VOLUME I

SUNSHINE CANYON LANDFILL EXTENSION

PROJECT NUMBER: SP 86312
CASE: CP 2556

draft environmental impact report

ultrasystems

PREPARED FOR

COUNTY OF LOS ANGELES
DEPT. OF REGIONAL PLANNING

DRAFT ENVIRONMENTAL IMPACT REPORT
SUNSHINE CANYON LANDFILL EXTENSION
VOLUME I

PROJECT NO: SP 86312
CASE: CP 2556

Prepared For:

COUNTY OF LOS ANGELES
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FEBRUARY 1989

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PREFACE

Pursuant to the environmental review procedures of the County of Los Angeles, the Preliminary Draft Environmental Impact Report (PDEIR) for the Sunshine Canyon Landfill Extension (Project Number SP: 86312) was first circulated for review by public agencies in December 1987. Although the County review process provides for agency review prior to soliciting comments from the public, the Preliminary Draft EIR was released to the public without authorization from the Impact Analysis section of the County's Department of Regional Planning. After the document became public, the applicant conducted scoping sessions to receive further comments on the project and the PDEIR. In total, written and oral comments were received by fourteen public agencies, approximately thirty individuals, and eight citizen groups. This revised Draft EIR incorporates responses to comments received from all parties on the prior preliminary draft document.

Several detailed technical reports have been used in this DEIR as data sources and to supplement various technical analyses. Although some pertinent sections of reports have been included as appendices to the DEIR, due to the number and voluminous size of these reference documents they have not been attached in whole to this DEIR. This procedure is in accord with Section 15150(b) of the State CEQA Guidelines:

> "Where part of another document is incorporated by reference, such other document shall be made available to the public for inspection at a public place or public building. The EIR or Negative Declaration shall state where the incorporated documents will be available for inspection. At a minimum, the incorporated document shall be made available to the public in an office of the Lead Agency in the county where the project would be carried out or in one or more public buildings such as county offices or public libraries if the Lead Agency does not have an office in the county."

Therefore, pursuant to this section, the technical reports listed below are incorporated by reference and are available for public review at the Granada Hills Library, 10640 Petit Avenue, Granada Hills; the Sylmar Library, 13059 Glen Oaks Boulevard, Sylmar; and the San Fernando Library, 1050 Library Street, San Fernando.

Report of Waste Discharge
Solid Waste Assessment Test for Air Quality Monitoring
South Coast Air Quality Management District Permit to
Construct Application

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SUMMARY

This Draft Environmental Impact Report (DEIR) has been prepared to provide information on the proposed extension of the Sunshine Canyon Sanitary Landfill in an area located at the boundary of the City and County of Los Angeles in the Santa Susana Mountains (Figure 1). The report discusses the potential impacts, mitigation measures and alternatives which are associated with the proposed project. Information contained in this report will enable public agencies and decision-makers to make more informed decisions and will provide the general public and private organizations with anticipated environmental effects of the project.

