailed traffic count data sheets are included in Appendix A.

According to the City of Palmdale General Plan Circulation Element, the targeted Level of

Service (LOS) for the City roadway network is LOS C or better (i.e, LOS A or B), with LOS D acceptable for short periods of time during the peak hour.

Table 1 summarizes the existing volume/capacity (v/c) ratio and corresponding LOS for the study intersections during the a.m. and p.m. peak hours, utilizing the Intersection Capacity Utilization (ICU) analysis methodology; detailed ICU calculation sheets are included in Appendix B.

Table 1
Existing Peak Hour V/C Ratio & LOS

Intersection	A.M. Peak Hour V/C Ratio - LOS	P.M. Peak Hour V/C Ratio - LOS
Tierra Subida/Rayburn Road	0.26 - A	0.46 - A
Tierra Subida/Avenue S	0.18 - A	0.37 - A
Division St/Rayburn Rd-Ave R	0.28 - A	0.37 - A

LOS Ranges:	*0.00 - 0.60*	*A*
	0.61 - 0.70	*B*
	0.71 - 0.80	*C*
	0.81 - 0.90	*D*
	0.91 - 1.00	*E*
	> 1.00	*F*

As shown in Table 1, all study intersections are currently operating at an acceptable LOS at LOS A during both the a.m. peak hour and the p.m. peak hour.

PROPOSED PROJECT

Trip Generation

The Institute of Transportation Engineers (ITE) Trip Generation manual does not contain specific information for an active recreational park with facilities similar to the proposed project, i.e., soccer fields. Therefore, trip generation rate assumptions utilized in this analysis to forecast trips to be generated by the proposed project site were derived through discussion with the City Traffic Engineer, based on field interview research with adult soccer personnel (coach, referee, etc.).

Such discussions with the City Traffic Engineer yielded trip generation rate assumptions of approximately 70 p.m. peak hour trips per soccer field and approximately 140 ADT per field, based on the following research ground data assumptions obtained through the interview

process:

- On average, players practice soccer after school, typically arriving at the site prior to the p.m. peak hour beginning, typically leaving the site during in the p.m. peak hour.

- Assume an average of 14 players per team practicing, supervised by two coaches, and three referees, with two teams per field.

- Assume that one vehicle is generated per player, which averages the carpooling of players to the site, the dropoff of players by parent/guardian (two peak hour trips generated to the site, one inbound, one outbound), and separate parental/guardian arrival at the site.

- Assume the five supervisory adults each drive separately to the site.

- For p.m. peak hour trip generation distribution, assume 44% are inbound and 56% are outbound. Hence, of the 70 trips assumed to be generated per field

- Conservatively assume two back-to-back practice sessions per day (i.e., as the two teams leave from the first practice session, two other teams arrive to use the field).

Table 3 summarizes project trip generation rate assumptions.

Table 3
Project Trip Generation Rates

Land Use	A.M. Peak Hour			P.M. Peak Hour			ADT
	Inbound	Outbound	Total	Inbound	Outbound	Total	
Soccer Field	0	0	0	31	39	70	140

Table 4 summarizes the forecast project trip generation utilizing the trip generation rates shown in Table 3.

Table 4
Project Trip Generation

Land Use	A.M. Peak Hour			P.M. Peak Hour			ADT
	Inbound	Outbound	Total	Inbound	Outbound	Total	
10 Soccer Field Facility	0	0	0	310	390	700	1,400

As shown in Table 4, the proposed project is forecast to generate approximately 700 p.m. peak hour trips and 1,400 ADT; no a.m. peak hour trips are forecast to be generated by the proposed project.

Trip Distribution

Based on discussions with the City Traffic Engineer, distribution patterns for project-generated trips were established as follows:

- One third of project-generated trips were distributed on Tierra Subida south of the project site, to Avenue S east of Tierra Subida; and

- Two thirds of project-generated trips were distributed on Tierra Subida north of the project site, where at the Tierra Subida/Rayburn Road intersection, 50% of these project generated trips were distributed to Tierra Subida north of Rayburn Road, with the other 50% of these trips distributed to Rayburn Road east of Tierra Subida and the SR-14 Freeway.

EXISTING PLUS PROJECT CONDITIONS

To determine the impact of project-generated trips on the operation of the study intersections, forecast project-generated a.m. peak hour and p.m. peak hour trips were added to the corresponding existing a.m. and p.m. peak hour intersection turning movements.

Table 5 compares the forecast existing plus project peak hour v/c ratios and corresponding LOS of the study intersections with existing peak hour traffic conditions; detailed ICU calculation sheets are included in Appendix B.

Table 5
Existing + Project Peak Hour V/C Ratio & LOS

Intersection	Existing A.M. Peak Hour V/C Ratio - LOS	Existing + Project A.M. Peak Hour V/C Ratio - LOS	Existing P.M. Peak Hour V/C Ratio - LOS	Existing + Project P.M. Peak Hour V/C Ratio - LOS
Tierra Subida/Rayburn Road	0.26 - A	0.26 - A	0.46 - A	0.61 - B
Tierra Subida/Avenue S	0.18 - A	0.18 - A	0.37 - A	0.50 - A
Division St/Rayburn Rd-Ave R	0.28 - A	0.28 - A	0.37 - A	0.44 - A

LOS Ranges:	*0.00 - 0.60*	*A*
	0.61 - 0.70	*B*
	0.71 - 0.80	*C*
	0.81 - 0.90	*D*
	0.91 - 1.00	*E*
	> 1.00	*F*

As shown in Table 5, all study intersections are currently operating at LOS A, and are forecast to operate at LOS A or LOS B for existing plus project traffic conditions.

MITIGATION MEASURES

No traffic impact mitigation measures are required for the proposed project since all study intersections are currently operating at or are forecast to operate at an acceptable LOS according to the City of Palmdale General Plan Circulation Element.

Specifically, all study intersections are operating at either LOS A or B for existing traffic conditions, as well as for forecast existing plus project traffic conditions.

PARKING

The proposed project provides 310 automobile parking spaces, and 4 bus parking spaces. While the project site is approximately 73 acres, approximately 45 acres of the project site is utilized for soccer field use; the remaining 30 acres of the project site is used for flood control.

According to County of Los Angeles parking requirements for public parks, one parking space is required for each half acre of developed up to 15 acres (hence, 30 acres), plus one parking space for each additional acre of developed park area in access of 15 acres (30 additional parking spaces). Therefore, the proposed project would require 60 parking spaces according to County of Los Angeles requirements.

It is worth noting however that the 65 parking spaces required per the County standards, as well as the 310 parking spaces may be significantly inadequate to park the site during a peak soccer field time, such as midday weekends. This traffic analysis evaluates the project traffic impacts during the weekday p.m. peak hour since that is when the roadway system in Palmdale experiences its greatest congestion. However, the proposed project is likely to generate the greatest amount of vehicle trips (and parking spaces) on midday weekends, when the surrounding roadway system is much less congested than during the weekday p.m. peak hour.

As noted in the *Trip Generation* section of this analysis, each field in use generates approximately 70 trips, and with 10 fields provided on the project site, this equates to approximately 700 trips generated by the site assuming one game per field. With each vehicle generating two trips, i.e., entering the site and exiting the site, approximately 350 parking spaces would be required to park these vehicles.

However, a conservative worst-case scenario may require up to approximately 700 parking spaces to adequately park the site (i.e., no off-site parking) for midday weekend events. On weekends, a possible worst-case scenario would involve back-to-back games on the fields which could require not only providing parking for all 10 soccer fields in use, but also require parking those vehicles associated with the following scheduled game before the current player trips exit the project site.

For example, if a game on a field is scheduled to end at 11:15 a.m., and the next game on that field is scheduled to start at 11:30 a.m., vehicles associated with the 11:30 a.m. game will typically arrive onsite between 11:00 a.m. and 11:15 a.m. to be ready to start playing soccer at 11:30, while the vehicles associated with the game ending at 11:15 a.m. will likely leave the site between 11:30 a.m. to 11:40 a.m.

Hence, a worst-case weekend scenario of back-to-back games could require approximately 700 parking spaces to adequately accommodate the approximate 30 to 40 minute overlap of two sets of 350 vehicles on site associated with back-to-back games.

An possible alternative to avoid such as worse-case parking scenario would be to require a minimum of one hour between when one game ends on a field until the next game on that same field scheduled to commence; however such an alternative could critically reduce the available playing hours per filed over a daily period.

APPENDIX A

PEAK HOUR INTERSECTION TURNING MOVEMENT COUNTS

Traffic Data Services, Inc.
TABULAR SUMMARY OF VEHICULAR TURNING MOVEMENTS

N/S STREET: TIERRA SUBIDA AVE E/W STREET: RAYBURN RD CITY: PALMDALE

DATE: 6/04/96 DAY: TUESDAY FILENAME: 0660101A

15 Min Period Beginning	Northbound NL	NT	NR	Southbound SL	ST	SR	Eastbound EL	ET	ER	Westbound WL	WT	WR	TOTAL
LANES:		1	0	1	1					1		1	
6:00 AM													
15 AM													
30 AM													
45 AM													
7:00 AM		78	5	33	40					4		56	216
15 AM		49	2	23	53					4		31	162
30 AM		25	6	28	62					7		21	149
45 AM		29	5	34	37					14		16	135
8:00 AM		39	6	36	32					6		36	155
15 AM		32	8	21	22					10		29	122
30 AM		40	1	23	45					6		23	138
45 AM		40	8	26	22					7		34	137
9:00 AM													
15 AM													
30 AM													
45 AM													
10:00 AM													
15 AM													
30 AM													
45 AM													
AM Peak Hr Begins at 700 VOLUMES =	0	181	18	118	192	0	0	0	0	29	0	124	662

COMMENTS: CONTROL TYPE: 1-WAY STOP (WEST LEFT ONLY)

Traffic Data Services, Inc.
TABULAR SUMMARY OF VEHICULAR TURNING MOVEMENTS

N/S STREET: TIERRA SUBIDA AVE E/W STREET: RAYBURN RD CITY: PALMDALE

DATE: 6/04/96 DAY: TUESDAY FILENAME: 0660101P

15 Min Period Beginning	Northbound NL	NT	NR	Southbound SL	ST	SR	Eastbound EL	ET	ER	Westbound WL	WT	WR	TOTAL
LANES:		1	0	1	1					1		1	
2:00 PM													
15 PM													
30 PM													
45 PM													
3:00 PM													
15 PM													
30 PM													
45 PM													
4:00 PM		53	16	27	29					8		43	176
15 PM		59	4	49	42					5		36	195
30 PM		64	4	45	46					4		38	201
45 PM		76	7	37	42					2		40	204
5:00 PM		74	4	26	52					3		32	191
15 PM		81	4	26	46					2		36	195
30 PM		86	6	23	48					1		37	201
45 PM		77	8	31	43					2		35	196
6:00 PM													
15 PM													
30 PM													
45 PM													
PM Peak Hr Begins at 1645 VOLUMES =	0	443	30	202	278	0	0	0	0	17	0	219	1189

COMMENTS: CONTROL TYPE: 1-WAY STOP (WEST LEFT ONLY)

Traffic Data Services, Inc.
TABULAR SUMMARY OF VEHICULAR TURNING MOVEMENTS

N/S STREET: DIVISION ST E/W STREET: AVE R/ RAYBURN RD CITY: PALMDALE

DATE: 6/04/96 DAY: TUESDAY FILENAME: 0660102A

15 Min Period Beginning	Northbound			Southbound			Eastbound			Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
6:00 AM													
15 AM													
30 AM													
45 AM													
7:00 AM	16	25	4	24	7	3	4	25	7	4	29	28	176
15 AM	6	26	1	18	10	1	3	15	11	1	19	28	139
30 AM	7	21	2	20	15	1	1	18	3	4	22	33	147
45 AM	4	26	10	27	10	5	0	29	6	1	15	40	173
8:00 AM	6	25	11	31	11	1	5	31	7	4	31	38	201
15 AM	2	15	8	11	14	0	3	24	9	3	23	28	140
30 AM	2	10	10	17	8	1	0	19	1	0	18	31	117
45 AM	7	17	3	17	7	4	2	27	5	1	35	44	169
9:00 AM													
15 AM													
30 AM													
45 AM													
10:00 AM													
15 AM													
30 AM													
45 AM													
AM Peak Hr Begins at 730 VOLUMES =	19	87	31	89	50	7	9	102	25	12	91	139	661

COMMENTS: CONTROL TYPE = 4-WAY STOP

Traffic Data Services, Inc.
TABULAR SUMMARY OF VEHICULAR TURNING MOVEMENTS

N/S STREET: DIVISION ST E/W STREET: AVE R/ RAYBURN RD CITY: PALMDALE
DATE: 6/04/96 DAY: TUESDAY FILENAME: 0660102P

15 Min Period Beginning	Northbound			Southbound			Eastbound			Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
2:00 PM													
15 PM													
30 PM													
45 PM													
3:00 PM													
15 PM													
30 PM													
45 PM													
4:00 PM	7	22	9	31	17	0	1	41	9	3	38	59	237
15 PM	6	18	5	31	17	1	2	40	11	1	39	39	210
30 PM	4	12	10	32	22	2	1	37	13	7	38	32	210
45 PM	8	23	3	32	20	1	5	37	9	7	42	40	227
5:00 PM	5	12	10	21	21	3	3	25	12	5	37	50	204
15 PM	5	20	12	35	29	1	1	28	9	7	42	33	222
30 PM	7	15	17	19	23	1	2	28	10	6	33	41	202
45 PM	7	24	11	30	22	0	1	33	10	6	39	34	217
6:00 PM													
15 PM													
30 PM													
45 PM													
PM Peak Hr Begins at 1600 VOLUMES =	25	75	27	126	76	4	9	155	42	18	157	170	884

COMMENTS: CONTROL TYPE = 4-WAY STOP

Traffic Data Services, Inc.
TABULAR SUMMARY OF VEHICULAR TURNING MOVEMENTS

N/S STREET: TIERRA SUBIDA AVE E/W STREET: AVE S CITY: PALMDALE
DATE: 6/04/96 DAY: TUESDAY FILENAME: 0660103A

15 Min Period Beginning	Northbound			Southbound			Eastbound			Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
6:00 AM													
15 AM													
30 AM													
45 AM													
7:00 AM	3	16	5	34	2	1	8	9	0	4	0	56	138
15 AM	0	10	11	50	5	5	1	1	0	4	0	38	125
30 AM	0	5	15	49	1	2	1	7	1	0	1	22	104
45 AM	0	7	15	31	6	1	3	7	0	4	0	33	107
8:00 AM	1	5	9	25	6	2	3	9	0	3	4	22	89
15 AM	1	5	15	22	4	2	1	9	0	2	1	22	84
30 AM	0	9	5	39	9	3	5	2	1	1	2	26	102
45 AM	0	10	1	24	5	1	1	2	0	2	5	30	81
9:00 AM													
15 AM													
30 AM													
45 AM													
10:00 AM													
15 AM													
30 AM													
45 AM													
AM Peak Hr Begins at 700 VOLUMES =	3	38	46	164	14	9	13	24	1	12	1	149	474

COMMENTS: CONTROL TYPE = 4-WAY STOP

Traffic Data Services, Inc.
TABULAR SUMMARY OF VEHICULAR TURNING MOVEMENTS

N/S STREET: TIERRA SUBIDA AVE E/W STREET: AVE S CITY: PALMDALE
DATE: 6/04/96 DAY: TUESDAY FILENAME: 0660103P

15 Min Period Beginning	Northbound			Southbound			Eastbound			Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
2:00 PM													
15 PM													
30 PM													
45 PM													
3:00 PM													
15 PM													
30 PM													
45 PM													
4:00 PM	1	8	5	32	12	1	0	2	0	6	2	41	110
15 PM	0	9	3	24	10	6	2	4	1	3	6	33	101
30 PM	0	7	6	33	19	2	5	3	0	14	13	56	158
45 PM	0	7	10	29	13	1	1	1	0	13	5	64	144
5:00 PM	0	3	5	49	10	1	7	3	0	8	12	67	165
15 PM	1	6	8	34	3	7	3	7	3	3	7	70	152
30 PM	0	5	2	42	8	5	2	3	0	7	6	69	149
45 PM	0	13	0	35	7	3	3	2	0	12	6	60	141
6:00 PM													
15 PM													
30 PM													
45 PM													
PM Peak Hr Begins at 1630 VOLUMES =	1	23	29	145	45	11	16	14	3	38	37	257	619

COMMENTS: CONTROL TYPE = 4-WAY STOP

APPENDIX B

ICU CALCULATION SHEETS

Intersection Capacity Utilization

ID: 32688a

LOCATION: **City of Palmdale**
NORTH–SOUTH ST. **Divsion St**
EAST–WEST STREET : **Rayburn Rd/Ave R**

TRAFFIC SCENARIO: **Existing**

GEOMETRIC : **Existing**

Analysis By: rjm
Date: 06–11–96
File: 32688a

Lane Capacity:

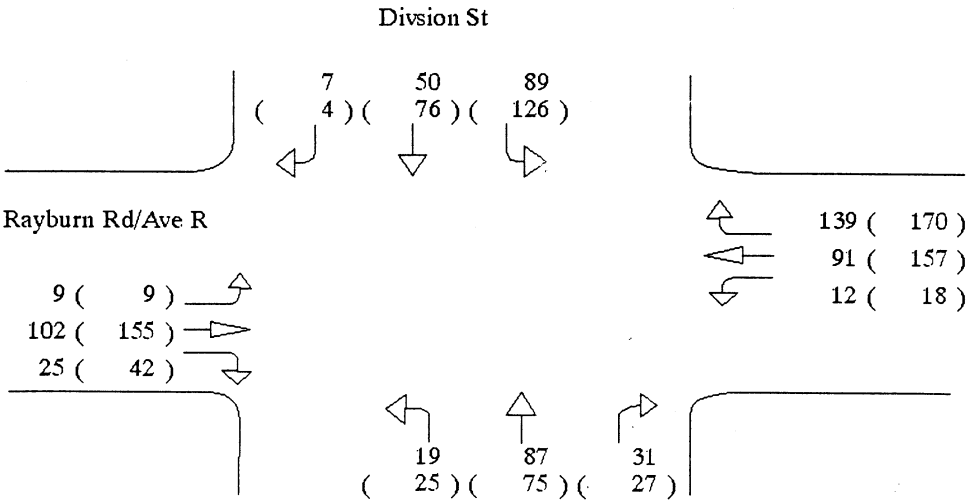
Thru –	1,700	Vehicle / Lane
Left –	1,700	Vehicle / Lane
Right –	1,700	Vehicle / Lane
Dual Left –	3,400	Vehicle / Lane

Right Turn On Red (Max. Allowed)

North–South Street:	0	Vehicle / Hour
East–West Street :	0	Vehicle / Hour

Movement		Number of Lanes	Capacity	A.M. Peak Hour Volumes	A.M. V/C Ratio	A.M. Critical V/C	P.M. Peak Hour Volumes	P.M. V/C Ratio	P.M. Critical V/C
Northbound	: Left	0	0	19	–	–	25	–	–
	: Thru	1	1,700	87	0.08	–	75	0.07	–
	: Right	0	0	31	–	–	27	–	–
Southbound	: Left	0	0	89	–	–	126	–	–
	: Thru	1	1,700	50	0.09	0.09	76	0.12	0.12
	: Right	0	0	7	–	–	4	–	–
Eastbound	: Left	0	0	9	–	–	9	–	–
	: Thru	1	1,700	102	0.08	–	155	0.12	–
	: Right	0	0	25	–	–	42	–	–
Westbound	: Left	0	0	12	–	–	18	–	–
	: Thru	1	1,700	91	0.14	0.14	157	0.20	0.20
	: Right	0	0	139	–	–	170	–	–
Sum of Critical V/C Ratios						0.23			0.32
Adjustment for Lost Time						0.05			0.05
Intersection Capacity Utilization (ICU)						0.28			0.37
Level of Service (LOS)						**A**			**A**

xxx(xxx) : am (pm) Peak Hour Volumes



LOS	V/C
A	< 0.60
B	0.61 – 0.70
C	0.71 – 0.80
D	0.81 – 0.90
E	0.91 – 1.00
F	> 1.00

file: 32688a

Intersection Capacity Utilization

ID: 32688b

LOCATION: **City of Palmdale**
NORTH–SOUTH ST. **Tierra Subida**
EAST–WEST STREET : **Avenue S**

TRAFFIC SCENARIO: **Existing**

GEOMETRIC : **Existing**

Analysis By: rjm
Date: 06–11–96
File: 32688b

Lane Capacity:

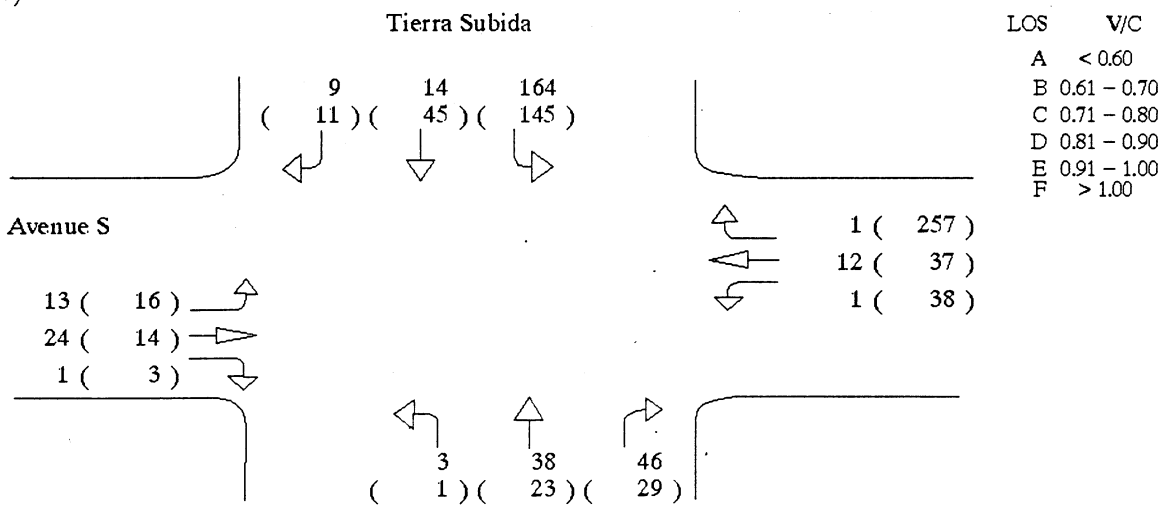
Thru –	1,700	Vehicle / Lane
Left –	1,700	Vehicle / Lane
Right –	1,700	Vehicle / Lane
Dual Left –	3,400	Vehicle / Lane

Right Turn On Red (Max. Allowed)

North–South Street:	0	Vehicle / Hour
East–West Street :	0	Vehicle / Hour

Movement		Number of Lanes	Capacity	A.M. Peak Hour Volumes	A.M. V/C Ratio	A.M. Critical V/C	P.M. Peak Hour Volumes	P.M. V/C Ratio	P.M. Critical V/C
Northbound	: Left	0	0	3	–	–	1	–	–
	: Thru	1	1,700	38	0.05	–	23	0.03	–
	: Right	0	0	46	–	–	29	–	–
Southbound	: Left	0	0	164	–	–	145	–	–
	: Thru	1	1,700	14	0.11	0.11	45	0.12	0.12
	: Right	0	0	9	–	–	11	–	–
Eastbound	: Left	0	0	13	–	–	16	–	–
	: Thru	1	1,700	24	0.02	0.02	14	0.02	–
	: Right	0	0	1	–	–	3	–	–
Westbound	: Left	0	0	1	–	–	38	–	–
	: Thru	1	1,700	12	0.01	–	37	0.20	0.20
	: Right	0	0	1	–	–	257	–	–
Sum of Critical V/C Ratios						0.13			0.32
Adjustment for Lost Time						0.05			0.05
Intersection Capacity Utilization (ICU)						0.18			0.37
Level of Service (LOS)						**A**			**A**

xxx(xxx) : am (pm) Peak Hour Volumes



LOS	V/C
A	< 0.60
B	0.61 – 0.70
C	0.71 – 0.80
D	0.81 – 0.90
E	0.91 – 1.00
F	> 1.00

file: 32688b

Intersection Capacity Utilization

ID: 32688c

LOCATION: **City of Palmdale**
NORTH–SOUTH ST. **Tierra Subida**
EAST–WEST STREET : **Rayburn Road**