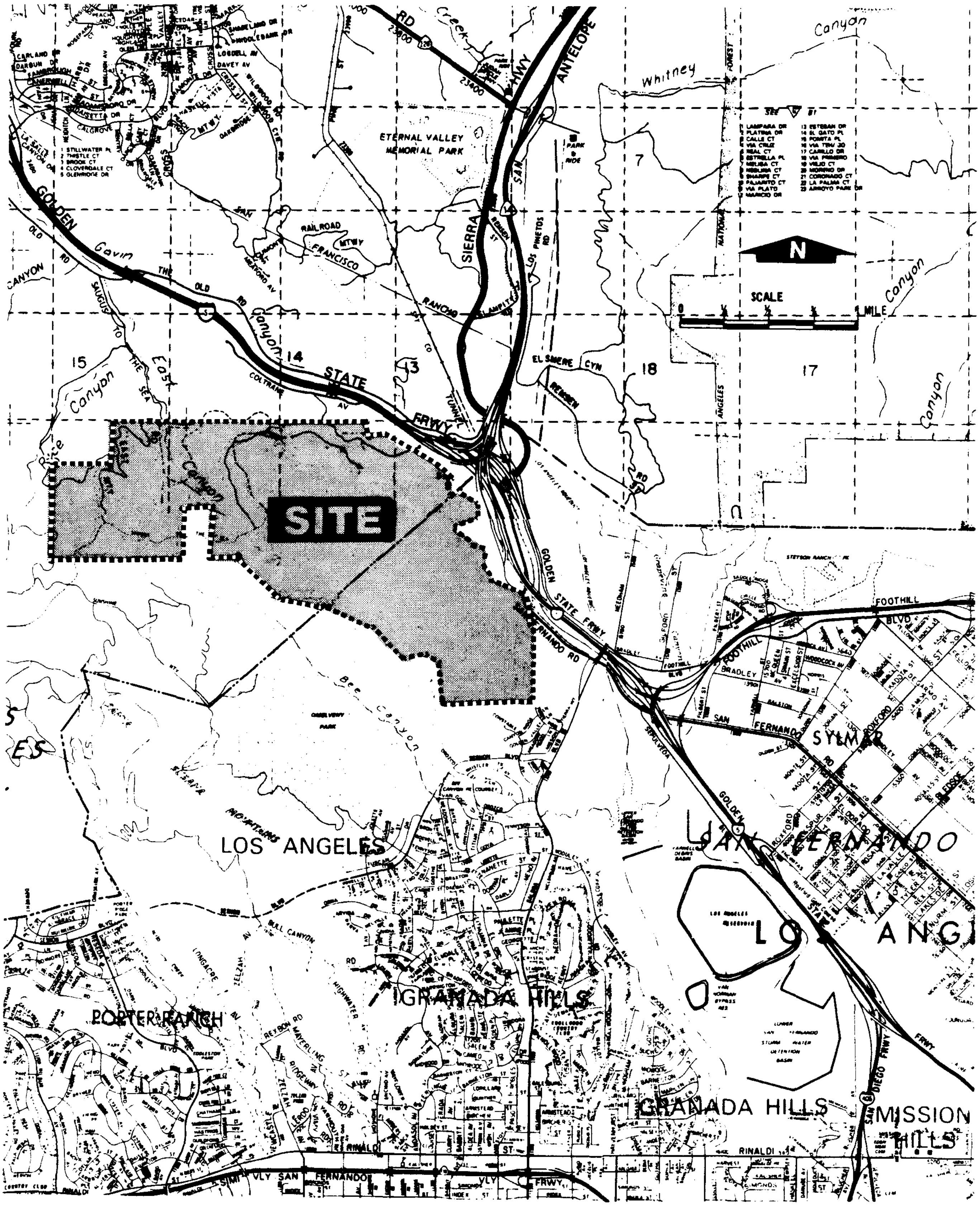
Project Description Summary

As described in detail in Section 1.0, Browning-Ferris Industries of California, Inc. (BFI) proposes the extension and further development of its existing 230-acre sanitary landfill in Sunshine Canyon. The project site is topographically isolated from the surrounding area (Figure 2).

The landfill extension will be initiated in the upper portions of Sunshine Canyon which are located in unincorporated lands northwest of the City/County line. Ultimately, the fill area will extend back into the portion of the canyon located in the City. Although the applicant is currently seeking only the approval of the initial portion of the project, this draft EIR addresses the impact of the entire envisioned project, in accordance with CEQA. Accordingly, the project will initially be limited to lands in unincorporated Los Angeles County and ultimately will include development within the City. This fill sequence is displayed in Figures 3a and 3b. The Alternatives section of this document discusses a landfill extension limited to only the unincorporated lands within the canyon if future permits for extension into the City are not received.

The applicant is currently applying for permits to operate the project only within the County area. Permits will be requested

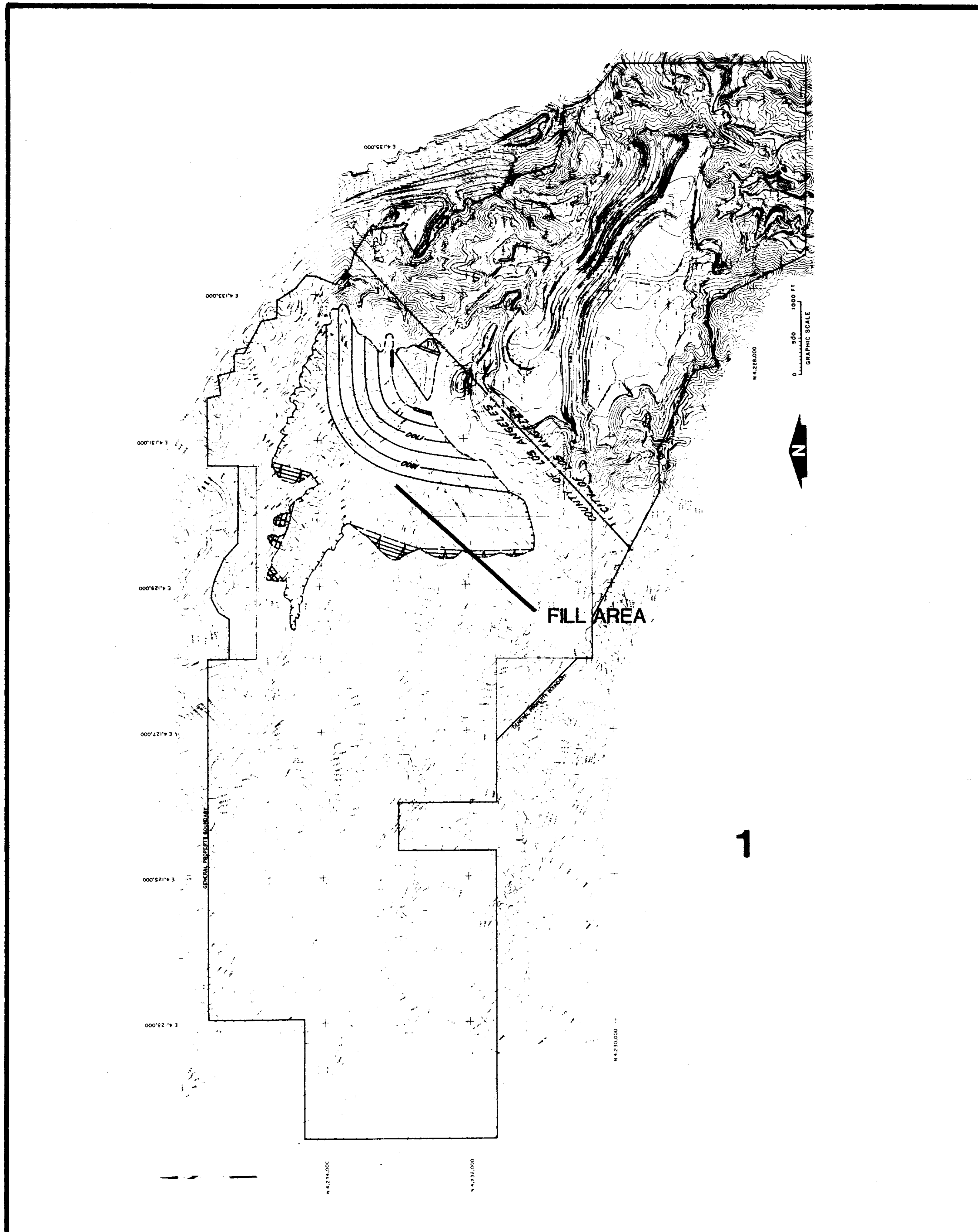
Source:	Title:	
ULTRASYSTEMS, INC. Base Map: AAA	REGIONAL LOCATION MAP	1