TRAFFIC SCENARIO: **Existing**

GEOMETRIC : **Existing**

Analysis By: rjm
Date: 06–11–96
File: 32688c

Lane Capacity:

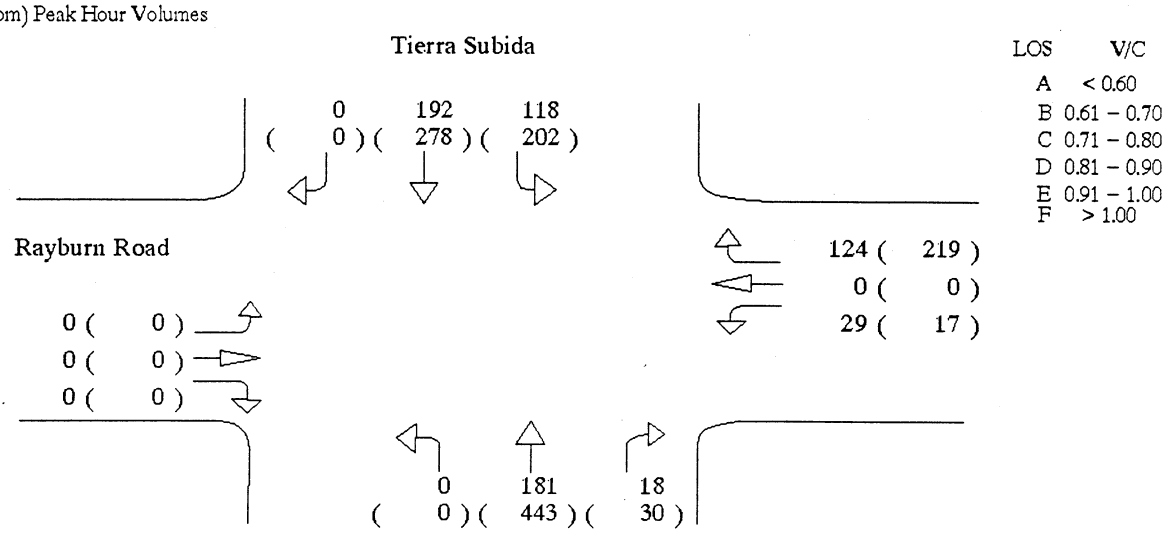
Thru –	1,700	Vehicle / Lane
Left –	1,700	Vehicle / Lane
Right –	1,700	Vehicle / Lane
Dual Left –	3,400	Vehicle / Lane

Right Turn On Red (Max. Allowed)

North–South Street:	0	Vehicle / Hour
East–West Street :	0	Vehicle / Hour

Movement		Number of Lanes	Capacity	A.M. Peak Hour Volumes	A.M. V/C Ratio	A.M. Critical V/C	P.M. Peak Hour Volumes	P.M. V/C Ratio	P.M. Critical V/C
Northbound	: Left	0	0	0	–	–	0	–	–
	: Thru	1	1,700	181	0.12	0.12	443	0.28	0.28
	: Right	0	0	18	–	–	30	–	–
Southbound	: Left	1	1,700	118	0.07	0.07	202	0.12	0.12
	: Thru	1	1,700	192	0.11	–	278	0.16	–
	: Right	0	0	0	–	–	0	–	–
Eastbound	: Left	0	0	0	–	–	0	–	–
	: Thru	0	0	0	–	–	0	–	–
	: Right	0	0	0	–	–	0	–	–
Westbound	: Left	1	1,700	29	0.02	0.02	17	0.01	0.01
	: Thru	0	0	0	–	–	0	–	–
	: Right	1	1,700	124	0.07	–	219	0.13	>>
Sum of Critical V/C Ratios						0.21			0.41
Adjustment for Lost Time						0.05			0.05
Intersection Capacity Utilization (ICU)						0.26			0.46
Level of Service (LOS)						**A**			**A**

xxx(xxx) : am (pm) Peak Hour Volumes



LOS	V/C
A	< 0.60
B	0.61 – 0.70
C	0.71 – 0.80
D	0.81 – 0.90
E	0.91 – 1.00
F	> 1.00

file: 32688c

Intersection Capacity Utilization

ID: 32688d

LOCATION: **City of Palmdale**
NORTH–SOUTH ST. **Divsion St**
EAST–WEST STREET : **Rayburn Rd/Ave R**

TRAFFIC SCENARIO: **Existing + Project**

GEOMETRIC : **Existing**

Analysis By: rjm
Date: 06–11–96
File: 32688d

Lane Capacity:

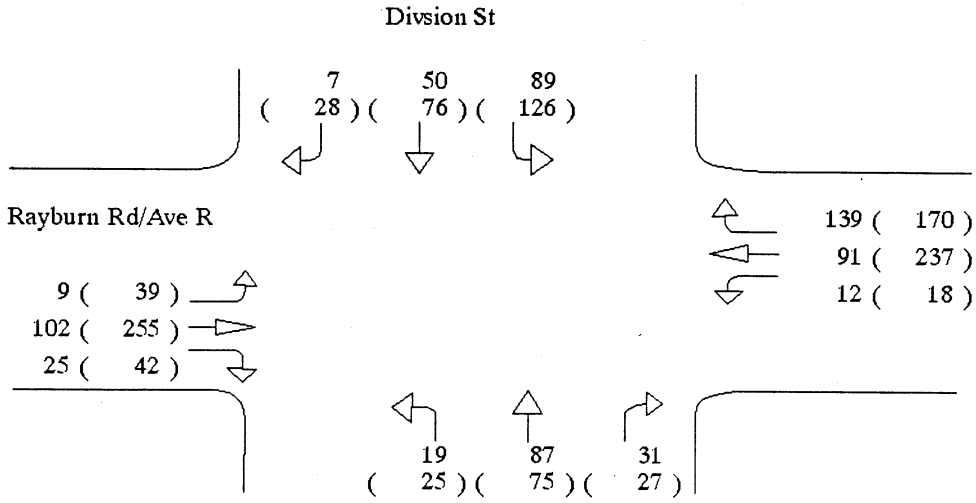
Thru –	1,700	Vehicle / Lane
Left –	1,700	Vehicle / Lane
Right –	1,700	Vehicle / Lane
Dual Left –	3,400	Vehicle / Lane

Right Turn On Red (Max. Allowed)

North–South Street:	0	Vehicle / Hour
East–West Street :	0	Vehicle / Hour

Movement		Number of Lanes	Capacity	A.M. Peak Hour Volumes	V/C Ratio	Critical V/C	P.M. Peak Hour Volumes	V/C Ratio	Critical V/C
Northbound	: Left	0	0	19	–	–	25	–	–
	: Thru	1	1,700	87	0.08	–	75	0.07	–
	: Right	0	0	31	–	–	27	–	–
Southbound	: Left	0	0	89	–	–	126	–	–
	: Thru	1	1,700	50	0.09	0.09	76	0.14	0.14
	: Right	0	0	7	–	–	28	–	–
Eastbound	: Left	0	0	9	–	–	39	–	–
	: Thru	1	1,700	102	0.08	–	255	0.20	–
	: Right	0	0	25	–	–	42	–	–
Westbound	: Left	0	0	12	–	–	18	–	–
	: Thru	1	1,700	91	0.14	0.14	237	0.25	0.25
	: Right	0	0	139	–	–	170	–	–
Sum of Critical V/C Ratios						0.23			0.39
Adjustment for Lost Time						0.05			0.05
Intersection Capacity Utilization (ICU)						0.28			0.44
Level of Service (LOS)						**A**			**A**

xxx(xxx) : am (pm) Peak Hour Volumes



LOS	V/C
A	< 0.60
B	0.61 – 0.70
C	0.71 – 0.80
D	0.81 – 0.90
E	0.91 – 1.00
F	> 1.00

file: 32688d

Intersection Capacity Utilization

ID: 32688e

LOCATION: **City of Palmdale**
NORTH–SOUTH ST. **Tierra Subida**
EAST–WEST STREET : **Avenue S**

TRAFFIC SCENARIO: **Existing + Project**

GEOMETRIC : **Existing**

Analysis By: rjm
Date: 06–11–96
File: 32688e

Lane Capacity:

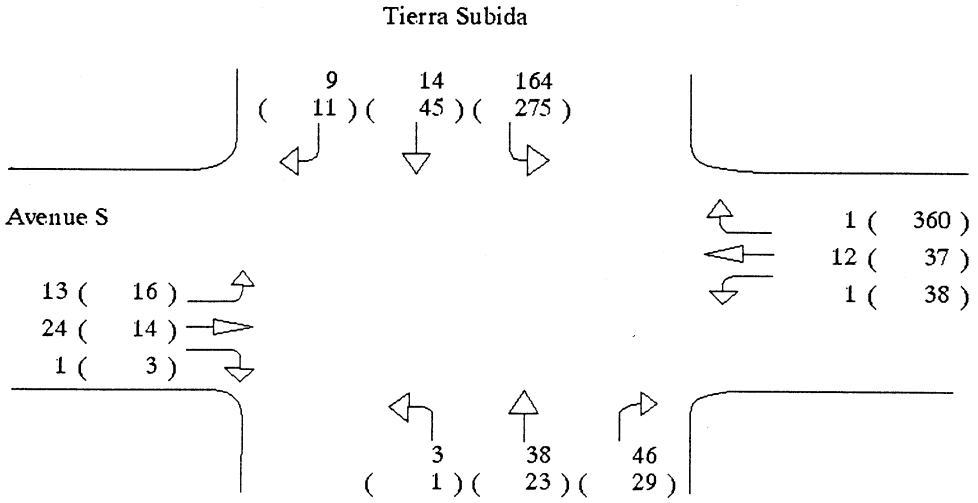
Thru –	1,700	Vehicle / Lane
Left –	1,700	Vehicle / Lane
Right –	1,700	Vehicle / Lane
Dual Left –	3,400	Vehicle / Lane

Right Turn On Red (Max. Allowed)

North–South Street:	0	Vehicle / Hour
East–West Street :	0	Vehicle / Hour

Movement		Number of Lanes	Capacity	A.M. Peak Hour Volumes	A.M. V/C Ratio	A.M. Critical V/C	P.M. Peak Hour Volumes	P.M. V/C Ratio	P.M. Critical V/C
Northbound	: Left	0	0	3	–	–	1	–	–
	: Thru	1	1,700	38	0.05	–	23	0.03	–
	: Right	0	0	46	–	–	29	–	–
Southbound	: Left	0	0	164	–	–	275	–	–
	: Thru	1	1,700	14	0.11	0.11	45	0.19	0.19
	: Right	0	0	9	–	–	11	–	–
Eastbound	: Left	0	0	13	–	–	16	–	–
	: Thru	1	1,700	24	0.02	0.02	14	0.02	–
	: Right	0	0	1	–	–	3	–	–
Westbound	: Left	0	0	1	–	–	38	–	–
	: Thru	1	1,700	12	0.01	–	37	0.26	0.26
	: Right	0	0	1	–	–	360	–	–
Sum of Critical V/C Ratios						0.13			0.45
Adjustment for Lost Time						0.05			0.05
Intersection Capacity Utilization (ICU)						0.18			0.50
Level of Service (LOS)						**A**			**A**

xxx(xxx) : am (pm) Peak Hour Volumes



LOS	V/C
A	< 0.60
B	0.61 – 0.70
C	0.71 – 0.80
D	0.81 – 0.90
E	0.91 – 1.00
F	> 1.00

file: 32688e

Intersection Capacity Utilization

ID: 32688f

LOCATION: **City of Palmdale**
NORTH–SOUTH ST. **Tierra Subida**
EAST–WEST STREET : **Rayburn Road**

TRAFFIC SCENARIO: **Existing + Project**

GEOMETRIC : **Existing**

Analysis By: rjm
Date: 06–11–96
File: 32688f

Lane Capacity:

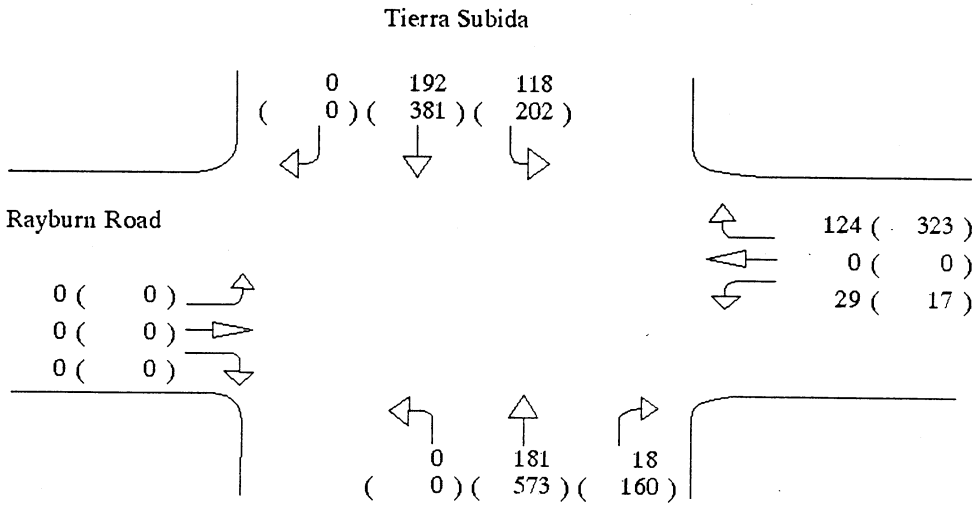
Thru –	1,700	Vehicle / Lane
Left –	1,700	Vehicle / Lane
Right –	1,700	Vehicle / Lane
Dual Left –	3,400	Vehicle / Lane

Right Turn On Red (Max. Allowed)

North–South Street:	0	Vehicle / Hour
East–West Street :	0	Vehicle / Hour

Movement		Number of Lanes	Capacity	A.M. Peak Hour Volumes	A.M. V/C Ratio	A.M. Critical V/C	P.M. Peak Hour Volumes	P.M. V/C Ratio	P.M. Critical V/C
Northbound	: Left	0	0	0	–	–	0	–	–
	: Thru	1	1,700	181	0.12	0.12	573	0.43	0.43
	: Right	0	0	18	–	–	160	–	–
Southbound	: Left	1	1,700	118	0.07	0.07	202	0.12	0.12
	: Thru	1	1,700	192	0.11	–	381	0.22	–
	: Right	0	0	0	–	–	0	–	–
Eastbound	: Left	0	0	0	–	–	0	–	–
	: Thru	0	0	0	–	–	0	–	–
	: Right	0	0	0	–	–	0	–	–
Westbound	: Left	1	1,700	29	0.02	0.02	17	0.01	0.01
	: Thru	0	0	0	–	–	0	–	–
	: Right	1	1,700	124	0.07	–	323	0.19	>>
Sum of Critical V/C Ratios						0.21			0.56
Adjustment for Lost Time						0.05			0.05
Intersection Capacity Utilization (ICU)						0.26			0.61
Level of Service (LOS)						**A**			**B**

xxx(xxx) : am (pm) Peak Hour Volumes



LOS	V/C
A	< 0.60
B	0.61 – 0.70
C	0.71 – 0.80
D	0.81 – 0.90
E	0.91 – 1.00
F	> 1.00

file: 32688f

10.5 Biological Assessment

BIOLOGICAL ASSESSMENT – PALMDALE SPORTS COMPLEX

July 17, 1996

Prepared for:

City of Palmdale

LSA

BIOLOGICAL ASSESSMENT -- PALMDALE SPORTS COMPLEX
ANAVERDE BASIN, PALMDALE, CALIFORNIA

July 17, 1996

Prepared for:

City of Palmdale
38306 Ninth Street East
Palmdale, CA 93550

Contact: Paul Scheibel

Prepared by:

LSA Associates, Inc.
6721 Five Star Blvd., Suite C
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(916) 630-4600
LSA Project #CCIP630

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INTRODUCTION

PURPOSE OF STUDY

The City of Palmdale (City) proposes to construct and operate a sports complex and flood control basin on several contiguous parcels of land totaling about 73 acres in the southwestern portion of the City. The parcels will be dedicated to the City by Los Angeles County, which previously proposed to excavate a flood control basin on this site. The City is the Lead Agency for review of the current project under the California Environmental Quality Act (CEQA). The City has determined, through preparation of an Initial Study, that an Environmental Impact Report (EIR) is necessary in order to evaluate potential environmental effects associated with the proposed project. LSA Associates, Inc. (LSA) was hired by the City to provide a technical biological assessment of the site in support of the EIR.

Los Angeles County prepared an EIR in 1986 for construction of a flood control basin on the site. The EIR, and supporting technical reports, assessed the site's biological resources and project impacts to those resources. LSA's current evaluation incorporates by reference and builds upon the previous biological work conducted on the project site by Lawrence Stromberg, Ph.D. under contract to Harding Lawson Associates (LACDPW and HLA, 1986), and Karlin Marsh (Marsh, 1988) as well as regional work conducted by LSA and others. These references are cited in the References section of this report.

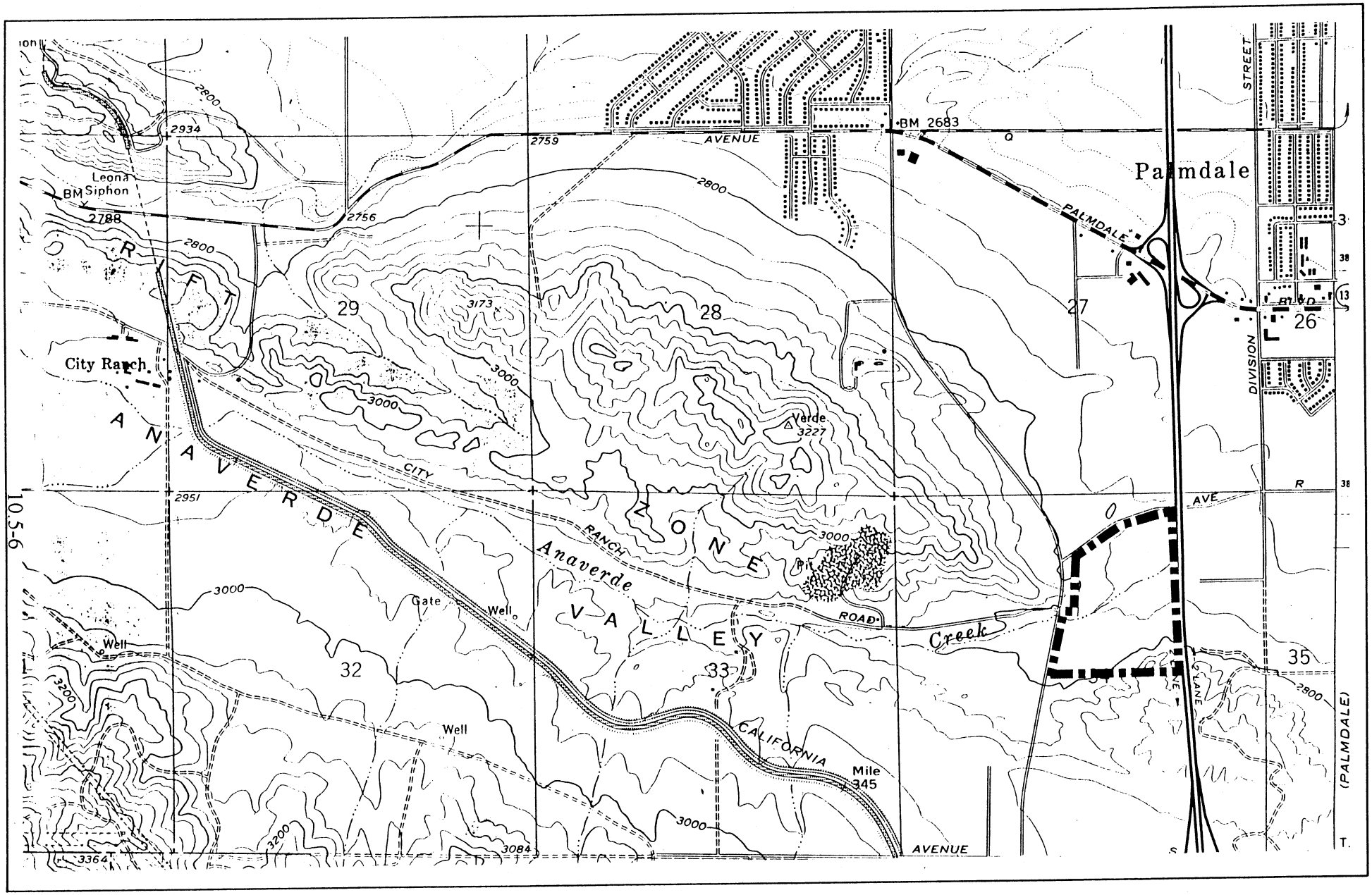
PROJECT LOCATION

The project site lies along the western side of the Antelope Valley Freeway (SR14) in the southwestern portion of the City of Palmdale (Figure 1). The site is bounded by Rayburn Road on the north, SR14 on the east, the extension of Avenue R-8 on the south, and Tierra Subida Avenue on the west.

PROJECT DESCRIPTION

The project incorporates mixed uses of flood control and recreation. Figure 2 provides a schematic of the proposed project layout. Flood control elements include construction of an earthen dam structure and improved drainage control devices for Anaverde Creek. Recreation elements include ten soccer fields (four of which would be lighted for nighttime use), parking areas and amenities. The project would be constructed in phases. The current plans call for construction of four soccer fields in the southern portion of the site during the first phase of the project. Ultimately, the majority of the site would be graded.

The basin would function as a floodwater detention facility, with a capacity of 1,117 acre feet. The dam height would be 40 feet above existing grade.



7/16/96(CIP630)

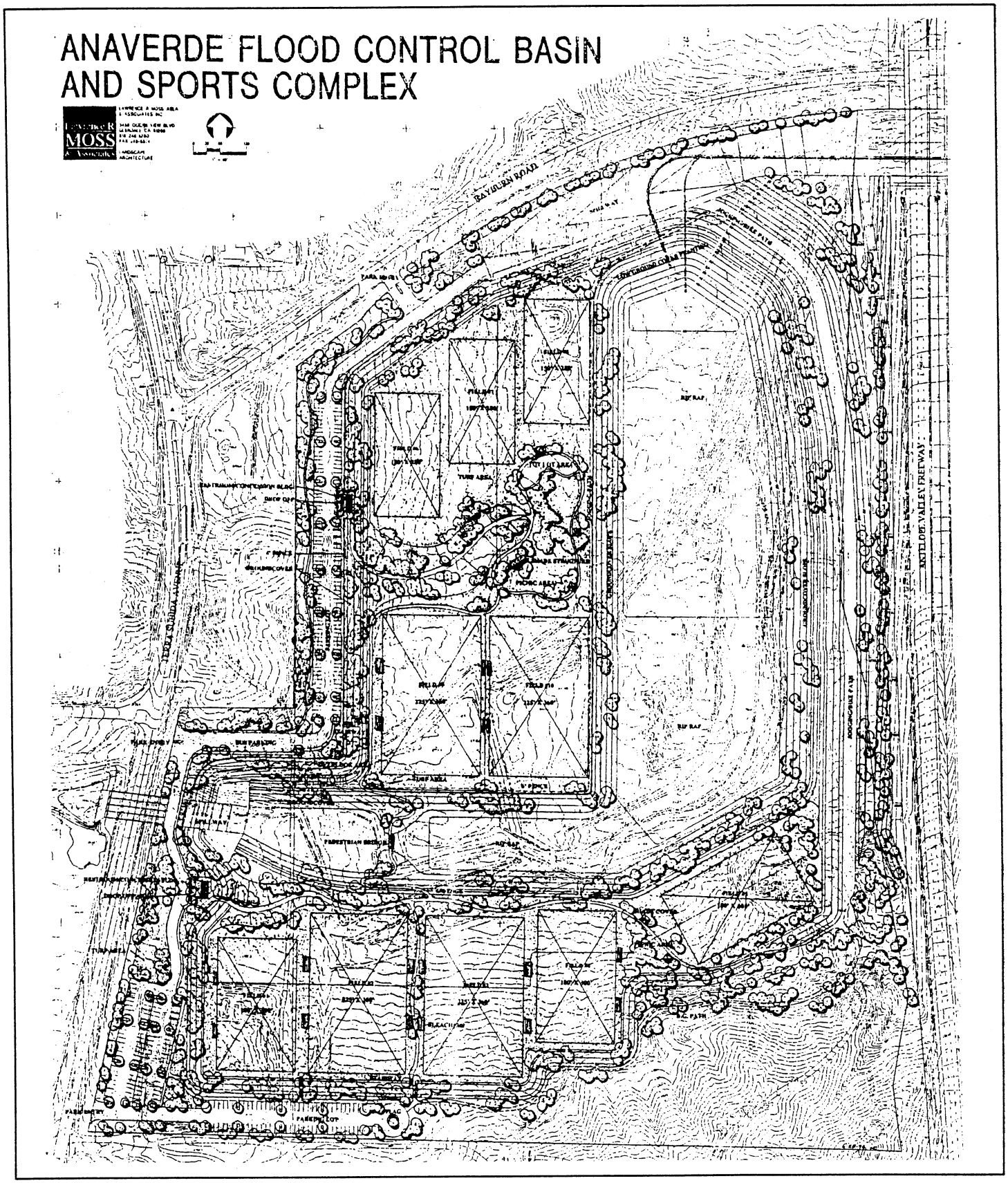
Figure 1

LSA

Scale in Feet

0 1000 2000

Project Location



7/16/96(CIP630)

Figure 2

LSA

Scale in Feet

0 150 300

Site Layout

A small (about four acres), privately owned parcel located at the northwest corner of the site would also be graded as part of the project.

REGULATORY CONTEXT

The site proposed for the Palmdale Sports Complex is within the general geographic range of several sensitive plant and wildlife species. Biological resources known from the general project vicinity may fall under agency jurisdictions and regulations described below.

City of Palmdale

The City of Palmdale is the Lead Agency for the CEQA review process and is responsible for the content of the EIR document. The City has discretionary authority over project approval and must make determinations regarding the significance of project impacts and appropriate mitigation measures.

U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service has jurisdiction over formally listed threatened and endangered species under the federal Endangered Species Act. The Act protects listed species from harm or "take," which is broadly defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." An activity may be defined as a "take" even if it is unintentional or accidental.

An endangered species is one which is considered in danger of becoming extinct throughout all or a significant portion of its range. A threatened species is one that is likely to become endangered within the foreseeable future. In addition to endangered and threatened species, which are legally protected under the federal Endangered Species Act, USFWS maintains lists of candidate species, i.e., species of concern that may be proposed for listing at a future date. Candidate species are those for which the USFWS currently has on file substantial information on the biological vulnerability and threats to support a proposal to list them as endangered or threatened.

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (Corps) is responsible, under Section 404 of the Clean Water Act, to regulate the discharge of dredged or fill material into waters of the United States. The definition of "waters of the United States" essentially includes any stream, lake or wetland area.

Any wetlands and water courses on the project site would likely be subject to Corps jurisdiction. A formal delineation of waters and wetlands on the property

has not yet been conducted. The City has requested that the Corps conduct a wetland delineation for the property.

A permit is required from the Corps for discharges (including incidental discharges associated with excavation) into jurisdictional waters. The Corps has issued a number of Nationwide Permits (NWPs) for minor activities affecting waters of the United States. NWP 26 authorizes projects in headwaters areas that impact less than ten acres of waters; formal notification of the Corps is required for projects affecting more than one acre of waters.

California Department of Fish and Game

The California Department of Fish and Game (CDFG) has jurisdiction over State-listed threatened and endangered species. Formally listed species are protected under State law. The State and federal lists are generally similar, although a few species present on one list may be absent from the other list.

Informal lists maintained by the State include California Species of Special Concern (CSC). This list is maintained through the California Natural Heritage Program; reported occurrences are maintained in the California Natural Diversity Data Base (CNDDB).

CDFG also requires a Streambed Alteration Agreement for alterations to the bed or banks of any watercourse or lake. Drainages on the site may fall under CDFG jurisdiction.

BIOLOGICAL SETTING

The project site lies at the base of the Sierra Pelona Mountains along the south slope of the Antelope Valley. Site elevations range from 2750' to 2800' above sea level and slopes are relatively gentle. Ridges and valleys in the project vicinity have a pronounced northwest-southeast trend resulting from repeated movements on the parallel San Andreas Fault, which passes within 2000' of the site.

Anaverde Creek, which bisects the project site, is an ephemeral stream draining an area of about 15.7 square miles. The Anaverde Valley is composed of recently deposited alluvium from Anaverde Creek and its tributary streams. The silty clays and sands found on the site have poor permeability characteristics. Although the water table in the vicinity is reportedly up to 200' deep (LACDWP and HLA, 1986), surface water was present along Anaverde Creek as late as May 1996. Water may be perched near the surface along the creek due to the impervious soil conditions. Additionally, the Little Rock fault, which crosses the site, may impede infiltration and movement of groundwater (LACDPW, 1986).

Anaverde Creek was graded and widened across the site during the 1980s to improve its definition and floodwater conveyance capacity. Los Angeles County excavated a small basin near the center of the site in 1988 as part of the first phase of the overall flood basin excavation. Excavation was halted after bedrock was encountered less than 25 feet below the surface. This excavated basin has subsequently collected seasonal runoff from Anaverde Creek and now supports a seasonal pond and wetland community.

A number of plant communities occur in the project vicinity, representing various expressions of desert scrub, riparian forest and seasonal marsh. These communities, and associated plant and wildlife species, are described fully in subsequent sections of this report.

STUDY METHODOLOGY

Due to time and budgetary constraints, and the amount of previous work on the site, exhaustive field investigations were not performed for this assessment. Emphasis was placed on existing literature, which is relatively extensive for the west Palmdale area. The objective of the limited field surveys was to accurately map plant communities and update information from the previous site investigations performed in the late 1980s.

LITERATURE REVIEW

Prior to conducting the field surveys, the existing literature was reviewed for information on the potential occurrence of sensitive habitats and special status plant and wildlife species in the project vicinity. A list of target species was prepared from information obtained from these sources. Target species include listed, proposed and candidate species, and other species of special interest, that may potentially occur in the project area. This list is presented in Table A.

Table A - Potential Sensitive Species from the Palmdale Vicinity

Scientific Name	Common Name	Status		
		Federal	State	Other
Plants				
Chorizanthe spinosa	Mojave spineflower	former C3C	NA	CNPS 4
Calochortus striatus	Alkali mariposa lily	former C2	NA	CNPS 1B
Calystegia peirsonii	Peirson's morning glory	former C2	NA	CNPS 4
Perideridia gairdneri ssp. *gairdneri*	Gairdner's yampah	former C2	NA	CNPS 4
Animals				
Plebujus emigdionis	San Emigdio blue	former C2		
Scaphiopus hammondii	Western spadefoot	former C2	CSC	
Bufo microscaphus californicus	Arroyo toad	E	CSC	
Rana aurora draytonii	California red-legged frog	E	CSC	
Clemmys marmorata pallida	Southwestern pond turtle	former C2	CSC	
Xerobates agassizii	Desert tortoise	T	T	
Coleonyx variegatus abbotti	San Diego banded gecko	former C2		
Phrynosoma coronatum	Coast horned lizard	former C2 (*P.c. blainvillei*)	CSC	
Cnemidophorus tigris multiscutatus	Coastal western whiptail	former C2		
Anniella pulchra pulchra	Silvery legless lizard	former C2	CSC	

Key to Status Codes

Federal:

E	Endangered
T	Threatened
C2	Former Category 2 Candidate - no current status
C3C	Former Category C3 candidate - no current status

State:

E	Endangered
T	Threatened
CSC	California Species ofConcern

Other:

CNPS 1B	CA Native Plant Society List 1B
CNPS 4	CA Native Plant Society List 4

Scientific Name	Common Name	Status		
		Federal	State	Other
Thamnophis hammondii	Hammond's two-striped garter snake	former C2		
Accipiter cooperi	Cooper's hawk		CSC	
Speotyto cunicularia	Burrowing owl	former C2	CSC	
Empidonax traillii extimus	Southwestern willow flycatcher	E	E	
Eremophila alpestris actia	California horned lark	former C3C	CSC	
Lanius ludovicianus	Loggerhead shrike	NA	CSC	
Vireo bellii pusillus	Least Bell's vireo	E	E	
Dendroica petechia brewsteri	California yellow warbler		CSC	
Amphispiza belli belli	Bell's sage sparrow	former C2	CSC	
Agelaius tricolor	Tricolored blackbird	former C2	CSC	
Lepus californicus bennettii	San Diego black-tailed jackrabbit	former C2	CSC	
Onychomys torridus ramona	Ramona grasshopper mouse	former C2	CSC	
Neotoma lepida intermedia	San Diego desert woodrat	former C2	CSC	
Microtus californicus mohavensis	Mohave River vole	former C2	CSC	
Spermophilus mohavensis	Mohave ground squirrel	former C2	T	
Taxidea taxus	Badger		CSC	

Key to Status Codes

Federal:

E	Endangered
T	Threatened
C2	Former Category 2 Candidate - no current status
C3C	Former Category C3 candidate - no current status

State:

E	Endangered
T	Threatened
CSC	California Species ofConcern

Other:

CNPS 1B	CA Native Plant Society List 1B
CNPS 4	CA Native Plant Society List 4

FIELD SURVEYS

Site surveys were conducted on May 23 and July 2, 1996. The purpose of the surveys was to determine the type and extent of plant communities present on the site and the potential for occurrence of sensitive species based on the presence of suitable habitats. While general plant and wildlife surveys were conducted, focussed surveys for sensitive species were limited to those described below.

The study area was traversed several times on foot in order to clearly define the habitat types and identify the limits of each plant community. The composition of each plant community was visually assessed and community boundaries were mapped on a copy of the 100' scale photo-mylar provided to LSA by the project engineer. Plant communities were defined based on the dominant species present in each area. Seven different habitat types encompassing a total of approximately 79.7 acres were identified and mapped in the study area.

The survey for rare plants was limited to visual observations made during the habitat mapping effort. Systematic reconnaissance transects across the site for target species were not conducted; however, localized areas that had significant habitat potential for rare plants were closely examined. An inventory of all the plant species observed on the site during the survey was compiled, and is provided in Appendix A.

The optimal time to survey for spring flowering annual plants in the Mojave Desert region typically extends from mid-March to the end of May. Focused surveys for rare plants were previously conducted by Karlin G. Marsh in April of 1988; no rare plant species were identified on the project site at that time. LSA's plant surveys were conducted during July; thus, the likelihood of finding many of the spring flowering annual plants was poor.

Wildlife surveys focussed on the riparian and wetland habitats associated with Anaverde Creek, which were considered to provide the highest wildlife value. A complete list of butterfly and vertebrate species observed on the site is included in Appendix B.

RESULTS AND DISCUSSION

PLANT COMMUNITIES

The plant community types observed by LSA on the project site are consistent with those previously recorded, with the addition of riparian and wetland habitats that have developed along the Anaverde Creek drainage subsequent to the site investigations in 1986 and 1988. Table B provides an acreage breakdown of the plant communities mapped by LSA. Figure 3 shows the distribution of the various plant communities on the site.

Table B - Plant Communities

Plant Community	Approximate Acreage
Willow Forest	1.4
Seasonal Freshwater Marsh	0.3
Cattail Marsh	0.3
Disturbed/Ruderal	12.6
Juniper Woodland	12.0
Disturbed Great Basin Sage Scrub	44.3
Mojave Mixed Scrub	8.8
Total	79.7

The classifications presented below are based on the dominant vegetative features in each plant community. This classification scheme reflects LSA's generalized mapping effort to categorize and map the existing habitat types on the project site in an accurate and concise manner.

Willow Forest (WF)

This plant community comprises a total of approximately 1.4 acres of the project site, limited to the bottom of the detention basin and the creek channel area. This plant community is dominated by developing red willows (*Salix laevigata*), which form a fairly dense, mostly continuous, riparian canopy that trends northeasterly from the small basin along the creek channel. Other sub-dominant species observed in this community include: Fremont cottonwood (*Populus fremontii*), narrow-leaved willow (*Salix exigua*), mulefat (*Baccharis salicifolia*), and scattered tamarisk (*Tamarix* sp.).

Seasonal Fresh Water Marsh (SFWM)

This habitat type is distributed intermittently along the creek channel in the openings of the willow forest and adjacent to the willow forest within the small basin. A total of approximately 0.3 acre is occupied by this plant community, which consists of low growing annual and perennial species adapted to growing in moist conditions. Common species include bulrush (*Scirpus maritimus*), Mexican rush (*Juncus mexicanus*), and heliotrope (*Heliotropium curassavicum*). Other species less commonly observed include: beard grass (*Polypogon maritimus*), salt grass (*Distichlis spicata*), cockle bur (*Xanthium strumarium*), and frankenia (*Frankenia* sp.).

Cattail Marsh (CM)

The cattail marsh is restricted to the excavated basin area. This plant community comprises a total of 0.3 acre and is dominated by Southern cattail (*Typha domingensis*). Included in this habitat type is a small area of open water where water apparently ponds seasonally.

Disturbed/Ruderal (D/R)

This community type encompasses a total of approximately 12.6 acres within the project site and is typically dominated by nonnative ruderal species. The majority of this area is located in the south-central portion of the site, (south of the small basin) and is dominated by a complex of several different species of mustards, native and nonnative grasses, and ruderal forbs. Common species observed include: tansy mustard (*Descurainia* sp.), hirschfeldia (*Hirschfeldia incana*), tumble mustard (*Sisymbrium altissimum*), tumble weed (*Salsola tragus*), cheat grass (*Bromus tectorum*), red brome (*Bromus madritensis* ssp. *rubens*), foxtail barley (*Hordeum murinum* ssp. *leporinum*), mediteranean grass (*Schismus barbatus*), desert needle grass (*Achnatherum speciosum*), and storksbill (*Erodium cicutarium*). In several areas, plant species from adjacent communities are found scattered throughout this plant community but are not common enough to warrant a different classification. This classification also includes a few of the larger roads through the site that are devoid of vegetation and other recently disturbed areas that do not yet support established vegetation.

Juniper Woodland (JW)

This plant community occurs in three distinct areas on the project site and comprises a total of approximately 12.0 acres. California juniper (*Juniperus californica*) is the dominant vegetative feature in the community, however, the composition of the understory differs from area to area. The juniper woodland at the northeastern end of the site has been recently disturbed by heavy equipment. The understory in this area is relatively open and common species include matchweed (*Gutierrezia sarothrae*), yucca (*Yucca whipplei*), Cooper's

goldenbush (*Ericameria cooperi*), desert buckwheat (*Eriogonum fasciculatum* var. *polifolium*), scattered bladder sage (*Salazaria mexicana*) and an occasional cotton thorn shrub (*Tetradymia spinosa*). The juniper woodland on the knoll on the northwestern side of the site has a slightly different understory component consisting of interior goldenbush (*Ericameria linearifolia*), yucca, Mormon tea (*Ephedra* sp.) and a greater proportion of desert buckwheat. The juniper woodland in the low lying north central portion of the site has a scrub understory similar to the Disturbed Great Basin Sage Scrub throughout much of the area, however portions of this understory community support some additional species including: bladder sage, Mormon tea, desert buckwheat, desert needlegrass and box thorn (*Lycium cooperii*).

Disturbed Great Basin Sage Scrub (DGBSS)

This habitat type is the most widespread on the project, including a total of approximately 44.3 acres. This designation encompasses a fairly broad range of habitat conditions, varying from a few well established stands of mature scrub with relatively little invasion of introduced, nonnative weeds, to areas of less developed scrub with more widely scattered, smaller shrubs having a greater component of nonnatives in the interstitial openings. The quality of this habitat varies throughout the site depending on the overall distribution and development of native plant species and the abundance of nonnatives. Dominant native plants in this community type include: great basin sagebrush (*Artemisia tridentata* ssp. *parishii*), rubber rabbit brush (*Chrysothamnus nauseosus*), and fourwing saltbush (*Atriplex canescens*). Other natives found in less abundance include: Cooper's goldenbush, Mormon tea, hop sage (*Grayia spinosa*), bladder sage, blue sage (*Salvia dorrii*), Mojave woolly-star (*Eriastrum densifolium* ssp. *mojavense*), squirrel tail (*Elymus elymoides*), desert needlegrass, fescue (*Vulpia microstachys*), and bluegrass (*Poa secunda*). A majority of this habitat type has a substantial ruderal component, generally including several species of mustard, nonnative annual grasses, and ruderal forbs

Mojave Mixed Scrub (MMS)

This plant community is found primarily on the steep slopes at the southeastern end of the project site, occupying a total of approximately 8.8 acres. Overall, this area has been substantially disturbed by ORV traffic and as a result, the plant community is dissected by many expo ed roads and trails. The lowland areas adjacent to the steep slopes within this community are dominated by desert buckwheat, matchweed, and Mojave woolly-star with other less dominant plants including: interior goldenbush, cheat grass, red brome, bluegrass, squirrel tail and Mediterranean grass. The steep slopes consist of large amounts of Mormon tea, bladder sage, matchweed, bluegrass, and lesser amounts of desert buckwheat, cotton thorn, princes plume (*Stanleya pinnata*), fescue, and nonnative annual grasses. Near the crest of these hills creosote bush (*Larrea tridentata*) becomes a component of this community.

WILDLIFE

During the May 23 site visit, ponded water was present in the excavated basin and saturated surface soils were observed along Anaverde Creek. Water was no longer present in the basin by July 2; dried exotic Centrarchid fish littered the open spaces among the cattails. The only water observed on the site was in the bottom of a small 15-20 inch deep pit apparently dug by coyotes in the bottom of the debris basin.

Riparian vegetation that has grown up in the basin and along Anaverde Creek was not present when previous surveys were conducted in 1986 and 1988. A number of the species observed during the July survey were clearly associated with the riparian vegetation. Nevertheless, the riparian habitat does not appear to be sufficiently well developed to support any of the most sensitive species discussed below.

Wildlife observed on the site during May and July included Pacific tree frog, side-blotched lizard, Cooper's hawk, California quail, Costa's hummingbird, Say's phoebe, cliff swallow, cactus wren, California thrasher, black-tailed jackrabbit, California ground squirrel and coyote. Appendix B provides a complete list of the species observed.

The white-tailed antelope squirrel, a common and distinctive desert rodent, was reported on the site in 1986. Only the much larger California ground squirrel was noted at this time, possibly indicating displacement due to an increased amount of disturbance at the site.

SENSITIVE SPECIES AND HABITATS

Sensitive species as defined herein are those species that are listed or proposed for listing as threatened or endangered at the federal or state level, or are candidates[1] for listing as threatened or endangered, or are otherwise considered sensitive by federal or state agencies or by recognized conservation organizations (e.g., California Native Plant Society). Sensitive habitats are those that are of limited extent and have experienced extensive loss or degradation resulting from development or land use practices in recent years.

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1 Candidate species discussed herein were, until recently, included on lists formerly maintained by USFWS. Although they no longer have any official federal status, these species are, for the most part, still considered sensitive.

Plants

Mojave Spineflower (*Chorizanthe spinosa*) Former 3C, CNPS 4

This member of the Polygonaceae is a prostrate annual found in dry, sandy or gravelly soils of desert areas. Several other species of spineflower were identified on the project site by Marsh (1988); however, this particular species was not found at that time. LSA's survey effort did not reveal any evidence of this species on the project site.

Alkali Mariposa Lily (*Calochortus striatus*) Former C2, CNPS 1B

This plant occurs in alkali meadows and springy places and has been found as close as City Ranch (TMC 1990). This species typically flowers from April through June and is most conspicuous during flowering. All of the vernally wet areas on the project site are restricted to the retention basin and creek channel areas. These areas were thoroughly inspected for this species and no evidence of this species was observed during LSA's survey.

Peirson's Morning Glory (*Calystegia peirsonii*) Former C2, 4

This species appears to be relatively widespread in the foothills of the transverse ranges in northern Los Angeles County. According to Marsh (1988) this species has been taken at Bouquet Canyon Reservoir and elsewhere in Bouquet Canyon in the vicinity of the project area. Typical habitats include yellow pine forest and chaparral but it is also known to occur in desert scrub habitat in the Antelope Valley (Marsh 1988).

The higher quality scrub habitats on the project site were surveyed for this species, however because of the considerable disturbance throughout much of the project site these areas are fairly limited. No evidence of this species was observed during LSA's survey.

Gairdner's Yampah (*Perideridia gairdneri* ssp. *gairdneri*) Former C2, CNPS 4

Gairdner's yampah is a perennial herb that is found in broadl afed upland forest, chaparral, valley and foothill grassland, vernal pools and other mesic areas. The habitat for the subspecies is only vaguely described, but generally it appears to prefer more mesic habitats. This species was not located during LSA's survey of the project site.

Joshua Tree (Yucca brevifolia)

Joshua trees are considered an important regional resource that is afforded protection by many of the jurisdictions in which the trees occur, including the City of Palmdale. A limited number of Joshua trees occur on the Sports Complex site. Protection and/or relocation of Joshua trees will be required in accordance with the City's Native Desert Vegetation Ordinance.

Butterflies

San Emigdio Blue (*Plebujus emigdionis*) Former C2

This butterfly is primarily found along the Mojave River and riparian habitats near Santa Clarita. The San Emigdio blue is dependent upon its larval foodplant, *Atriplex canescens*. Although this plant is present on the project site, it is scattered and relatively rare, reducing the chances that this locally occurring blue is present.

Annurans

Arroyo Toad (*Bufo microscaphus californicus*) FE, CSC

This species is primarily a member of the cismontane fauna of southern California. Historic populations have been found on the desert slopes as close as Little Rock Creek on the north side of the San Gabriel Mountains (Schoenherr 1976), and it is known from a number of drainages to the northwest of the site in Los Padres National Forest. No arroyo toads were found during intensive aquatic sampling or focused nighttime surveys conducted by LSA along Amargosa Creek. Prime habitat (undisturbed, broad washes vegetated with mulefat, willow or sycamore) does not occur on the Sports Complex site. Available water and cover were probably insufficient for this species under original conditions on this stretch of Anaverde Creek. The basin might serve as appropriate habitat for frogs for much of the year, but this area as well as the entire drainage is apparently dry for months at a time, a condition probably unsuitable for this species.