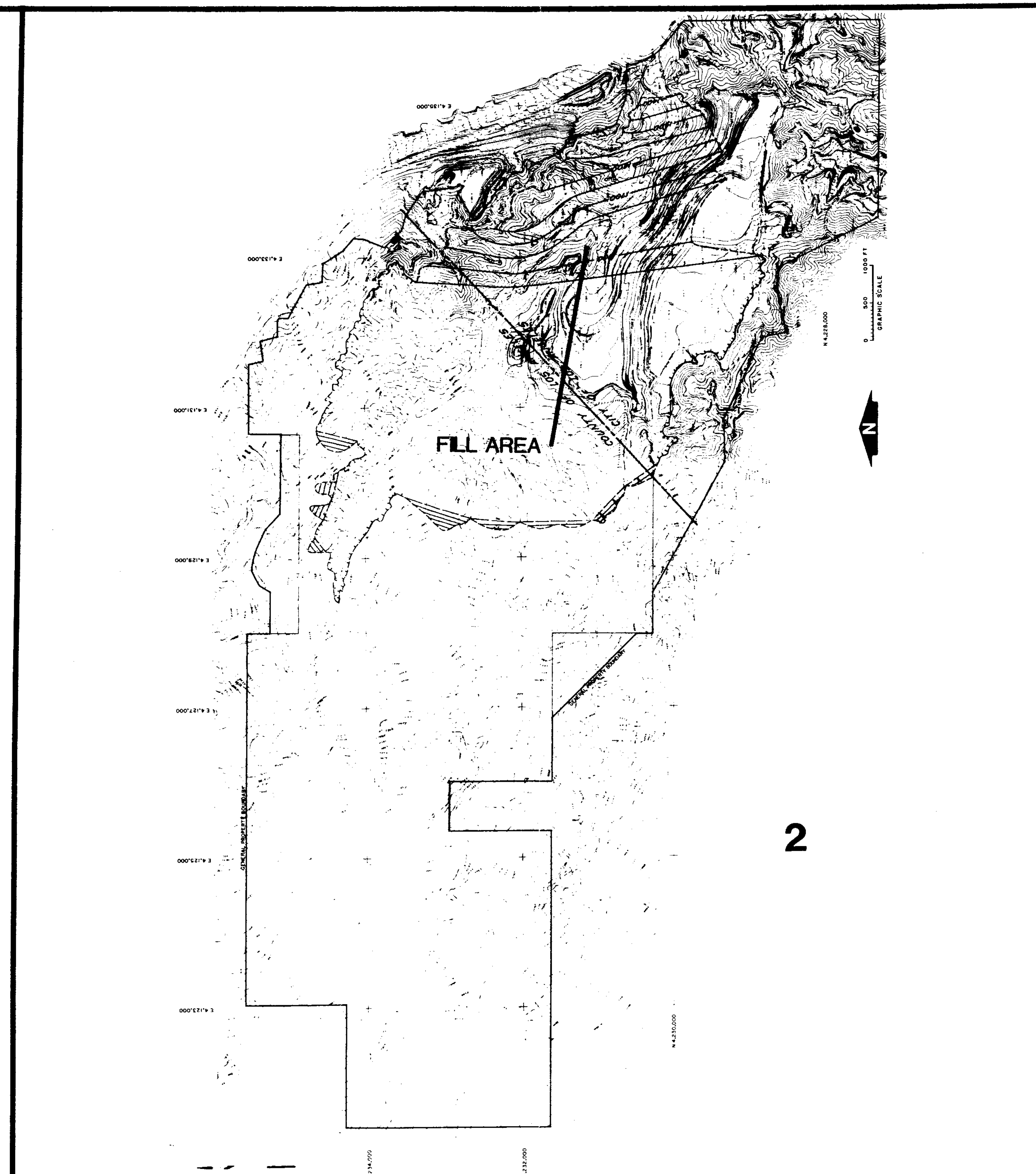


Source:
ULTRASYSTEMS, INC.
BASE MAP: THOMAS BROTHERS MAPS

Title:
VICINITY MAP

2