California Red-Legged Frog (*Rana aurora draytonii*) FE, CSC

This species was recently listed by the federal government as an endangered species. Historically, the California red-legged Frog was found as close to the project site as Soledad Canyon. Red-legged frogs are also known from the San Andreas Rift Zone in the vicinity of the project site (M. R. Jennings, pers. comm.) LSA observed California red-legged frogs along Amargosa Creek near the western end of Ritter Ranch during focussed, intensive surveys conducted in 1995. The basin might serve as appropriate habitat for frogs for much of the

year, but this area as well as the entire drainage is apparently dry for months at a time, a condition probably unsuitable for this species.

Western spadefoot (*Scaphiopus hammondii*) Former C2, CSC

The western spadefoot is essentially restricted to cismontane California. Its known range is entirely west of the Sierran-desert range axis (Jennings and Hayes 1994). No western spadefoots were found on the site and it is unlikely that they occur there.

Reptiles

Desert Tortoise (*Xerobates agassizii*) FT, ST

This species is found in the Antelope Valley, but is not expected well into the foothills where the project site is located. No tortoises or tortoise sign have been found during previous surveys of the Ritter Ranch and City Ranch areas. This area is now considered outside the range of the desert tortoise.

Southwestern Pond Turtle (*Clemmys marmorata pallida*) Former C2, CSC

Southwestern pond turtles are known to be present along Amargosa Creek. Pond turtles require water for a significant portion of the year, and thus are not expected to occur on Anaverde Creek.

Silvery legless lizard (*Anniella pulchra pulchra*) Former C2, CSC

This animal is generally restricted to cismontane California, but there are scattered desert records including one from Lancaster in the Antelope Valley (Mullen 1989) and Klauber (1932) reported this species from desert scrub at the western edge of the Mojave desert. This reptile was documented during spring surveys on Amargosa Creek in 1995. Legless lizards are associated primarily with sandy or loose loamy substrates with sparse vegetation and potentially occur on the project site.

San Diego Banded Gecko (*Coleonyx variegatus abbotti*) Former C2

Banded geckos are possibly present on the project site in scrub habitats. Habitats on site may be marginal for this species due to the level of disturbance by cattle grazing and lack of rocky areas. The desert banded gecko (*C.v. variegatus*) is found in the Mojave Desert from Inyo County south to Mexico, *C.v. abbotti* inhabits coastal and cismontane southern California. If it is present on the project site, it is not clear which subspecies(s) would occur.

Coast horned lizard (*Phyrnosoma coronatum*) Former C2 (*P.c. blainvillei*), CSC

Suitable habitat for coast horned lizards is present in the upland areas of the site. Which subspecies of the coast horned lizard *P. c. blainvillei* or *P. c. frontale*, is present in the area is uncertain, but is irrelevant from a regulatory standpoint since both forms are considered California Species of Special Concern. Desert horned lizards (*Phyrnosoma platyrhinos*) may also occur in this area, but none were observed.

Coastal western whiptail (*Cnemidophorus tigris multiscutatus*) Former C2

Western whiptails have been found on Ritter Ranch and along Amargosa Creek. They may occur in scrub habitat on the site. It is uncertain what subspecies is involved: *C.t. tigris* of the Great Basin and Mojave Desert, which is not considered a sensitive species, or *C.t. multiscutatus* of cismontane Southern California.

Hammond's two-striped garter snake (*Thamnophis hammondii*) Former C2

This aquatic snake is primarily limited to cismontane Southern California, but has been found at Little Rock Creek on the north side of the San Gabriel Mountains (Schoenherr 1976) and was captured along Amargosa Creek during surveys conducted in June 1995. The two-stripe garter snake requires essentially year-round water, and thus is not expected to occur on Anaverde Creek.

Birds

Southwestern Willow Flycatcher (*Empidonax traillii*) SE, (*E.t. extimus*) FE

Willow Flycatchers are widespread migrants in southern California, but very few remain to nest. This species could potentially breed in riparian habitat on the project site, but there are no recent nesting records for Los Angeles County. At this time, riparian habitat in the basin, and especially the downstream channel, does not appear to be extensive enough or complex enough to support nesting by this species. The little willow flycatcher (state listed as endangered) is expected to occasionally visit the site during migration.

Least Bell's Vireo (*Vireo bellii pusillus*) FE, SE

A least Bell's vireo was observed along Amargosa Creek in 1994. Like the willow flycatcher, this species requires well-developed riparian habitat. At this time, riparian habitat on the site does not appear to be extensive enough or complex enough to support nesting by this species.

Cooper's Hawk (*Accipiter cooperi*) CSC

This is a widespread, but uncommon, breeding species in Southern California. Typical nesting sites are heavily wooded riparian and oak woodland areas. One was noted on site during the July site visit, but habitat on the site is not suitable for nesting.

Burrowing Owl (*Speotyto cunicularia*) Former C2, CSC

This species may be found in a number of open habitats, but is most often associated with ground squirrel burrows. Burrowing owls were observed on the eastern end of Ritter Ranch, west of the project site. No evidence of this species was found during the July site visit, but conditions appear suitable for migratory stopovers or wintering, and possibly even nesting.

Bell's Sage Sparrow (*Amphispiza belli belli*) Former C2, CSC

This, the cismontane California race of sage sparrow, was noted on the eastern portion of Ritter Ranch, west of the Sports Complex site. Previous reports of sage sparrows in the area (TMC 1990, PSBS 1990a) may also have referred to this subspecies. Bell's sage sparrows probably breed mainly or entirely in chamise chaparral, occurring on site as non-breeders, but could possibly breed on site as well.

Tricolored Blackbird (*Agelaius tricolor*) Former C2, CSC

This species was regularly observed along Amargosa Creek during LSA's spring 1994 surveys. Flocks of roughly 150 and 100 birds were noted foraging in grassland on the eastern portion of Ritter Ranch, west of the Sports Complex site. This species could occur on the project site.

California Horned Lark (*Eremophila alpestris actia*) Former C3C, CSC

Horned larks were found to be common breeders on disturbed grasslands at Ritter Ranch during LSA's spring 1994 surveys, and have been recorded during previous surveys as well. It is unknown what subspecies the local breeders belong to; *E.a. actia* is primarily found in cismontane areas while *E.a. ammophila* is the Mojave Desert breeding form. In general, nesting birds (of all species) in the immediate project vicinity are more typical of cismontane Southern California than the Mojave Desert. The species is probably restricted as a breeder to open grassland areas. This species may be present on the project site.

Loggerhead Shrike (*Lanius ludovicianus*) CSC

This species was observed in the vicinity of Ritter Ranch on several occasions during LSA's spring 1995 surveys and was recorded during previous surveys as well. This species may potentially nest and forage on the Sports Complex site.

California Yellow Warbler (*Dendroica petechia brewsteri=morcomi*) CSC

This subspecies is a widespread migrant and local breeder in Southern California; it is legally sensitive only in its role as a breeder. Many yellow warblers were found on LSA's spring 1994 surveys along Amargosa Creek, but none appear to have remained to nest. Marginally suitable nesting habitat for this species occurs within the riparian area along Anaverde Creek.

Mammals

Mohave Ground Squirrel (*Spermophilus mohavensis*) Former C2, ST

This species was recently reinstated as a State Threatened animal, at least temporarily. A trapping effort at Ritter Ranch, west of the Sports Complex site, was conducted by ERS (1990) following California Department of Fish and Game protocol. ERS did not trap or observe any Mohave ground squirrels, and noted that Ritter Ranch appeared to be south and west of the range of this species. Additional trapping with negative results was done for the City Ranch Specific Plan (1500 trap-days and 400 trap-nights in 1989, 1000 trap days and 500 trap nights in 1990) and in similar habitat near Barrel Springs (TMC 1990). The Mohave ground squirrel is no longer believed to occur in the area.

San Diego Black-Tailed Jackrabbit (*Lepus californicus bennettii*) Former C2, CSC

Black-tailed jackrabbits are relatively ubiquitous in open county. Two black-tailed jackrabbits were seen during the July site visit. It is unclear whether local animals are typical of cismontane *bennettii* or *L.c. deserticola* of the Mojave Desert.

Ramona Grasshopper Mouse (*Onychomys torridus ramona*) Former C2, CSC

Grasshopper mice trapped by TMC (1990) on the adjacent City Ranch may have been either cismontane *O.t. ramona* or *O.t. pulcher* of the Mohave Desert; taxonomic uncertainty clouds the issue for this species. These predatory mice may be present on the project site.

San Diego desert woodrat (*Neotoma lepida intermedia*) Former C2, CSC

These rodents have been reported by PSBS (1990a) in the Ritter Ranch Specific Plan Area. The local population may have been *intermedia* of cismontane Southern California, or one of the more interior races: *N.l. gilva* or *N.l. lepida*. A woodrat nest observed during the July site visit was probably that of a desert woodrat. Taxonomic uncertainty clouds the issue for this species.

Mohave River Vole (*Microtus californicus mohavensis*) Former C2, CSC

Voles have been trapped upstream in the Anaverde drainage at City Ranch, but conditions are probably too dry for the species at the project site. In addition, taxonomic uncertainty clouds the issue for this species.

Pallid Bat (*Antrozous pallidus*) CSC

This species lives in a range of habitats in Southern California, and thus may be present in the project vicinity.

Badger (*Taxidea taxus*) CSC

The remains of a badger were found by PSBS (1990b) along Amargosa Creek. Marsh (1988) reported a large den, possibly of a badger, on the site. Habitat on site appears suitable for the badger.

Sensitive Habitats

Sensitive habitats present on the site are limited to wetlands. Wetlands have generally suffered extensive losses both on a national and statewide basis. The relative importance of wetlands in performing an array of physical and biological functions makes them particularly valuable resources in any context. Accordingly, a number of programs exist at the federal, State and local levels for wetlands protection and regulation.

The Corps of Engineers (Corps) regulates discharges of dredged or fill material into *waters of the United States*. These *waters* include *wetlands* and non-wetland bodies of water that meet specific criteria. The Corps typically regulates any body of water displaying an *ordinary high water mark* (OHWM).

The Corps and EPA define wetlands as follows:

> *Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions.*

In order to be considered a *jurisdictional wetland* under Section 404, an area must possess *three* wetland characteristics: hydrophytic *vegetation*, hydric *soils*, and wetland *hydrology*. Each characteristic has a specific set of mandatory wetland criteria that must be satisfied in order for that particular wetland characteristic to be met. Several parameters may be analyzed to determine whether the criteria are satisfied.

Wetland delineations for 404 purposes must be done according to the *Corps of Engineers Wetlands Delineation Manual* (Corps Manual) (Environmental Laboratory, 1987). This manual provides different approaches to delineating wetlands depending on the complexity of the site and whether there is a need for quantitative evaluation and extensive documentation. Key federal agencies involved in delineating wetlands, including USFWS, EPA and the Natural Resource Conservation Service have adopted the Corps methodology for delineating wetlands.

The California Department of Fish and Game (CDFG), through provisions of the State of California Administrative Code, is empowered to issue agreements for any alteration of a river, stream or lake where fish or wildlife resources may adversely be affected. Streams (and rivers) are defined by the presence of a channel bed and banks, and at least an intermittent flow of water. CDFG regulates wetland areas only to the extent that those wetlands are part of a river, stream or lake as defined by CDFG.

Although a formal wetland delineation according to Corps standards has not yet been conducted on the site, it is apparent from the vegetation associations present that the site does support wetlands. Wetland areas include willow forest, cattail marsh and seasonal marsh habitats. LSA estimates that as much as two acres of the project area may be considered wetlands or other jurisdictional waters.

PROJECT IMPACTS

Impacts resulting from the proposed Sports Complex project include loss of plant communities and loss and disruption of wildlife. Native vegetation would be removed for construction of playing fields, parking areas and associated amenities, and for the proposed flood control improvements. Operation of the Sports Complex would displace wildlife from the site as well as the immediate site vicinity. Night lighting of four soccer fields would result in indirect impacts to off-site wildlife. Although some of the more human tolerant wildlife species may benefit from the replacement of natural desert vegetation with turf and artificial landscaping, the overall effect on wildlife would be negative.

The proposed improvements would affect primarily upland scrub habitats. These plant communities and associated wildlife are relatively common and widespread. There is existing development in the area and the habitats present are moderately degraded. Thus, the potential for any significant adverse project impacts would be limited to impacts to sensitive species or habitats occurring on the site.

IMPACTS TO SENSITIVE SPECIES

Although a number of sensitive species are known from the project vicinity, habitat for many of these species does not occur on site. No federally or state listed or proposed species are expected to occur on site.

Impacts to Sensitive Plants

None of the species of sensitive plants listed in Table A are expected to occur on the site. For most of these species, appropriate habitat is not available or the site is outside of the known range. None of these species has been recorded in the direct vicinity of the project. Although only about ten Joshua trees were found on the site, these trees would all be impacted by the project. Per City guidelines, this impact is considered significant.

Impacts to Sensitive Wildlife

To facilitate discussion of project affects on sensitive wildlife, the species listed in Table A may be divided into the following three categories: 1) species potentially present that may be adversely affected by the project; 2) species that may potentially use the site on an occasional basis, but are not likely to be impacted by the project; and 3) species unlikely to be present due to lack of appropriate habitat.

1. *Species Potentially Present - May Be Impacted by Project*

This category includes those species listed in Table A that are known to use the site, or are potentially present based on the habitat types available. If present, these species may be adversely impacted by the Sports Complex project. Species falling in this category include the following:

- Silvery legless lizard
- San Diego banded gecko
- Coast horned lizard
- Coastal western whiptail
- Burrowing owl
- Bell's sage sparrow
- Loggerhead shrike
- San Diego black-tailed jackrabbit
- Ramona grasshopper mouse
- San Deigo desert woodrat
- Badger

Of the above species, only the San Diego black-tailed jackrabbit has positively been identified on the site. The taxonomic status of a number of these species is uncertain, which clouds the issue of sensitivity.

2. *Species Potentially Occurring - No Impacts Expected*

This category includes more wide ranging species that may occasionally roost or forage on the project site. The territories and/or home ranges of these species are quite large or their foraging or migratory movements are extensive, and the habitat provided by the Sports Complex site is not extensive or unique. Thus, adverse effects to the site's habitat resources would not be expected to adversely impact these species. Included in this category are the following species:

- Cooper's hawk
- Tricolored blackbird
- California horned lark
- California yellow warbler
- Pallid bat

3. *Species Unlikely to be Present*

Included in this category are species with specific habitat requirements that are either not met on the site, or the site provides only marginal quality habitat. Also included are species that generally do not occur in the site vicinity. The following species are included in this category:

- San Emigdio blue

- Arroyo toad
- California red-legged frog
- Southwestern pond turtle
- Desert tortoise
- Hammond's two-stripe garter snake
- Least Bell's vireo
- Southwestern willow flycatcher
- Mojave River vole
- Mohave ground squirrel

No formally listed species are expected to occur on the project site. Several other sensitive species may are present, but are not expected to be significantly affected by the project due to the following factors: 1) most are still common and widespread enough that they are not considered highly sensitive; and 2) the site does not provide high quality habitat for these species. The western burrowing owl is an exception; this species is in sufficient decline such that any impact to nesting birds would be considered significant. Focussed surveys for burrowing owls should be conducted prior to any construction activities during the breeding season.

In addition, although not expected to occur on site, least Bell's vireo and southwestern willow flycatcher should be surveyed for in the spring prior to any activities affecting riparian habitat. Surveys are recommended because of the presence of riparian habitat on site and the slight potential for these listed species to be present. A spring survey is also recommended to more fully consider the federally listed arroyo toad and red-legged frog, as well as the western spadefoot. If any listed species are determined to be present, project impacts would be considered significant.

IMPACTS TO SENSITIVE HABITATS

Sensitive habitats on the site are limited to wetlands. The project, as proposed, would impact about two acres of wetlands consisting of willow forest, cattail marsh and seasonal freshwater marsh. This is a significant project impact.

CUMULATIVE IMPACTS

Cumulative impacts are those impacts specific to the proposed Sports Complex project considered in combination with impacts resulting from past, present and foreseeable future actions in the area. The impacts resulting from the combined actions may be significant over time even where individual project impacts are minor. For the Sports Complex project, cumulative effects were evaluated in terms of the combined impacts to plant communities, wildlife and sensitive biological elements.

The upland plant communities (e.g., disturbed great basin sage scrub, mixed Mojave scrub) occurring on the project site are regionally common and

widespread. The impacts to upland plant communities resulting from the Sports Complex project represent a very minor incremental impact on a relatively abundant resource base.

Cumulative impacts to non-sensitive wildlife are directly associated with cumulative losses of habitat, i.e., plant communities, as well as habitat degradation. Cumulative impacts to non-sensitive wildlife are considered minor because of the small incremental effect associated with the proposed project and the relative abundance of the wildlife resource base.

Except for Joshua trees, no sensitive plant species are expected to occur on the site due to lack of appropriate habitat; thus, the project would not contribute to cumulative impacts on these sensitive plants. Cumulative impacts to Joshua trees are considered significant.

Use of the project area by sensitive wildlife species is considered marginal based on available information. This is due to lack of appropriate habitat for many of the species coupled with the generally degraded nature of the site. Nonetheless, some use of the site by sensitive species is expected. Overall, the cumulative impact to sensitive wildlife from continued development within the Palmdale area is considered significant. The incremental impact from the Sports Complex project contributes to the overall significant reduction in regional habitat value for sensitive wildlife species.

Impacts to wetlands, as discussed previously, are considered significant on an individual project basis due to the limited extent of this resource and substantial wetland losses statewide. Cumulative impacts to wetlands would likewise be considered significant.

PROJECT IMPACTS: CONCLUSIONS

The proposed Sports Complex project would result in significant impacts to wetlands and Joshua trees, and could potentially result in significant impacts to burrowing owls, if this species is present on site. The project also contributes to significant cumulative impacts to sensitive wildlife species. There is limited potential for significant impacts to the arroyo toad, red-legged frog, least Bell's vireo, and southwestern willow flycatcher, if any of these species are present. Based on the site characteristics, LSA believes the possibility of these listed species being present is low.

RECOMMENDED MITIGATION MEASURES

The following mitigation measures are recommended in order to reduce or eliminate potential significant impacts to biological resources resulting from the proposed project. With implementation of these measures, project impacts can be reduced to less than significant levels.

PLANT COMMUNITIES AND WILDLIFE

1. Impacts to native plant communities shall be avoided to the maximum extent possible. Project limits shall be fenced or otherwise clearly marked to avoid potential encroachment outside of the designated project impact area.

2. Basin slopes and similar areas outside of active recreation areas shall be revegetated with native plant materials upon completion of grading. Native species should be specified in landscaping plans wherever possible. Landscaping should be designed to be consistent, and blend with, natural vegetation patterns.

3. A habitat restoration specialist shall participate in the development of the landscaping plans. Landscape plans and specifications shall address the following elements, designed to enhance the successful restoration of natural plant communities.

   - Topsoil preservation and reapplication
   - Site preparation including soil decompaction
   - Weed control
   - Use of fertilizers, herbicides, and pesticides
   - Plant palettes
   - Sources for plant materials
   - Performance standards

4. Construction shall be limited to daylight hours to minimize indirect impacts to crepuscular and nocturnal wildlife. Any night lighting used for security purposes shall be confined to project impact areas.

5. Night lighting shall be designed to be non-intrusive into adjacent, off-site areas to the maximum extent possible.

SENSITIVE SPECIES AND HABITATS

1. Focussed spring surveys shall be conducted to confirm the absence of the least Bell's vireo and southwestern willow flycatcher prior to grading in riparian areas. If these species are identified within project impact areas, work shall be deferred in these areas and appropriate mitigation

measures shall be developed and implemented in consultation with USFWS and CDFG.

2. Focussed spring surveys shall be conducted to confirm the absence of the arroyo toad and red-legged frog prior to grading in aquatic and marsh areas. If these species are identified within project impact areas, work shall be deferred in these areas and appropriate mitigation measures shall be developed and implemented in consultation with USFWS and CDFG.

3. Prior to project grading, focussed surveys shall be conducted to confirm the absence of burrowing owls on the site. If burrowing owls are detected, mitigation measures provided in the *Draft Staff Report on Burrowing Owl Mitigation* (CDFG September 13, 1994), shall be implemented. Consultation with CDFG will be required prior to grading on the project site. The mitigation measures are:

- Occupied burrows should not be disturbed during the nesting season (February 1 through August 31) unless, after consultation with the CDFG, a qualified biologist verifies that either: (1) the birds have not begun egg-laying and incubation; or (2) that juveniles from the occupied burrows are foraging independently and capable of independent survival.

- To offset the loss of foraging and burrow habitat, a minimum of 6.5 acres of foraging habitat (calculated on a 100-meter foraging radius around the burrow) per pair or unpaired resident bird, should be permanently protected. The protected foraging habitat should be adjacent to the occupied burrowing owl burrow and at a location selected by a qualified biologist after consultation with CDFG.

- If destruction of occupied burrows is unavoidable, existing unsuitable burrows should be enhanced (enlarged or cleared of debris) or created (by installation of artificial burrows) at a ratio of 1:1 within the protected foraging habitat area.

- If owls must be moved away from the disturbance area, passive relocation techniques should be used rather than trapping. At least one week should be allowed to accomplish this and allow the owls to acclimate to alternate burrows.

4. Impacts to potential wetland areas shall be avoided. Where unavoidable impacts may occur, a formal wetland delineation shall be conducted according to the 1987 Corps of Engineers Wetland Delineation Manual.

5. A Corps Section 404 Permit and/or California Department of Fish and Game Section 1603 Streambed Alteration Agreement shall be obtained, as appropriate, for any proposed alterations to stream channels and/or wetland areas.

6. Any impacts to wetland areas shall be mitigated in kind and within the same watershed at a minimum 1:1 replacement ratio. If it is not possible to perform in kind mitigation within the same watershed, a higher mitigation ratio may be required. A wetland mitigation plan shall be developed in conformance with Corps *Habitat Mitigation and Monitoring Proposal Guidelines.*

7. Impacts to Joshua tree woodlands shall be mitigated by protection of Joshua tree woodland habitat on the site, or, at the option of the City, acquisition of off-site habitat within the City sphere of influence. Prior to project grading, Joshua trees within the project area shall be accurately counted and evaluated, and a management plan developed to offset the loss of this regionally sensitive habitat. Mitigation measures shall include transplanting of individual trees to preserved habitat areas and/or replacement with nursery-grown trees at an appropriate ratio (e.g., 5:1).

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APPENDIX A - PLANT SPECIES OBSERVED

GYMNOSPERMAE	**CONE BEARING TREES AND ALLIES**
CUPRESSACEAE	CYPRESS FAMILY
Juniperus californica	California juniper
EPHEDRACEAE	EPHEDRA FAMILY
Ephedra sp.	Mormon tea
ANGIOSPERMAE: DICOTYLEDONES	**DICOT FLOWERING PLANTS**
APIACEAE	CARROT FAMILY
Lomatium mohavense	Lomatium
ASTERACEAE	SUNFLOWER FAMILY
Acamptopappus sphaerocephalus	Goldenhead
Ambrosia acanthicarpa	Annual bur-sage
Artemisia tridentata ssp. *parishii*	Great basin sagebrush
Baccharis salicifolia	Mule fat
Chrysothamnus nauseosus	Rubber rabbitbrush
Ericameria cooperi	Cooper's goldenbush
Ericameria linearifolia	Interior goldenbush
Eriophyllum confertiflorum	Golden yarrow
Filago gallica	Herba impia
Gutierrezia sarothrae	Matchweed
Hemizonia pungens	Common spikeweed
Hymenoclea salsola	Burrobrush
Lactuca serriola	Prickly lettuce
Senicio flaccidus ssp. *douglasii*	Groundsel
Tetradymia spinosa	Cotton-thorn
Xanthium strumarium	Cocklebur

Xylorhiza tortifolia var. *tortifolia*	Mojave aster
BORAGINACEAE	BORAGE FAMILY
Heliotropium curassavicum	Heliotrope
BRASSICACEAE	MUSTARD FAMILY
Descurainia sp.	Tansy mustard
Hirschfeldia incana	Hirschfeldia
Sisymbrium altissimum	Tumble mustard
Sisymbrium orientale	Sisymbrium
Stanleya pinnata	Prince's plume
CACTACEAE	CACTUS FAMILY
Opuntia echinocarpa	Silver cholla
CHENOPODIACEAE	GOOSEFOOT FAMILY
Atriplex canescens	Fourwing saltbush
Chenopodium californicum	California goosefoot
Grayia spinosa	Hop-sage
Krascheninnikovia lanata	Winter fat
Salsola tragus	Russian thistle
CUCURBITACEAE	GOURD FAMILY
Marah macrocarpus	Man-root
EUPHORBIACEAE	SPURGE FAMILY
Eremocarpus setigerus	Turkey mullein
FABACEAE	LEGUME FAMILY
Astragalus sp.	Astragalus
FRANKENIACEAE	FRANKENIA FAMILY

Frankenia sp.	Frankenia
GERANIACEAE	GERANIUM FAMILY
Erodium cicutarium	Storksbill
HYDROPHYLLACEAE	WATERLEAF FAMILY
Emmenanthe penduliflora	Whispering bells
Phacelia sp.	Phacelia
LAMIACEAE	MINT FAMILY
Marrubium vulgare	Horehound
Salazaria mexicana	Bladder sage
Salvia dorrii	Blue sage
POLEMONIACEAE	PHLOX FAMILY
Eriastrum densifolium ssp. *mojavense*	Mojave woolly-star
POLYGONACEAE	BUCKWHEAT FAMILY
Eriogonum fasciculatum var. *polifolium*	California buckwheat
Rumex hymenosepalus	Wild-rhubarb
SALICACEAE	WILLOW FAMILY
Salix exigua	Narrow-leaved willow
Salix laevigata	Red willow
Populus fremontii	Fremont cottonwood
SOLANACEAE	NIGHTSHADE FAMILY
Datura stramonium	Jimson weed
Lycium cooperi	Box thorn
Nicotiana sylvestris	Tobacco
TAMARICACEAE	TAMARISK FAMILY

Tamarix sp.	Tamarisk
ZYGOPHYLLACEAE	CALTROP FAMILY
Larrea tridentata	Creosote bush
ANGIOSPERMAE: MONOCOTYLEDONS	**MONOCOT FLOWERING PLANTS**
CYPERACEAE	SEDGE FAMILY
Scirpus maritimus	Bulrush
JUNCACEAE	RUSH FAMILY
Juncus mexicanus	Mexican rush
LILIACEAE	LILY FAMILY
Yucca brevifolia	Joshua tree
Yucca whipplei	Our Lord's Candle
POACEAE	GRASS FAMILY
Achnatherum speciosum	Desert needlegrass
Bromus madritensis ssp. *rubens*	Red brome
Bromus tectorum	Cheat grass
Distichlis spicata	Saltgrass
Elymus elymoides	Squirreltail
Hordeum murinum ssp. *leporinum*	Barley
Poa secunda	Bluegrass
Polypogon maritimus?	Mediterranean beard grass
Schismus barbatus	Mediterranean grass
Vulpia microstachys	Fescue
TYPHACEAE	CATTAIL FAMILY
Typha domingensis	Southern cattail

Taxonomy and nomenclature follows Hickman, 1993.

APPENDIX B - WILDLIFE OBSERVED

ARTHROPODS	**INSECTS AND RELATIVES**
LEPIDOPTERA	BUTTERFLIES
Pieris rapae	Cabbage white
	Becker's white
Pieris protodice	Common white
Callophrys gryneus	Juniper hairstreak
	Pygmy blue
	Skipper sp.
OSTEICHTHYES	**BONY FISHES**
CENTRARCHIDAE	SUNFISH FAMILY
	exotic Centrarchids (dried)
AMPHIBIA	**AMPHIBIANS**
Pseudacris regilla	Pacific treefrog
REPTILIA	**REPTILES**
Uta stansburiana	Side-blotched lizard
AVES	**BIRDS**
Accipiter cooperi	Cooper's hawk
Callipepla californica	California quail
Columba livia	Rock dove
Zenaida macroura	Mourning dove

Calypte costae	Costa's hummingbird
Sayornis saya	Say's phoebe
Sayornis nigracans	Black phoebe
Tyrannus verticalis	Western kingbird
Hirundo pyrrhonota	Cliff swallow
Corvus corax	Common raven
Campylorhynchus brunneicapillus	Cactus wren
Thryomanes bewickii	Bewick's wren
Mimus polyglottos	Northern mockingbird
Toxostoma redivivum	California thrasher
Pipilo erythrophthalmus	Spotted towhee
Pipilo crissalis	California towhee
Agelaius phoeniceus	Red-winged blackbird
Xanthocephalus xanthocephalus	Yellow-headed blackbird
Icterus cucullatus	Hooded oriole
Icterus galbula	Bullock's oriole
Carpodacus mexicanus	House finch
Carduelis psaltria	Lesser goldfinch
MAMMALIA	**MAMMALS**
Sylvilagus auduboni	Audubon's cottontail
Lupus californicus	Black-tailed jackrabbit
Spermophilus beecheyi	California ground squirrel
Dipodomys sp.	Kangaroo rat sp. (burrow)
Neotoma sp.	Woodrat sp. (nest)
Canis latrans	Coyote

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
911 WILSHIRE BOULEVARD
LOS ANGELES, CALIFORNIA 90017

REPLY TO
ATTENTION OF:

July 23, 1996

Office of the Chief
Regulatory Branch

RECEIVED
JUL 26 1996
ROBERT BEIN, WM FROST

City of Palmdale
Attn: Mr. Paul Scheibel
38300 North Sierra Highway
Palmdale, California 93550-4798

Dear Mr. Scheibel:

Reference is made to your letter (No. 96-00379-AOA) dated June 27, 1996 for a Department of the Army Permit to construct a sports complex and associated flood control structures in Anaverde Creek in the City of Palmdale, Los Angeles County, California.

Based on the information furnished in your letter, we have determined that your proposed project does discharge dredged or fill material in waters of the United States and adjacent wetlands. Based on our July 11, 1996 site visit, the proposed project would impact approximately 1.2 acres of waters of the United States and 1.6 acres of adjacent wetlands (enclosure). Therefore, the project is subject to our jurisdiction under Section 404 of the Clean Water Act and a Section 404 permit is required from our office.

The receipt of your letter is appreciated. If you have any questions, please contact Aaron Allen of my staff at (213) 452-3413.

Sincerely,

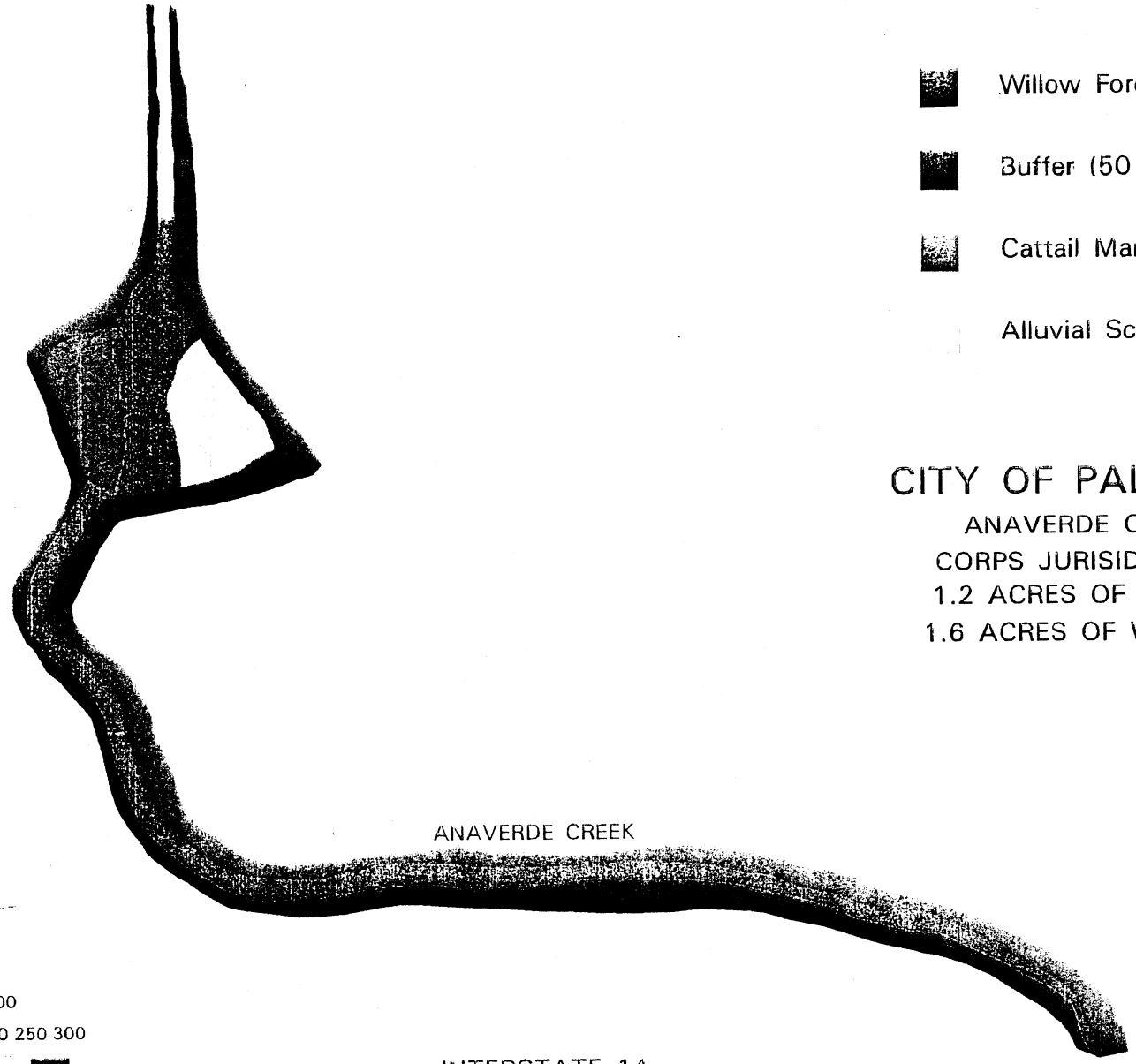
Eric Stein
for David J. Castanon
Chief, North Coast Section
Regulatory Branch

Enclosure

CF: Kevin Thomas

RECEIVED
JUL 24 1996

PALMDALE SPORTS COMPLEX - JURISDICTIONAL DETERMINATION



LEGEND

- Willow Forest
- Buffer (50 ft.)
- Cattail Marsh
- Alluvial Scrub

CITY OF PALMDALE:

ANAVERDE CREEK
CORPS JURISIDCTION =
1.2 ACRES OF WATERS*
1.6 ACRES OF WETLANDS*

N

SCALE 1:2500

0 50 100 150 200 250 300

FEET

*BASED ON A JULY 11, 1996 SITE VISIT

10.5-45

LSA Associates, Inc.

Environmental Assessments
Transportation Engineering
Resource Management
Community Planning
Environmental Restoration

LSA

Principals

Rob Balen
Lyn Calerdine
Les Card
Steve Granholm
Roger Harris
Art Homrighausen
Larry Kennings
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Michele Huddleston
Clint Kellner
Karen Kirtland
Benson Lee
Sabrina Nicholls
M. W. "Bill" O'Connell
Anthony Petros
Jill Wilson

September 5, 1996

To: Kevin Thomas
Robert Bein Frost
Fax #714-837-4122 (2 pages)

From: Steve Granholm

Subject: Mitigation for Burrowing Owls

You have requested information on methods to mitigate for potential impacts on burrowing owls (*Speotyto cunicularia*). In our experience, the approach generally recommended by the California Department of Fish and Game (CDFG) is: (1) have a qualified biologist conduct pre-construction surveys; and (2) if burrowing owls are present on the site, and impacts cannot be avoided by project modifications, relocate the owls passively. The methodology discussed below follows techniques for passive relocation of burrowing owls described in *Staff Report on Burrowing Owl Mitigation* (CDFG, October 1995).

Passive relocation consists of encouraging burrowing owls to move from occupied burrows to alternate burrows. The owls are moved passively by placing one-way doors, such as modified clothes dryer vents, on the burrow entrances that allow owls to leave the occupied burrows, but not return. The one-way doors should be left in place for a minimum of 48 hours to insure that the owls have left the burrow. The burrows should then be excavated carefully by use of hand tools and refilled to prevent reoccupation. During excavation, sections of flexible plastic pipe should be inserted into the tunnels to maintain an escape route for any animals inside the burrow.

Two natural or artificial burrows should be provided for each burrow excavated in the project area and must be within an adjacent area of sufficient size to meet the owl's foraging requirements (6.5 acres). The natural burrows used by burrowing owls are usually abandoned ground squirrel burrows. Specifications for building artificial burrows are available from CDFG.

09/05/96(H:\STEVE\LETTERS\THOMAS.MEM)

157 Park Place
Pt. Richmond, California 94801

Telephone 510 236-6810
Facsimile 510 236-3480

Burrowing owls should not be relocated during the breeding and nesting season (February 1 -August 31) unless a qualified biologist verifies that either the birds have not begun egg-laying and incubation, or that juveniles from the occupied burrows are foraging independently and capable of independent survival.

In the event of delays in the start-up of construction activities, any new burrows that are constructed by ground squirrels should be excavated immediately to prevent their occupation by burrowing owls.

Please contact me at (510) 236-6810 if you have any questions or comments.

cc: Rick Harlacher, LSA Associates

10.6 Cultural Resource Studies

An Archaeological Resource Review of the Proposed Anaverde Flood Control Basin Project, City of Palmdale, Los Angeles County, USGS *Ritter Ridge* 7.5' Quadrangle, 73 Acres

Prepared for:

Kevin Thomas
Robert Bein, William Frost & Associates
17725 Alton parkway
Irvine, California 92713-9739

Prepared by:

Beth Padon
Petra Resources Inc.
15 Corporate Park
Irvine, California 92714

May 1996

Introduction

The following report presents the findings and results of a archaeological resource review of the proposed Anaverde Flood Control Basin for the City of Palmdale. The project site is located southwest of the City of Palmdale (Figure 1). The project area is located immediately west of the Antelope Valley Freeway (I-14), north of Avenue S by 2000 feet, south of Rayburn Avenue, and west of Tierra Subida. It is located on the *Ritter Ridge* USGS 7.5' (1958, photo revised 1974) topographic quadrangle near the City of Palmdale, Los Angeles County, California (Figure 2), Section 34, T6N, R12W.

The archaeological assessment: 1) reviews the potential for archaeological sites within the project area, 2) identifies the potential historic and known prehistoric resources within the project area, 3) summarizes the existing level of documentation, 4) recommends any further work required, and 5) provides mitigation measures necessary to reduce any project impacts to these resources. These assessments follow guidelines established by the California State Historic Preservation Office, the Society for California Archaeology (King, Moratto, and Leonard 1973) and the Society for American Archaeology (McGimsey and Davis 1977). The report complies with Appendix K of the California Environmental Quality Act (CEQA) of 1970.

Beth Padon of Petra Resources Inc. (Petra), M.A. in Anthropology, served as project manager and project archaeologist for the Anaverde Flood Control Basin project. Dr. Fran Govean of Petra, Ph.D in Earth Sciences, served as the project paleontologist. Ms. Padon is also certified by the Society of Professional Archeologists (SOPA).

The Study Area

The Anaverde Flood Control Basin project encompasses approximately 80 acres of open flood plain. Anaverde Creek, a small intermittent stream, drains this area and bisects the project area. Low hills lie north and south of the project area with Highway 14 located to the east. The highway is elevated above the flood plain by 25-40 feet of fill. Based upon early maps, it appears the creek meandered across this plain in a easterly direction. Recent grading has channelized and modified the water's direction and the channel now flows northerly and under the highway at Rayburn Avenue. Levees and a debris basin, or settling pond, mark the western boundary and central portion of the project

The southern boundary is marked by a row of telephone poles with undeveloped land immediately adjacent. Currently the study area is undeveloped, except for the graded debris basin and channel grading in the creek. Willow, mulefat, and cat tails grow in the wash area. Bunch grasses, sage, wild flowers, and introduced taxa such as mustard (*Brassica*), cover the ground. Ground visibility is 100 % in the southern half to about 30% in the northern half of the study area. A few junipers and Joshua trees are found on the northern end of the property. Trash is scattered across the project area with two major concentrations situated in the northern half and a smaller concentration around the base of the igneous hill in the southeastern corner of the project.

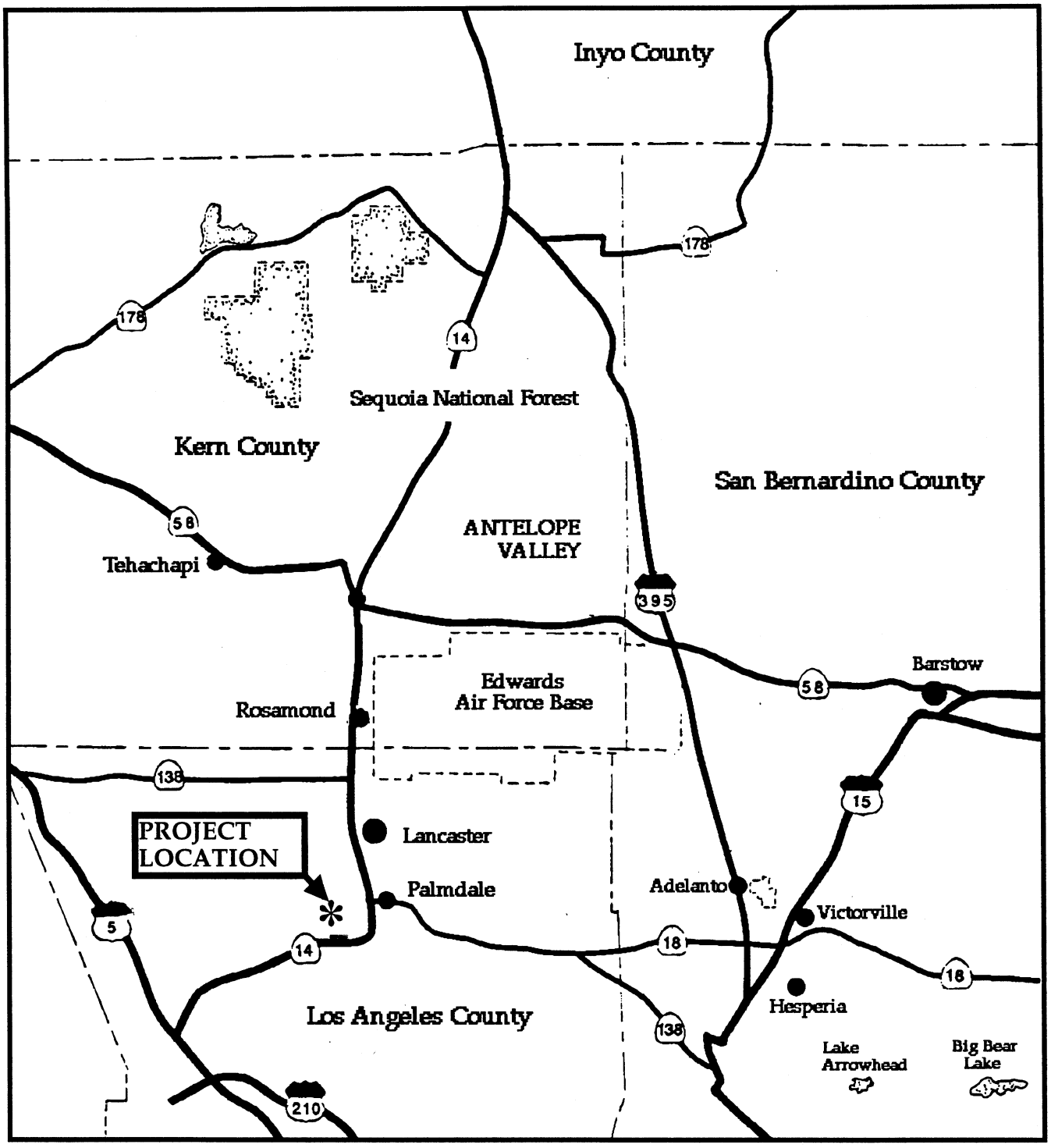
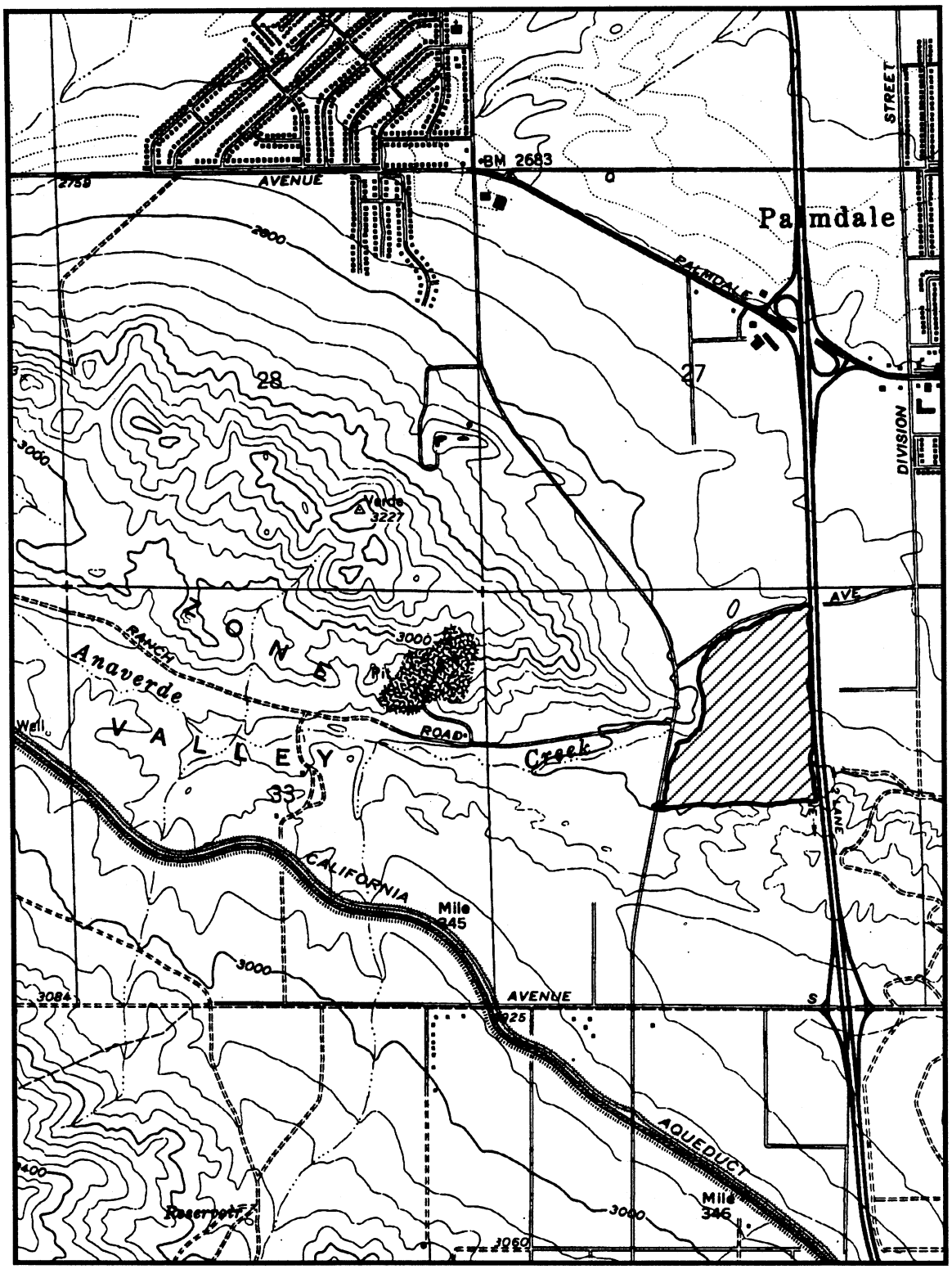


Figure 1
Regional Location



Ritter Ridge USGS 7.5 QUAD
(1958 Photo Revised 1974)

N

0 Feet 2000

Figure 2
Project Area

Regional Prehistory

Anaverde Flood Control Basin lies in the extreme western portion of the Mojave Desert. This area, the Antelope Valley, has an interesting, if incomplete prehistory. No single chronological sequence has been applied to the Antelope Valley, in particular, or to the Western Mojave Desert, in general (Moratto 1984: 388). Even the extant chronological schemes have different names for various broad time periods or Horizons (Warren and Crabtree 1986:183). Therefore, we use the general and regional chronological framework proposed for the California desert areas by Claude Warren (Warren 1984; Warren and Crabtree 1986). Although his chronology was designated for Fort Irwin archaeological resources to the north and east, it provides a well researched framework to compare with those for Antelope Valley. Warren's time periods are:

Lake Mohave	10,000–5,000 B.C.
Pinto	5,000–2,000 B.C
Gypsum	2,000 B.C.–A.D. 500
Saratoga Springs	A.D. 500–1200
Shoshonean	A.D.1200 to Contact

Although the Mojave Desert culture traditions have similar expressions in the Antelope Valley, there are unique aspects to the region's prehistory. These unique aspects developed because of the Valley's position between rich, heavily populated coastal California and the interior Southwest and Great Basin. Sitting astride major trade and exchange routes, Antelope Valley served as both a physical and a cultural conduit for materials, people, and ideas.

Lake Mojave (ca. 10,000-5,000 B.C.):

The first undisputed evidence for man's occupation of the Mojave region is found some 12,000 years ago and is called the Lake Mojave complex (Paleo Indian). The Campbells (1937) first described this complex as a simple large core and flake tool industry associated with the Pleistocene and early Holocene lakes, and it is now recognized as an early hunting culture. Several unique artifacts, and other artifacts that are rarely found with more recent complexes, help identify Lake Mojave sites. These artifacts include several large projectile point and bifaces, the occasional fluted point, drills, large core unifaces or choppers, and eccentric forms like crescents (Warren and Crabtree 1986:184). The type artifacts of the Mojave Desert during this period are the Lake Mojave and Silver Lake projectile points. Lake Mojave period sites have yet to be recognized in Antelope Valley, yet recently, Mark Campbell (1995) commented that analysis of the projectile points collected from Edwards Air Force Base (AFB) found a few Lake Mojave and Silver Lake points.

Pinto (5,000-2,000 B.C.):

In the early Holocene, increasing aridity altered the Antelope Valley landscape. The pinyon juniper community retreated up slope and modern Mojave Desert vegetation became established. Native Americans responded by altering their subsistence strategies and tools. The result was a more diversified hunting and gathering adaptation often termed the Pinto Culture. The projectile points used for hunting become more varied, tool sizes and shapes diversified, and in some Mojave Desert areas groundstone was used for the first time. Interestingly, point styles from the Lake Mojave period continue to occur

however, Pinto shouldered and barbed points are also found (Warren and Crabtree 1986: 186). Because the region was extremely dry and Mojave Desert drought tolerant vegetation was expanding (Mehringer 1986;Warren and Crabtree 1986: 184), the western and southern foothills, abutting Antelope Valley, possibly became a refuge for desert peoples adjusting to the lower productivity of the Holocene Mojave Desert.

William S. Glennan identified Antelope Valley's first distinctive stone assemblage, the "Early Rhyolite Tradition" as beginning in Pinto times. Glennan argues, based on his work at the Sweetser Site, that a local rhyolite source in the Fairmont Buttes, northwest of our project area, was extensively quarried. His work has been questioned because the rhyolite source was used throughout much of prehistory (Sutton 1982), however, obsidian hydration dates from Fairmont Buttes apparently confirms the early occupation (Moratto 1984:389). During the late Pinto, (4,000-2,000 B.C.), Antelope Valley differed from the rest of the Mojave Desert (Sutton 1984:35); the population increased for the region rather than decreasing and by the period's end, the number of occupation sites was much more numerous.

Gypsum (2000 B.C.-A.D.500) :

From about 2,000 B.C., during the Gypsum Period, the western Mojave diverged from the generalized Gypsum culture, though similarities exist (Sutton 1988:23). Unfortunately interpretative problems have arisen because dated deposits lack "type fossil" tools in their Gypsum levels. Dates for typical artifacts may also differ between the western Great Basin and the Mojave desert (Warren and Crabtree 1986:188). Hunting was an important part of the late Archaic lifestyle; however, most sites have quantities of handstones and millingstones suggesting hard seeds were processed. Humboldt, Gypsum Cave, Elko Eared, and Elko Corner-notched projectile points are associated with the Gypsum Period (Warren 1984:414).

Starting around 2000 B.C., a population emigration from most of the Mojave desert appears to have occurred. These large sites documented a complex social system, an extensive trading network, and a multiple resource base. Sutton explains the population increase and the cultural complexity to local people dominating and profiting from newly developing trade routes which become firmly established in the subsequent period. It is also possible that Antelope Valley was the refuge for populations emigrating from the general desert area (Sutton 1984:35).

Saratoga Spring (A.D. 500-1200):

Around A.D. 500 a new era began when Takic speaking Shoshoneans apparently immigrated to Antelope Valley and the surrounding Mojave Desert. Some scholars argue this immigration may be relatively late, around A.D. 1000 (Wallace 1988:11), others say it may have occurred much earlier ca. 1000-500 B.C. (Sutton 1988). At the beginning of this period several large villages were established within the Antelope Valley. Two are in Ritter foothills and a third is between Rosamund and Rogers dry lakes.

These dispersed villages (King, Smith, and King 1974) may have served as bases for seasonal movement or may have had a semi-sedentary population. The villages have substantial, sometimes semi-subterranean structures, cemeteries, elaborate mortuary offerings, and trade items. The quantity and variety of coastal shell, fused shale projectile points, soapstone tools and ornaments, Coso obsidian, and Southwestern pottery suggests major contacts and exchanges with coastal people, the eastern Sierras, and the Colorado Plateau. The Anaverde Valley sites on City Ranch have produced Marymount (fused shale)

points and other items (beads, spatulas) suggesting they were heavily influenced by Inland Chumash populations (Archaeological Associates, Ltd. 1991).

Shoshonean (A.D.1200 to Contact):

The final prehistoric occupation is often referred to as the Shoshonean period because certain artifacts found during this time are known from Shoshonean ethnographic collections. Desert points like the Cottonwood style are associated with the Shoshonean groups as are basic brownware ceramics. Antelope Valley prospered until just before Spanish contact with little change from the Saratoga Springs Period. Then abruptly, major sites were apparently abandoned. There is no easy explanation for the population exodus. Climatic factors or shifting trade routes may have made it difficult to support larger numbers of people (Sutton 1988). During the Historic Period, the region was apparently sparsely inhabited.

Cultural Tradition

The western Mohave Desert periphery was occupied, at least in historic times, by Takic-speaking people of the large Uto-Aztecan language family, known as the "Serrano". According to Kroeber (1976:611), the generic term "Serrano" has been applied to four "Serrano" groups, each with distinct territories: the Kitanemuk, (Tataviam) Alliklik, Vanyume, and Serrano. Only one group, in the San Bernardino Mountains, ethnically claims the term Serrano. The Kitanemuk lived to the north and west of our area, while the Serrano lived mainly to the south (Blackburn and Bean 1978; Bean and Smith 1978). Either group may have seasonally used this part of Antelope Valley. The Tataviam lived primarily in the upper Santa Clara River valley near Piru and also occupied the southern slopes of the Liebre and Sawmill mountains northwest of the project area. The Sierra Pelona was their eastern frontier and more than any other group they probably claimed the Anaverde Valley as their territory (King and Blackburn 1978:535).

The Tataviam were Takic people living in small kin-groups who mostly used the foothills and mountains of the Transverse Range. They were hunter-gatherers whose economic strategies are not well understood. They probably had a diverse gathering economy which took advantage of both seasonal plant occurrence and vertical zoning (following a single plant across altitude changes to extend the gathering season). Small wild game, trapped or snared, constituted a major resource as did mule deer. The yucca (*Yucca whipplei)* was pit-roasted and was possibly a more important vegetable food than acorns. Sage seeds, pine nuts, and juniper berries were supplemental foods. The Tataviam apparently had fairly stable small villages in mountain areas near permanent water sources, but they left these bases seasonally and journeyed to the desert foothills and washes to collect seeds.

The Tataviam social organization is also not clearly understood. Kroeber has suggested the Serrano-proper were exogamous and had totemic moieties associated with territorial-based bands (1975:617). Related families generally lived together and had a hereditary leader (kika). It is possible that this leader directed religious as well as social activities. This description may well apply to the Tataviam social structure also.

The Tataviam language was most likely a Takic form which, due to isolation, was not readily intelligible to their Kitanemuk or Gabrielino neighbors. By 1810 they had been assimilated into the Mission San Fernando population, and some individuals later intermarried and resided at Fort Tejon. By 1916 there were no known Tataviam speakers and by the 1920's no immediate descendants were identified by Kroeber (King and Blackburn:1978:537).

History

The history of land use in the Antelope Valley mainly tells a story of human struggle to make the Desert bloom by controlling, as best possible, any available water. During the mid-19th century, several expeditions passed through the area that later became Palmdale. However, the desert conditions did not invite further exploration or immediate use of the area.

It was not until the railroad entered the Antelope Valley in 1876 that settlement really began to prosper. Development got another boost in 1887, when the State of California provided the legal framework to set up irrigation districts. The Little Rock Irrigation District and the Palmdale Irrigation District were two of the early ones for the project area. Even then, farming was a risky operation until water extraction and irrigation technology improved during the early 20th century. These new techniques included electrically powered water pumps and the impoundment of water from Little Rock Creek to the northwest at Harold Reservoir, now called Lake Palmdale. Always a marginal enterprise, agriculture nonetheless was the economic mainstay until World War II, when the war Department established training facilities in the Palmdale area. Since then, the military and related aircraft and aerospace industries have dominated the economy and reshaped the landscape. (Padon et al 1989: 11, 18-19)

Study Results

Archival Review: Archaeology

On May 16, 1996, Beth Padon completed a records review for Anaverde Flood Control Basin at the Archaeological South Central Coastal Information Center, University of California, Los Angeles, Fowler Museum. The Information Center is the State Historic Preservation Office designated archive for Orange, Los Angeles, and Ventura county archaeological site records, inventory listings, and reports. Historic maps and information report copies may also be reviewed at the Information Center. The archival review included the California's State Landmarks, the California Inventory of Historic Resources, Orange County Historic Landmarks, and the *National Register of Historic Places*. A review of historic maps, included the USGS *Lancaster* 15' map dated 1958, and the USGS *Lake Elizabeth* 30' (1917 edition, reprinted in 1941).

The Information Center archives indicate there are no known prehistoric or historic sites located within the project area, yet several sites are located within a two kilometer radius of the project area. The closest prehistoric site, CA-LAN-876, lies north and west of the project. Ted Duran first recorded CA-LAN-876 in 1972 and noted a variety of stone artifacts on the surface and a possible midden area with burnt bone along the north side of Anaverde Creek. In 1991, Stuart Evans and Ken Becker of RMW Paleo Associates, found this site again and increased the site's boundaries. They also found one steatite carving as well as several groundstone tools at the site (Evans 1991).

The records review also noted several other archaeological surveys for the area over the past thirty years. In 1968, UCLA conducted a corridor survey along a proposed freeway route that passed northwest-southeast through the project area. (King 1968). In 1989, Robert White of Archaeological Associates surveyed the northwest corner of the project area as part of a cultural resource survey for the intersection of Rayburn Avenue and Tierra Subida. In 1985, Dr. Clement W. Meighan conducted the archaeological

survey for the proposed Anaverde Basin which included the entire present day Anaverde Flood Control Basin project. Dr. Meighan's survey included the surrounding hills as well as the flood plain. He recorded no prehistoric or historic sites for the project area (Meighan 1985).

The archival review of the archaeological reports indicates that all of the project area has been surveyed for prehistoric and historic remains.

Field Review

On May 21, 1994, Beth Padon and Dr. Fran Govean conducted a limited survey of the project area. The limited survey concentrated on reviewing the conditions of the property and reexamining the cut banks of the creek for any possible buried remains not exposed in 1985. As also noted by Dr. Meighan, there are several dumps of recent materials and isolated debris is found throughout the project area. The more concentrated piles of debris were reviewed for possible historic, 50 to 100 years old, remains. Inspection of these dumps found rusted cans (coffee, beer, and evaporated milk), construction materials (plaster, wood fragments, lumber, and concrete chunks), paper, plastics, asphalt, car parts (filters, carburetor parts, and tires), few bottles, and few ceramic containers. One major dump is immediately south of Rayburn Avenue and located 500 west feet of Highway 14. This dump includes a circle driveway around a pile of construction debris with access through a locked gate.

Evaporated milk cans provide one way to date these dumps. Don Simonis, of the Bureau of Land Management, researched and documented the history of evaporated/condensed milk cans and prepared a chronology based upon the size and construction technique of the cans from 1875 to the present. I sampled the evaporated milk cans found at the dumps and found the cans measure 2 15/16 inches in diameter, 3 14.5/16th inches in height, have a matchstick filler solder on a raised circle, crimped end and side seams. Following Simonis's chronology, these cans date to 1950 to the present. This date appears consistent with the beer cans found and probably is the beginning date for the use of the project area as a dump.

The survey confirmed that no potentially historic structures or sites are present and no underlying prehistoric strata have been recently exposed within the Anaverde Flood Control Basin project boundaries.

Impacts: Archaeology

No known prehistoric or historic sites are located in the Anaverde Flood Control Basin project. However, because buried remains go undetected during a pedestrian survey and given the alluvium deposits for the area, finding buried prehistoric artifacts or a buried site is still possible during the construction activities and accidental damage could occur to these resources. It is also likely that any prehistoric remains may have been buried given the build-up of erosional sediments for this area over the past one hundred years. Based upon the type of prehistoric occupation in the area, it is likely that camp sites, single activity sites, and isolated tools could be found within the project area and along the former creek banks. Several prehistoric sites are known for Anaverde Creek drainage, so encountering a buried site would not be unexpected.

Mitigation Measures: Archaeology

The following recommendations are provided to identify and evaluate any significant prehistoric remains within Anaverde Flood Control Basin and to reduce any adverse impacts to these resources to a level of insignificance.

1. A qualified archaeologist shall be retained to attend the pre-grade meeting and to monitor during grading activities. During grading activities, the archaeologist shall conduct limited monitoring to observe and retrieve any buried artifacts that may be uncovered.

2. The archaeological monitor shall have the authority to temporarily divert or direct grading to allow time to evaluate any exposed prehistoric material.

3. A final monitoring report, including an itemized inventory and pertinent field data, shall be sent to the Director of Planning, City of Palmdale as well as copies of the report to the Archaeological Information Center at the University of California, Los Angeles.

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Updated Paleontological Resource Assessment
Anaverde Flood Control Basin Project
City of Palmdale
Los Angeles County, California

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May, 1996

Executive Summary

Petra Resources, Inc. (Petra) completed an updated paleontological environmental analysis for the Anaverde Flood Control Basin Project, City of Palmdale, California. The study area is underlain by Miocene/Pliocene to Recent sedimentary units and older igneous rocks. Fifty-four fossil localities are present within the three miles of the study area. Paleontological sensitivity within the project study area ranges from high to none.

Petra has prepared a paleontological sensitivity map and made mitigation recommendations which are presented below. These mitigations will lower impacts to fossils to a level of insignificance.

Introduction

This report presents the results of an archival search and literature review of the Anaverde Flood Control Basin Project area, City of Palmdale, California (Figure 1). Specifically, the project area is located on the USGS *Ritter Ridge* Quadrangle, 1954, 7.5' Series, photorevised 1974; T6N, R12W, Section 34 (Figure 2).

Petra was retained by Robert Bein, William Frost & Associates (RBF) to undertake this updated paleontological assessment as part of their Environmental Impact process for the City of Palmdale. Paleontological mitigation for development over the past ten years has significantly changed the numbers of recorded fossil localities and our understanding of the paleontological sensitivity of geologic units in the area.

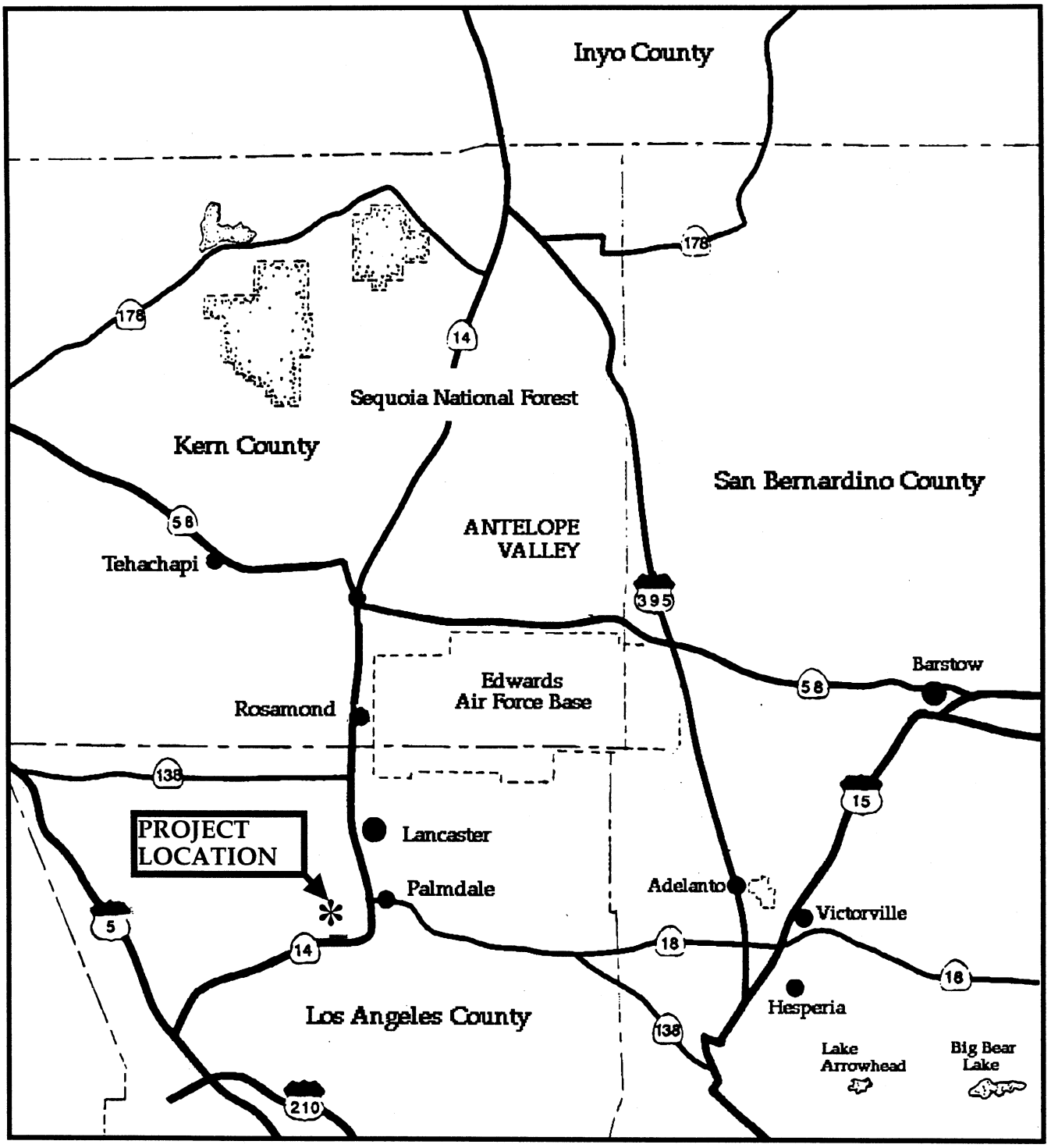
This technical assessment included two archival records checks. Dr. Govean completed one at the Los Angeles County Museum of Natural History (LACM), which includes the collections data of the University of California, Los Angeles, the California Institute of Technology (CIT), and the Museum of Paleontology, Berkeley, California (UCB); the second was completed at the San Bernardino County Museum (SBCM) which contains the Regional Paleontological Data Base and also includes the records of the University of California Riverside (UCR). She reviewed pertinent paleontological and geological literature for this study including two unpublished resource assessments (Raschke, 1986; Quinn, 1985). A field survey was completed for this updated environmental assessment.

Project Personnel

Fran Govean served as project paleontologist for this study. Dr. Govean received her Ph.D. in Earth Sciences, University of California, Santa Cruz and her B.A. and M.A. in Paleontology from the University of California, Berkeley. She has completed numerous projects in the immediate area of the project, including resource assessments and mitigation salvage in the Barrel Springs area, encompassing, in part, the classic Barrel Springs LACM 5716 and (CIT) 415 localities.

Project Area Description

The project covers a 73 acre parcel, which is bounded on the east by Highway 14, on the north by Rayburn Avenue, and one hundred feet west and parallel with Tierra Subida. The southern boundary

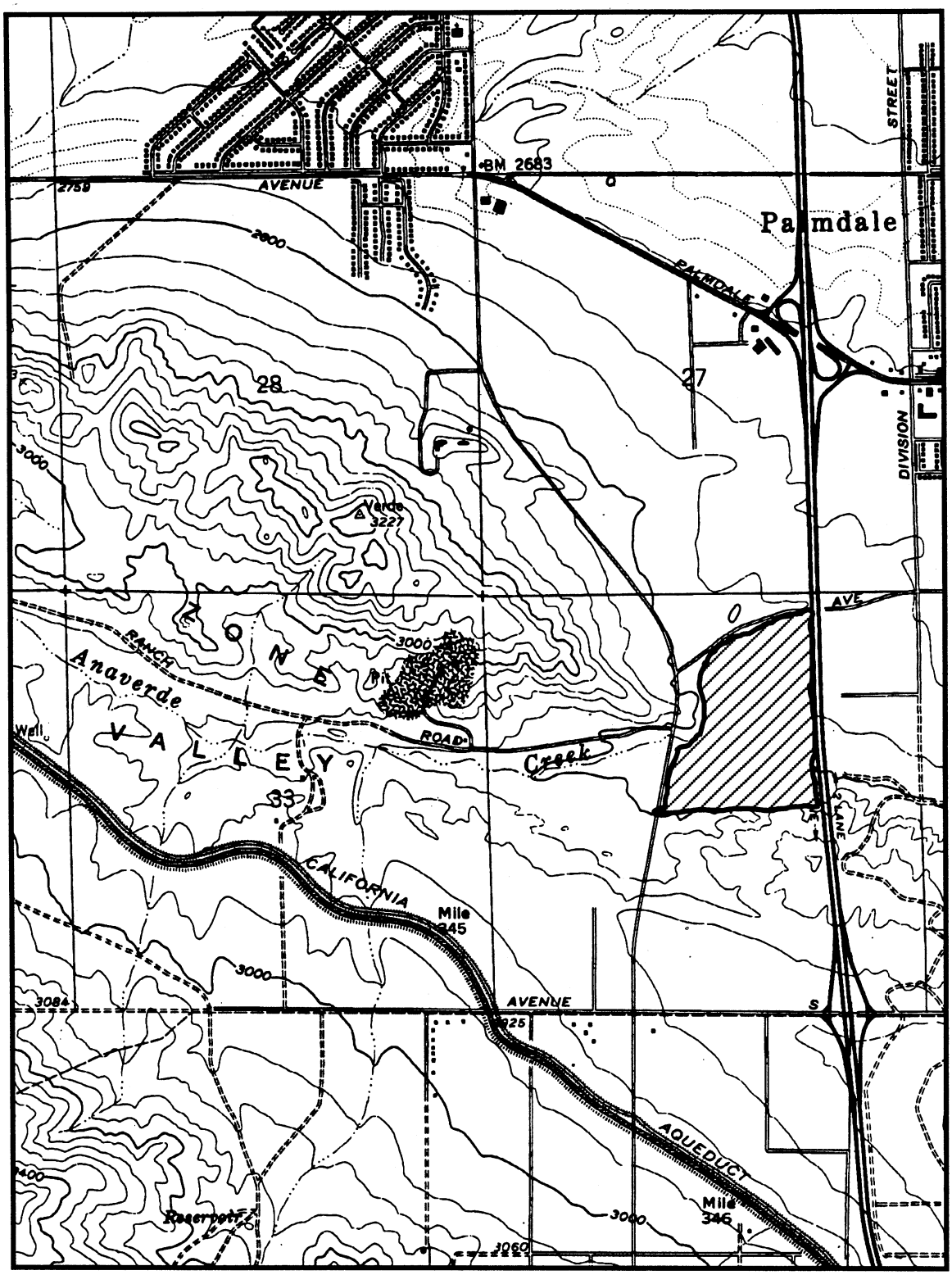


Scale in Miles

0 10 20

N

Figure 1
Regional Location



Ritter Ridge USGS 7.5 QUAD
(1958 Photo Revised 1974)

N

0 Feet 2000

Figure 2
Project Area

is marked by a row of telephone poles with undeveloped land immediately adjacent. Currently the study area is undeveloped. A northeast southwest drainage, the Anaverde Creek, meanders from eastward across the study parcel. The creek has been partially diverted by a debris settling pond and levees. Willow, mulefat, and tules grow in the wash area. Bunch grasses, sage, wild flowers, and introduced taxa such as mustard (*Brassica*), cover the ground up to 100 % in the southern half to about 30% in the northern half of the study area. A scattering of junipers and Joshua trees are concentrated on the northern end of the property. Trash is scattered across the project area with two major concentrations situated in the northern half and a smaller concentration around the base of the igneous outlier in the southeastern corner. Trash consists of rusty and new cans, pieces of concrete, bottles, broken glass, fragments of plastic, asphalt, rags of discarded clothing, rubber tires, pop-tops, car parts, and discarded bedding.

Methods

Dr. Govean examined the records of the LACM and the SBCM and reviewed pertinent published geological and paleontological literature for the area to complete this updated paleontological resource assessment. She also included available unpublished environmental resource assessments in her review (Raschke, 1986; Quinn, 1985). She and Ms. Beth Padon conducted a field survey for this study on May 21, 1996.

Stratigraphy

Sedimentary units, ranging in age from 8 to 5 million to the Recent underlie the project area. Igneous rocks, the Holcomb Quartz Diorite and Granodiorite, are present in an outlier at the southern end of the eastern boundary and along the western boundary. The sedimentary units are the Anaverde Formation, the Nadeau Gravel, potential Pleistocene Alluvium at depth, Quaternary stream deposits, and Recent Alluvium.

Geologic Units

The study area is underlain by Miocene/Pliocene to Pleistocene (ca 8 million to 500,000 years before present (ybp)) sedimentary geologic units overlain by Recent alluvium, including stream deposits, slopewash, artificial berms, and igneous intrusions. Pleistocene Alluvium in the Palmdale area is covered by a veneer of varying thicknesses of Recent Alluvium. Therefore, Pleistocene Alluvium (10,000 ybp) is potentially present at depth below the Recent Alluvium.

Anaverde Formation

The Anaverde Formation is a sedimentary unit named by Wallace (1949) for exposures in the Anaverde Valley. This formation is primarily a fluvial and lacustrine, or playa, deposit with a minor component of unusual brecciated rocks. It consists of arkosic sandstones and pebbly or bouldery sandstones as well as clay shales laid down in streams and lakes that once existed in this area.

Geologists have divided the Anaverde Formation into two, three, or as many as eight members to facilitate mapping. The red arkose member (Tar), a pink to red arkosic friable sandstone with some pebble or local boulder conglomerate and the buff arkose (Tab), a buff to gray medium bedded to

massive pebbly arkose with a minor amount of siltstone interbeds, are river deposits. The clay shale member (Tac) is gray to brown, thinly bedded, sandy or silty clay with minor sandstone intervals which was deposited in an ancient lake.

The age of the unit has been estimated between 8 to 5 million (ybp). Initially, a fossil flora collected from the Anaverde Formation was analyzed by Axelrod (1950) and interpreted as early Pliocene. Later work by Woodburne and Goltz (1975) suggests the Anaverde is as old as the late Miocene. Three members of the Anaverde, Tac, Tab, and Tac, are present on the study area (Barrows et al, 1985).

Nadeau Gravel

Overlying the Anaverde Formation in the project area are patches of the Nadeau Gravel (ca 500,000 ybp) (Barrows et al, 1985). This poorly consolidated cobble/boulder gravel was laid down under fast flowing (high energy) stream conditions. This reflects a change in energy regime from previously existing low stream gradients to the high energy clasts of the Nadeau Gravel. This change probably reflects the uplift of the San Gabriel Mountains in Pleistocene times.

Pleistocene Alluvium

Pleistocene Alluvium has not been mapped on the project. However, these deposits are generally present underneath the Recent Alluvium in the Palmdale area. The cover of Recent sediments forms a veneer of varying thickness depending the on the depositional processes in the area. There is potential for Pleistocene Alluvium to be present at depth (> three feet) on the project area along the southern and northern boundaries.

Quaternary Stream Deposits

Sands, silts, and gravels deposited from the Anaverde Creek are present in the project area along the drainage. These materials have been deposited within the last 10,000 ybp. The light reddish tan episodic silty sands are well exposed in the gully walls cut by the creek.

Recent Alluvium

Light tan gravelly sandy silts are exposed amid the vegetation over the basinal areas of the project. The gravels and small pebbles primarily consist of metamorphic and granitics.

Slopewash and Artificial Fill

Reddish to light tan slopewash drapes the lower reaches of the hills formed by sedimentary rocks. A linear body of artificial fill is present along the northeastern end of the project near Highway 14.

Holcomb Quartz Diorite and Granodiorite

An outlier of igneous rock, the Holcomb Granodiorite, is present along the eastern boundary of the project near the southeast corner. A small pod was observed at the hill along the western boundary.

Paleontology

Anaverde Formation

The Anaverde Formation contains paleosoils with a high potential for containing both large and small vertebrate fossils (Reynolds, 1985; Woodburne and Goltz, 1972). Similar sediments southwest of Palmdale contain paleosoils that have a high potential for containing vertebrate fossil remains (Reynolds, written communication, 1989). The astragalus of a horse was collected by Noble in 1914 in a unit mapped as the Punchbowl Formation which has been subsequently called the Anaverde Formation (Reynolds, oral communication, 1996).

A classic fossil leaf locality containing nineteen taxa (Axelrod, 1950) and subsequent floral finds have been been made in the clay shale member of the Anaverde Formation. Seven floral localities are presently recorded in this unit (SBCM 9-2-9 through 9-2-14). These floral localities lie in the clay member (Tac) within one mile of the project area.

Nadeau Gravel

Fossil material has been recovered from the Nadeau Gravel/Older Alluvium in the Palmdale area. The Pleistocene Alluvium and the Nadeau Gravel have not always been differentiated from the one another and have been been mapped together in the Palmdale area. Four localities (SBCM 9-1-2, -3, -5 and -6) are located east of Una Lake in the Nadeau Gravel/Pleistocene Older Alluvium. These remains yielded tortoise and bone fragments and are in sediments tentatively dated ca 500,00 ybp. North of Palmdale, and also at Edwards Air Force Base, more than 195 fossil localities are recorded in the Older Alluvium.

Pleistocene Alluvium

The Pleistocene Alluvium in the Palmdale area, ca 10,000 ybp, is covered by a thin veneer of Recent fluvial and aeolian deposits. Fossil microvertebrates, such as lizard and rabbit, have been recovered from these sediments during resource mitigation in Sections 22, 27, and the west half of Section 26, *Ritter Ranch* Quadrangle, localities SBCM 9-2-1 through 9-2-30. These deposits appear to extend onto the project area.

Paleontological Sensitivity

Paleontological sensitivity is the potential for a gec ogic unit to produce scientifically significant fossils. This potential, or sensitivity, is determined by the rock type, the past history of the rock unit in producing fossil materials, and what fossil sites are recorded in the unit. A five-fold classification of sensitivity is used by many paleontologists working in southern California. A high sensitivity indicates that fossils are currently observed or are recorded within the study area and/or the unit has a history of producing numerous significant fossil remains. A moderate sensitivity indicates paleontological resources have been recovered from the unit and there is a likelihood that fossils will be exposed by earth moving activities. A low potential indicates significant fossils are not likely to be found because of random fossil distribution pattern, the extreme youth of the rock unit, and/or the

method of rock formation, such as alteration by heat and pressure. Unknown or undetermined status indicates that the rock unit has not been sufficiently studied or lacks good rock exposures to warrant a definitive rating. Initially such a unit is treated as having a high sensitivity or potential. After study or monitoring, the unit may fall into one of the other sensitivity categories. No sensitivity is reserved for crystalline rock units, such as igneous rocks, where the deposit forms from molten magma which would preclude any fossil preservation.

The known rock units on the project range in sensitivity from high to moderate, to low, and no paleontological sensitivity. Figure 3 depicts the distribution of paleontological sensitivity. Paleontological sensitivity is also presented in table form below:

PALEONTOLOGICAL SENSITIVITY

GEOLOGIC UNIT	SENSITIVITY
Anaverde Formation (Tar, Tab)	Moderate
Anaverde Formation (Tac)	High
Pleistocene Alluvium	High
Nadeau Gravel/Older Alluvium	High
Recent Alluvium	Low
Artificial Fill/Slopewash	No
Holcomb Quartz Diorite and Granodiorite	No

Significance/Impacts

Grading, trenching, and other earth moving activities have the potential for the destruction of both vertebrate and plant fossil remains. Fossils in these rock units could be significantly impacted. The sediments within the flood control basin area range from high, to moderate, to no, and low. Vertebrate remains, both large and small, and plants are some of the fossil remains that could be found during excavation for the project.

Fifty-four sites in the same geologic units are located within a three mile radius of the project. These fossils are potentially significant for a number of reasons. Fossils are non-renewable scientific resources and their loss is considered to be significant. Scientists study fossils to determine changes in environment and animals and plants through time. Many research questions on variability within a taxon and evolutionary lineages hinge on having populations of specimens. This becomes an even more limiting factor in the study of fossil vertebrates where scientists normally have limited fossil populations.

The age and amount of displacement of rock units along the San Andreas fault zone and associated faults is important in dating movement. These data are important for seismic studies. Fossils are an important tool, and in some cases the only tool, in determining the age of the sedimentary units.

NOTE TO REVIEWER:

Exhibit 3 is available on a limited need-to-know basis. Contact the City of Palmdale for addition information regarding this exhibit and project.

Indirect Impacts

If mitigation measures as recommended by a qualified paleontologist are implemented, impacts to fossil remains would be mitigated to a level of insignificance.

Cumulative Impacts

Cumulative impacts on fossiliferous sediments are considered to be significant. However, mitigation measures as recommended by a qualified paleontologist would reduce these impacts to an acceptable level.

Recommended Mitigation Measures

The following mitigation measures will meet the requirements of CEQA and the City of Palmdale concerning protection of paleontological resources.

These paleontological mitigation measures are recommended.

1. A qualified paleontologist shall be retained to produce a mitigation plan for the proposed project.

2. The paleontologist shall attend the pre-grade meeting to discuss the monitoring, collecting, and safety procedures for the project and shall supervise the paleontologic monitoring during earth moving activities in the area.

3. Full time monitoring shall be conducted during earth moving activities in the clay shale member (Tac) of the Anaverde Formation. Half-time monitoring shall be conducted during earth moving activities within the moderate sensitivity units (Tar, Tab) of the Anaverde Formation and the Nadeau Gravel. The Recent Alluvium shall be monitored at depth below three feet on a half time basis until the presence or absence of the high sensitivity Pleistocene alluvium has been determined. Any Pleistocene Alluvium, if present on the project, area shall be monitored on a full time basis. Igneous rocks, artificial fill, disturbed soils, and slopewash will not require monitoring.

4. Screening of sediments shall also be conducted under the supervision of the paleontologist during monitoring because many significant vertebrate remains are small. Up to a six thousand pound matrix sample can be processed for any single locality as recommended by the Guidelines in the Society of Vertebrate Paleontologists Bulletin.

5. The paleontological monitor shall have the authority to temporarily divert or redirect grading to allow time to evaluate any exposed fossil material.

6. During monitoring any scientifically significant specimens shall be properly salvaged after evaluation by, and under the supervision of, the paleontologist. During fossil salvage, contextual stratigraphic data shall also be collected. This will include lithologic descriptions, localities plotted on a USGS 7.5' Series topographic quadrangle, photographs, and field notes.

7. Specimens shall be prepared to the point of identification, stabilized, identified, and curated on a long term loan basis in a suitable repository that has a retrievable storage system, such as the San Bernardino County Museum or the Los Angeles County Museum of Natural History.

8. A final report shall be prepared at the end of earth moving activities, and shall include an itemized inventory of recovered fossils and appropriate stratigraphic and locality data. This report shall be sent to the Lead Agency, signifying the end of mitigation. Another copy shall accompany any recovered fossils, along with field logs and photographs, to the designated repository.

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10.7 Correspondence

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
300 NORTH LOS ANGELES STREET
LOS ANGELES, CALIFORNIA 90012

REPLY TO
ATTENTION OF:

April 30, 1996

Office of the Chief
Regulatory Branch

City of Palmdale
Planning Department
Attn: P. Scheibel
38306 9th Street East
Palmdale, California 93550

Dear Mr. Scheibel:

It has come to our attention that you plan to construct an earthen dam for flood control purposes in Anaverde Creek in the City of Palmdale, Los Angeles County, California. This activity may require a U.S. Army Corps of Engineers permit.

A Corps of Engineers permit is required for the discharge of dredged or fill material into, including any redeposit of dredged material within, "waters of the United States" and adjacent wetlands pursuant to Section 404 of the Clean Water Act of 1972. Examples include, but are not limited to,

1. creating fills for residential or commercial development, placing bank protection, temporary or permanent stockpiling of excavated material, building road crossings, backfilling for utility line crossings and constructing outfall structures, dams, levees, groins, weirs, or other structures;

2. mechanized landclearing, grading which involves filling low areas or land leveling, ditching, channelizing and other excavation activities that would have the effect of destroying or degrading waters of the United States;

3. allowing runoff or overflow from a contained land or water disposal area to re-enter a water of the United States;

4. placing pilings when such placement has or would have the effect of a discharge of fill material;

RECEIVED
MAY - 6 1996

Enclosed you will find a permit application form and a pamphlet that describes our regulatory program. If you have any questions, please contact Aaron Allen at (213) 894-0349.
452-3413

Sincerely,

Aaron Allen
Project Manager
Regulatory Branch

DRAFT

April 30, 1996

Mr. Michael Bronaugh, Assistant Environmental Analyst
Robert Bein, William Frost & Ass.
14725 Alton Parkway
P.O. Box 57057
Irvine, CA. 92619-7057

SUBJECT: REVIEW OF THE NOTICE OF PREPARATION FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR ANAVERDE FLOOD CONTROL BASIN IN THE CITY OF PALMDALE

DEAR: Mr. Bronaugh

E01 We have reviewed the Notice of Preparation for the EIR for the Anaverde Flood Control Basin in City and the unincorporated area of Los Angeles County.

E02 **The statutory responsibilities of the Forestry Division of the Los Angeles County Fire Department include erosion control, watershed management, rare and endangered species, vegetation, fuel modification for high fire severity areas, archeological and cultural resources and the County Oak Tree Ordinance. Potential impacts in these areas should be addressed in the Draft Environmental Impact Report.**

E06 Due to the limited amount of information included in your request, we are unable to respond to specific potential impacts. The County Forester would like to know what the Initial Study has to say about this area? What is the Site like now? Why does the impact area need to be so large?

E18 The flora and fauna analysis should address any rare, endangered and/or sensitive species that exist on the project site. the preservation, relocation and/or construction impacting any of these species should be fully explained in the EIR.

E21 An archaeological and historical records check and field survey should be conducted to determine potential impacts to these resources and to verify your statements in the DRAFT ENVIRONMENTAL IMPACT REPORT.

E24 If you have any additional questions, please contact this office at (?13) 881-2481.

Very truly yours,

DAVID R. LEININGER, ACTING CHIEF, FORESTRY DIVISION, PREVENTION BUREAU

cc: Gubrud E/R
Deagon LHU
Div III / EIR#333 / Disc 8

DRAFT

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

May 8, 1996

Mr. Michael Bronaugh, Assistant Environmental Analyst
Robert Bein, William Frost & Associates
P.O. Box 57057
Irvine, CA 92619-7057

Dear Mr. Bronaugh:

SUBJECT: **DRAFT ENVIRONMENTAL IMPACT REPORT - REVIEW OF THE NOTICE OF PREPARATION - ANAVERDE FLOOD CONTROL BASIN AND SPORTS COMPLEX IN THE CITY OF PALMDALE (EIR #333/1996)**

PLANNING DIVISION

The subject development will receive fire protection and paramedic service from the County of Los Angeles Fire Department. Fire Station #24, located at 1050 W. Avenue P, Palmdale CA 93550-2932, is the jurisdictional engine company for this property.

EQUIPMENT	DISTANCE/MILES	TIME/MINUTES	STAFFING
Engine 37	2.0	3.4	3
Squad 37	2.0	3.4	2
Engine 24	2.9	5.0	3

PROJECT IMPACT ON SERVICES

Any development will increase the service demand on existing resources. Although this development would be in proximity to existing fire stations, it would increase service demand on the existing fire protection resources in the general area. Additional manpower, equipment, and facilities are needed in the area now. However, the degree of impact created by this project cannot be determined at this time.

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 Notice of Preparation for the EIR for the Anaverde Flood Control Basin in the City and the unincorporated area of Los Angeles County.

The statutory responsibilities of the Forestry Division of the County of Los Angeles Fire Department include erosion control, watershed management, rare and endangered species, vegetation, fuel modification for high fire severity areas, archeological and cultural resources and the County Oak Tree Ordinance. Potential impacts in these areas should be addressed in the Draft Environmental Impact Report.

Due to the limited amount of information included in your request, we are unable to respond to specific potential impacts at this time.

The flora and fauna analysis should address any rare, endangered and/or sensitive species that exist on the project site. The preservation, relocation and/or construction impacting any of these species should be fully explained in the EIR.

An archaeological and historical records check and field survey should be conducted to determine potential impacts to these resources and to verify your statements in the Draft Environmental Impact Report.

If you have any additional questions, please contact this office at (213) 881-2481.

Very truly yours,

David R. Leininger

DAVID R. LEININGER, ASSISTANT CHIEF, FORESTRY
PREVENTION BUREAU, FORESTRY DIVISION

DRL:jmb

CITY OF PALMDALE
OFFICE OF THE
CITY ENGINEER

MEMORANDUM

TO: Paul Scheibel, Associate Planner

FROM: Anna Mendiola, City Landscape Architect

SUBJECT: Pre-Application 5-96-3
Palmdale Sports Complex

DATE: May 20, 1996

The landscape section of Public Works Engineering has reviewed the subject project and has the following comments:

1. Review City of Palmdale Zoning Ordinance regarding number and location of parking lot street. trees.

2. Landscape design shall be prepared to the requirements of the City of Palmdale Water Efficient Landscape Ordinance. Indicate the following breakdown of landscape types by square footage and by percentage of total: 1) Recreational or active turf grass areas; 2) Non-active turf grass areas; and 3) Groundcover/shrub areas.

3. Provide for screening of the backflow devices and other utility structures wherever possible. Place structures and devices within planting areas wherever possible to facilitate screening with plant material. Coordinate with utility companies.

If you have any question regarding these comments, please do not hesitate to contact me at x5263.

AKM CONSULTING ENGINEERS

AKM Consulting Engineers

101 Pacifica, Suite 150
Irvine, California 92618
(714)753-7333 Fax: (714)753-7320

ROBERT BEIN, WILLIAM FROST & ASSOCIATES
ATTN.: Mr. Kevin Thomas
14725 Alton Parkway
Irvine, CA 92619-7057

SUBJECT: Updated Information for Anaverde Detention Basin and Sports Complex Project

Dear Mr. Thomas :

Enclosed are the updated information for the basin study per new grading plan. The changes of the basin design are based on the geotechnical point of view and the earthwork quantity balance. The following items are the updated changes:

1. The lower soccer field elevation raises two (2) feet from the original elevation of 2768 - 2773 to the updated elevation of 2770 - 2775.
2. The upper soccer field elevation raises five (5) feet from the original elevation of 2773 - 2778 to the updated elevation of 2778 - 2783.
3. The basin embankment along Antelope Valley Freeway moves toward east direction.
4. Ramps/Trails are provided on several locations.
5. A bridge connecting the lower soccer field and the upper soccer field is provided.
6. The side channel spillway length is 500 feet and the bottom elevation at the grade line is from 2768 to 2770.5 with the slope of S = 0.005.
7. Because of changing the grade, the associated basin storage is also updated.
8. Because of raising the side channel bottom elevation of five feet, the associated water surface elevation is also updated.

If you have any questions, please call Morgan Ying at (714) 753-7333 .

Sincerely Yours,

Morgan J. Ying

Attachments:
Grading plans, X-sections and Tables

File: mem1.doc 8/12/96

EARTHWORK QUANTITIES FOR ROUGH GRADING OF ANAVERDE BASIN / DAM

PRELIMINARY GRADING PLAN FOR
DR. SMITH PROPERTY WEST OF SITE

	Station	End Area (S.F.) Cut	End Area (S.F.) Fill	Length	Volume (C.Y.) Cut	Volume (C.Y.) Fill
	0	0	0			
				50	0	1,676
1	50	0	1,810			
				50	0	4,661
2	100	0	3,224			
				140	0	19,481
3	240	0	4,290			
				150	411	15,222
4	390	148	1,190			
				15	213	613
5	405	620	1,016			
				60	2,728	1,267
6	465	1,835	124			
				80	5,363	1,690
7	545	1,785	1,017			
				75	6,406	2,721
8	620	2,827	942			
				115	9,168	3,316
9	735	1,478	615			
				85	2,591	3,746
10	820	168	1,765			
				80	249	2,615
11	900	0	0			
	SUM OF EARTHWORK QUANTITIES				27,129	57,008

900

TABLE III - 3.1 (Revised)

HYDROLOGIC SUMMARY
ANAVERDE DETENTION BASIN AND SPORTS COMPLEX
CITY OF PALMDALE
COUNTY OF LOS ANGELES

ALTERNATIVE (2) - BASIN EMBANKMENT UTILIZES THE ANTELOPE VALLEY FREEWAY EMBANKMENT
DESIGN CONDITIONS :

1) 2, 5, and 100-year rainfall data are based on NOAA ATLAS 2, Volume XI, California
2) 10, 25, and 50-year rainfall data are based on County of Los Angeles, Department of Public Works, Hydrology and Sedimentation Manual, Table " C ".
3) PMF Study is based on Weather Bureau, Hydrometeorological Report No. 36.
4) Estimated Sediment Volume from the upstream watershed is 70 ac-ft.
5) Peak Flow Bulking Factor of 1.15 applies to 50-year & 100-year storm runoff studies and NO bulking for PMF.
6) Spillway Crest is at Elevation 2787.50
7) Dam Crest is at Elevation 2793.00
8) Spillway Approaching Upstream Face Depth, P =7.0 feet.
9) Spillway Length is 500 feet.
10) Bottom of the Basin is at Elevation 2735.00
11) The invert of the 66-inch diameter outlet pipe is at Elevation 2748.00
12) Basin routing studies performed with four-day storm runoff for all frequencies.
13) Basin emptying times are calculated from the end of the fourth day of the strom.
14) The PMF basin routing is assuming spillway outflow only and the outlet pipe having NO function.

STORM FREQUENCY	MAX. INFLOW (CFS) CLEAR WATER	MAX. INFLOW (CFS) BULKED	MAX. OUTFLOW (CFS)	MAX. WATER ELEVATION (FT)	BASIN EMPTYING TIME (HR/DAY)
2 - Year	2,077	---	442	2762.2	102hr/4.3day
5 - Year	3,698	---	566	2768.7	105hr/4.4day
10 - Year	4,129	---	595	2770.4	106hr/4.4day
25 - Year	5,061	---	652	2774.1	108hr/4.5day
50 - Year	5,746	6,610	732	2779.8	112hr/4.7day
100 - Year	7,883	9,065	811	2786.1	118hr/4.9day
PMF	17,592	---	15,618	2791.5	122hr/5.1day

TABLE III - 4.2 (Revised)

OUTFLOW DISCHARGE v.s. WATER SURFACE ELEVATION v.s. STORAGE

ANAVERDE SPORTS COMPLEX DETENTION BASIN/DAM
CITY OF PALMDALE, COUNTY OF LOS ANGELES

ALTERNATIVE (2) - BASIN EMBANKMENT ENCROACHES ANTELOPE VALLEY FREEWAY

DESIGN CONDITIONS :

1) BASIN BOTTOM ELEVATION AT EL = 2735.00
2) 66-INCH OUTLET PIPE INVERT ELEVATION AT EL = 2748.00
3) SPILLWAY LENGTH, L = 500 FEET
4) SPILLWAY APPROACHING UPSTREAM FACE DEPTH, P = 7.0 FEET
5) SPILLWAY ELEVATION AT EL = 2787.50
6) TOP OF DAM CREST AT EL = 2793.0

ELEVATION	66-INCH OUTFLOW Q1 (CFS)	SPILLWAY OUTFLOW Q2 (CFS)	STORAGE VOLUME (AC - FT)
2735.00	0.0	0	0.00
2736.50	0.0	0	1.43
2738.00	0.0	0	4.07
2739.50	0.0	0	8.30
2741.00	0.0	0	14.43
2742.50	0.0	0	22.54
2744.00	0.0	0	32.91
2745.50	0.0	0	45.73
2747.00	0.0	0	60.34
2748.50	1.9	0	76.58
2750.00	29.0	0	94.53
2751.50	80.1	0	114.02
2753.00	141.9	0	134.87
2754.50	211.7	0	157.12
2756.00	274.7	0	180.64
2757.50	323.5	0	204.87
2759.00	365.4	0	229.77
2760.50	403.2	0	255.35
2762.00	437.5	0	281.61
2763.50	469.6	0	308.56
2765.00	499.7	0	336.21
2766.50	528.0	0	364.56
2768.00	554.7	0	393.61
2769.50	580.2	0	423.40
2771.00	604.6	0	454.82

TABLE III - 4.2 - Revised (cont.)

OUTFLOW DISCHARGE v.s. WATER SURFACE ELEVATION v.s. STORAGE

ALTERNATIVE (2) - BASIN EMBANKMENT ENCROACHES ANTELOPE VALLEY FREEWAY

ELEVATION	66-INCH OUTFLOW Q1 (CFS)	SPILLWAY OUTFLOW Q2 (CFS)	STORAGE VOLUME (AC - FT)
2772.50	628.3	0	491.19
2774.00	650.8	0	533.50
2775.50	672.7	0	583.06
2777.00	693.9	0	635.04
2778.50	714.5	0	688.16
2780.00	734.5	0	746.99
2781.50	754.0	0	812.06
2783.00	773.0	0	882.45
2784.50	791.5	0	956.02
2786.00	809.7	0	1030.50
2787.50	827.4	0	1105.86
2788.00	833.2	576	1131.27
2788.50	839.0	1698	1156.69
2789.00	844.8	3227	1182.10
2789.50	850.4	5107	1207.82
2790.00	856.1	7323	1233.54
2790.50	861.7	9830	1259.26
2791.00	867.2	12632	1285.28
2791.50	872.8	15700	1311.30
2792.00	878.3	19015	1337.33
2792.50	883.8	22600	1363.61
2793.00	889.2	26453	1389.89

SIDE CHANNEL SPILLWAY ANALYSIS
ANAVERDE DETENTION BASIN AND SPORTS COMPLEX
CITY OF PALMDALE, COUNTY OF LOS ANGELES

FLOW CONDITION : SUB-CRITICAL FLOW

THIS CALCULATION IS SET UP AS LOOKING DOWNSTREAM AND STA. 0+00.00 @ UPSTREAM END OF CHANNEL.

DESIGN CONDITIONS:

1. CONTROL SECTION CALCULATIONS TABLE

1.1	THE CONTROL SECTION IS PLACED DOWNSTREAM FROM THE SIDE CHANNEL TROUGH WITH ITS BOTTOM AT THE SAME ELEVATION AS THE SIDE CHANNEL D/S END.	
1.2	MAXIMUM DESIGN DISCHARGE IN CFS =	15700
1.3	CONTROL SECTION BOTTOM WIDTH IN FEET =	102.552
1.4	CONTROL SECTION RIGHT SIDE SLOPE "z", (H) : (V) =	0
1.5	CONTROL SECTION LEFT SIDE SLOPE "z", (H) : (V) =	0
1.6	CONTROL SECTION FLOW LINE ELEVATION IN FEET =	2767
1.7	CONTROL SECTION CHANNEL CROSS FALL IN FEET =	1
1.8	AT CROSS FALL, THE HORIZONTAL DISTANCE (FT) FROM LEFT SIDE B	54.433
1.9	THE CRITICAL DEPTH FROM THE FLOW LINE OF CHANNEL, "Dc" =	9.495
1.10	THE CRITICAL VELOCITY AT CONTROL IN FT/SEC, "Vc" =	17.019
1.11	THE VELOCITY HEAD AT THE CONTROL IN FEET, "Hvc" =	4.498
1.12	THE TRANSITION LOSS FROM SIDE CHANNEL TO CONTROL, Ct =	0.200
1.13	THE WATER SURFACE ELEVATION AT CONTROL SECTION =	2776.495

2. SIDE CHANNEL SPILLWAY COMPUTATIONS TABLE

2.1	USE CRITICAL DEPTH AT CONTROL SECTION TO DETERMINE THE WATER SURFACE ELEVATION AT END OF SIDE CHANNEL SPILLWAY	
2.2	MAXIMUM DESIGN DISCHARGE IN CFS =	15700
2.3	SIDE CHANNEL SPILLWAY LENGTH IN FEET =	500
2.4	THE SPILLWAY CREST COEFFICIENT =	3.8
2.5	SIDE CHANNEL BOTTOM WIDTH AT END OF CHANNEL SECTION (FT)	104.914
2.6	SIDE CHANNEL RIGHT SIDE SLOPE "z", (H) : (V) =	0.414
2.7	SIDE CHANNEL LEFT SIDE SLOPE "z", (H) : (V) =	0
2.8	SIDE CHANNEL BOTTOM SLOPE, So =	0.005
2.9	SIDE CHANNEL FLOW LINE ELEVATION AT THE END SECTION IN FEE	2767
2.10	SIDE CHANNEL CROSS FALL IN FEET =	1
2.11	AT CROSS FALL, THE HORIZONTAL DISTANCE (FT) FROM LEFT SIDE B	56.908

FROM BERNOULLI'S EQUATION, THE FLOW CHARACTERISTICS AT THE DOWNSTREAM END OF THE SIDE CHANNEL IN FEET, "H end" = "Dend" + "H v", where;
"Dend" = FLOW DEPTH AT END OF SIDE CHANNEL
"Hv" = VELOCITY HEAD AT END OF SIDE CHANNEL

THE BERNOULLI'S EQUATION :
"Dend" + "Hv" = "Dc" + "Hvc" + Ct * (Hvc - Hv)

SOLVE THE BERNOULLI'S EQUATION BY TRIAL AND ERROR :

2.12	ASSUMING THE FLOW DEPTH AT END OF SIDE CHANNEL, "D end"=	11.691
2.13	THE SIDE CHANNEL TROUGH AREA AT END IN FT^2 =	1197.752

18.7-12

2.14 THE FLOW VELOCITY AT END OF SIDE CHANNEL IN FT/SEC, "V end" = 13.10789
2.15 THE VELOCITY HEAD AT END OF SIDE CHANNEL IN FEET, "Hv" = 2.667961
2.16 THE TRANSITION LOSS AT END OF SIDE CHANNEL IN FEET = 0.365945
2.17 SUBSTITUTING THE VALUES IN BERNOULLI'S EQUATION :
"D end" + "Hv" = 14.35896
"Dc" + "Hvc" + Ct * (Hvc - Hv) = 14.35898
2.18 SATISFACTORY CHECK : **14.359** QUALS T **14.359**

2.19 WITH THE HYDRAULIC PROPERTIES OF THE SIDE CHANNEL AT END DETERMINED, THE WATER SURFACE PROFILE ALONG THE SIDE CHANNEL TROUGH CAN BE DETERMINED AS :
dY =(Q1*(V1+V2)/(32.2*(Q1+Q2))/((V2-V1)+(V2*(Q2-Q1)/Q1))

2.20 SIDE CHANNEL SPILLWAY WATER SURFACE PROFILE COMPUTATION :

MAXIMUM DESIGN DISCHARGE IN CFS =	15700
SIDE CHANNEL SPILLWAY LENGTH IN FEET =	500
SPILLWAY CREST COEFFICIENT =	3.8
SIDE CHANNEL BOTTOM WIDTH IN FEET =	104.914
SIDE CHANNEL RIGHT SIDE SLOPE "z", (H) : (V) =	0.414
SIDE CHANNEL LEFT SIDE SLOPE "z", (H) : (V) =	0
SIDE CHANNEL BOTTOM SLOPE, So =	0.005
SIDE CHANNEL FLOW LINE ELEVATION @ D/S END SECTIO	2767
SIDE CHANNEL STATION INTERVAL IN FEET =	20
SIDE CHANNEL CROSS FALL IN FEET =	1

(1) STA.	(2) dX	(3) ELEV. BOTTOM	(4) TRIAL dY	(5) WATER SURFACE EL.	(6) D	(7) A	(8) Q	(9) V	(10) Q1 + Q2	(14) Q2 - Q1	(15) Q2 - Q1 / Q1	(16) V2*(Q2-Q1) / Q1	(17) (13)+(16)	(18) dY = (11) * (12) * (17)	(19) CHECK	(20) REMARKS
500	-----	2767.000	----	2778.691	11.691	1197.752	15700	13.10789	----	----	----	----	----	----		----
480	20	2767.100	0.5000	2779.191	12.091	1263.032	15072	11.93319	30772	628	0.041667	0.546162	1.720859	0.655477	-0.15548	TOO LOW
			0.7435	2779.43453	12.33453	1290.164	15072	11.68223	30772	628	0.041667	0.546162	1.971818	0.74354	-6.5E-06	OK
460	20	2767.200	0.3000	2779.73453	12.53453	1334.799	14444	10.82111	29516	628	0.043478	0.507923	1.369049	0.468209	-0.16821	TOO LOW
			0.5358	2779.97034	12.77034	1361.551	14444	10.60849	29516	628	0.043478	0.507923	1.581664	0.535812	-7.1E-06	OK
440	20	2767.300	0.3000	2780.27034	12.97034	1407.401	13816	9.816674	28260	628	0.045455	0.482204	1.274021	0.39509	-0.09509	TOO LOW
			0.4236	2780.39393	13.09393	1421.672	13816	9.718137	28260	628	0.045455	0.482204	1.372557	0.423594	-2.3E-06	OK
420	20	2767.400	0.3000	2780.69393	13.29393	1468.521	13188	8.980467	27004	628	0.047619	0.462768	1.200439	0.340443	-0.04044	TOO LOW
			0.3499	2780.74382	13.34382	1474.379	13188	8.944781	27004	628	0.047619	0.462768	1.236124	0.349894	-6.2E-06	OK
400	20	2767.500	0.2000	2780.94382	13.44382	1510.147	12560	8.31707	25748	628	0.05	0.447239	1.07495	0.281103	-0.0811	TOO LOW
			0.2965	2781.0403	13.5403	1521.663	12560	8.254126	25748	628	0.05	0.447239	1.137894	0.296478	-1.3E-06	OK
380	20	2767.600	0.2000	2781.2403	13.6403	1544.676	11932	7.724599	24492	628	0.052632	0.434428	0.963955	0.233041	-0.03304	TOO LOW
			0.2382	2781.27854	13.67854	1549.275	11932	7.701665	24492	628	0.052632	0.434428	0.986889	0.238243	-7.6E-07	OK
360	20	2767.700	0.1000	2781.37854	13.67854	1560.38	11304	7.244391	23236	628	0.055556	0.42787	0.885144	0.199874	-0.09987	TOO LOW
			0.2132	2781.49177	13.79177	1574.098	11304	7.181257	23236	628	0.055556	0.42787	0.948279	0.213226	7.4E-06	OK
340	20	2767.800	0.1000	2781.59177	13.79177	1585.297	10676	6.734383	21980	628	0.058824	0.422427	0.8693	0.182473	-0.08247	TOO LOW
			0.1917	2781.6835	13.8835	1596.492	10676	6.687161	21980	628	0.058824	0.422427	0.916522	0.191732	8.5E-07	OK
320	20	2767.900	0.1000	2781.7835	13.8835	1607.769	10048	6.249654	20724	628	0.0625	0.417948	0.855455	0.166638	-0.06664	TOO LOW
			0.1729	2781.85643	13.95643	1616.733	10048	6.215003	20724	628	0.0625	0.417948	0.890106	0.172924	6.3E-06	OK
300	20	2768.000	0.1000	2781.95643	13.95643	1628.071	9420	5.785987	19468	628	0.066667	0.414334	0.843349	0.152089	-0.05209	TOO LOW
			0.1562	2782.01263	14.01263	1635.028	9420	5.761369	19468	628	0.066667	0.414334	0.867967	0.156208	-7.6E-06	OK
280	20	2768.100	0.1000	2782.11263	14.01263	1630.012	8792	5.393825	18212	628	0.071429	0.411526	0.779071	0.130295	-0.0303	TOO LOW

			0.1324	2782.14498	14.04498	1634.005	8792	5.380644	18212	628	0.071429	0.411526	0.792251	0.132343	7.1E-06	OK
260	20	2768.200	0.1000	2782.24498	14.04498	1628.977	8164	5.011734	16956	628	0.076923	0.413896	0.782806	0.121645	-0.02164	TOO LOW
			0.1229	2782.26787	14.06787	1631.794	8164	5.003083	16956	628	0.076923	0.413896	0.791457	0.122887	1.4E-06	OK
240	20	2768.300	0.1000	2782.36787	14.06787	1626.758	7536	4.632528	15700	628	0.083333	0.416924	0.787478	0.113111	-0.01311	TOO LOW
			0.1137	2782.38162	14.08161	1628.444	7536	4.627731	15700	628	0.083333	0.416924	0.792275	0.113743	4.0E-08	OK
220	20	2768.400	0.0050	2782.38662	13.98662	1611.782	6908	4.285939	14444	628	0.090909	0.420703	0.762495	0.100949	-0.09595	TOO LOW
			0.1048	2782.48645	14.08645	1623.994	6908	4.253711	14444	628	0.090909	0.420703	0.794723	0.104835	-1.4E-06	OK
200	20	2768.500	0.0800	2782.56645	14.06645	1616.511	6280	3.88491	13188	628	0.1	0.425371	0.794172	0.095585	-0.01559	TOO LOW
			0.0961	2782.58255	14.08255	1618.474	6280	3.880197	13188	628	0.1	0.425371	0.798885	0.096097	3.5E-07	OK
180	20	2768.600	0.0500	2782.63255	14.03255	1598.768	5652	3.535221	11932	628	0.111111	0.431133	0.776109	0.084663	-0.03466	TOO LOW
			0.0856	2782.66813	14.06813	1603.073	5652	3.525729	11932	628	0.111111	0.431133	0.785601	0.085588	-3.1E-07	OK
160	20	2768.700	0.0050	2782.67313	13.97313	1578.035	5024	3.183706	10676	628	0.125	0.440716	0.78274	0.076752	-0.07175	TOO LOW
			0.0783	2782.74641	14.04641	1586.823	5024	3.166076	10676	628	0.125	0.440716	0.80037	0.078274	-3.1E-07	OK
140	20	2768.800	0.0050	2782.75141	13.95141	1561.903	4396	2.814515	9420	628	0.142857	0.452297	0.803857	0.069675	-0.06467	TOO LOW
			0.0707	2782.81713	14.01713	1569.718	4396	2.800502	9420	628	0.142857	0.452297	0.81787	0.070723	5.2E-08	OK
120	20	2768.900	0.0050	2782.82213	13.92213	1544.925	3768	2.438953	8164	628	0.166667	0.46675	0.8283	0.062205	-0.05721	TOO LOW
			0.0629	2782.88001	13.98001	1551.749	3768	2.428228	8164	628	0.166667	0.46675	0.839025	0.062882	4.7E-07	OK
100	20	2769.000	0.0050	2782.88501	13.88501	1527.09	3140	2.056198	6908	628	0.2	0.485646	0.857675	0.054294	-0.04929	TOO LOW
			0.0547	2782.93471	13.93471	1532.898	3140	2.048408	6908	628	0.2	0.485646	0.865465	0.054692	1.3E-07	OK
80	20	2769.100	0.0050	2782.93971	13.83971	1489.882	2512	1.686039	5652	628	0.25	0.512102	0.874471	0.045075	-0.04007	TOO LOW
			0.0453	2782.97999	13.87999	1494.492	2512	1.680838	5652	628	0.25	0.512102	0.879672	0.04528	3.1E-07	OK
60	20	2769.200	0.0050	2782.98499	13.78499	1451.837	1884	1.297666	4396	628	0.333333	0.560279	0.943452	0.037401	-0.0324	TOO LOW
			0.0375	2783.01747	13.81747	1455.477	1884	1.294421	4396	628	0.333333	0.560279	0.946697	0.037489	6.8E-08	OK
40	20	2769.300	0.0050	2783.02247	13.72247	1413.202	1256	0.888762	3140	628	0.5	0.64721	1.052869	0.028554	-0.02355	TOO LOW
			0.0286	2783.04605	13.74605	1415.786	1256	0.88714	3140	628	0.5	0.64721	1.054491	0.028577	1.5E-07	OK
20	20	2769.400	0.0050	2783.05105	13.65105	1373.911	628	0.457089	1884	628	1	0.88714	1.31719	0.018329	-0.01333	TOO LOW
			0.0183	2783.06438	13.66438	1375.34	628	0.456614	1884	628	1	0.88714	1.317665	0.018329	-3.7E-07	OK
0	20	2769.500	0.0050	2783.06938	13.56938	1333.891	10	0.007497	638	618	61.8	28.21876	28.66788	0.006477	-0.00148	TOO LOW
			0.0065	2783.07086	13.57086	1334.046	10	0.007496	638	618	61.8	28.21876	28.66788	0.006476	-5.0E-07	OK

Phase I & II

EARTHWORK QUANTITIES
OF ROUGH GRADING FOR
ANAVERDE DETENTION BASIN AND SPORTS COMPLEX
ALTERNATIVE (2) - BASIN ENCROACHES ANTELOPE VALLEY FREEWAY

GRADING CONDITIONS:

1) Top of dam crest at elevation 2793 ft
2) Lower soccer fields at elevation 2768 ft to elevation 2773 ft
3) Upper soccer fields at elevation 2773 ft to elevation 2778 ft
4) Inside basin slope around the dam is 3 (H) to 1 (V)
5) Slopes outside the basin and around the soccer field areas are 2.5 (H) to 1 (V)

X - SECTION	Station	End Area (S.F.)		Length	Volume (C.Y.)	
		Cut	Fill		Cut	Fill
X - 0	0	0	0			
				70	3,084	101
X - 1	70	2,379	78			
				163	7,250	41,468
X - 1.8	233	23	13,660			
				37	16	21,048
X - 2	270	0	17,058			
				200	22,593	119,637
X - 3	470	6,100	15,244			
				143	31,979	71,892
X - 4	613	5,976	11,904			
				457	109,672	157,817
X - 5	1070	6,983	6,744			
				422	119,864	145,473
X - 5.1	1492	8,355	11,871			
				135	65,488	36,670
X - 6	1627	17,840	2,797			
				63	41,167	5,163
X - 6.1	1690	17,446	1,628			
				60	39,081	4,138
X - 7	1750	17,727	2,096			
				60	25,267	7,953
X - 7.1	1810	5,013	5,062			
				113	13,190	16,285
X - 8	1923	1,290	2,720			
				145	25,979	7,484
X - 9	2068	8,385	67			
				200	117,341	248
X - 10	2268	23,297	0			
				127	54,791	0
X - 0.00	2395	0	0			
	SUM OF EARTHWORK QUANTITIES				673,676	635,275

EARTHWORK QUANTITIES
OF ROUGH GRADING FOR
ANAVERDE BASIN DETENTION BASIN AND SPORTS COMPLEX
ALTERNATIVE (1) - BASIN DOES NOT ENCROACH
ANTELOPE VALLEY FREEWAY
PHASE 1 SOCCER FIELDS

GRADING CONDITIONS:

1) Top of dam crest at elevation 2793 ft
2) Upper soccer fields at elevation 2773 ft to elevation 2778 ft
3) Slopes outside the basin and around the soccer field areas are 2.5 (H) to 1 (V)

X - Section	Station	End Area (S.F.)		Length	Volume (C.Y.)	
		Cut	Fill		Cut	Fill
X - 7	1750	0	0			
				60	5,570	5,624
X - 7.1	1810	5,013	5,062			
				113	13,190	16,285
X - 8	1923	1,290	2,720			
				145	25,979	7,484
X - 9	2068	8,385	67			
				200	117,341	248
X - 10	2268	23,297	0			
				127	54,791	0
X - 0.00	2395	0	0			
	SUM OF EARTHWORK QUANTITIES				216,871	29,641