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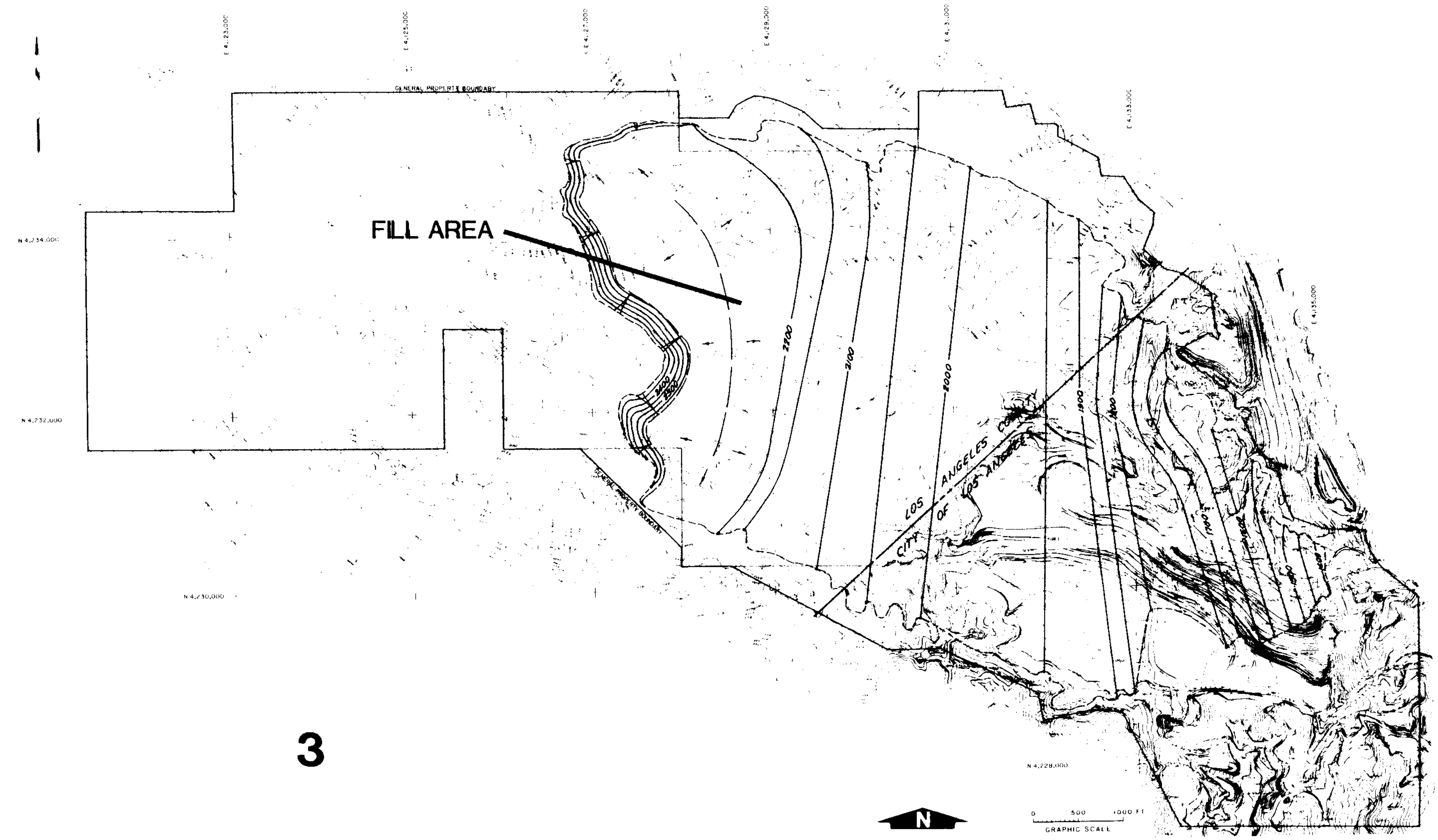
Source: PURCELL, RHOADES & ASSOCIATES

Title: PROPOSED LANDFILL PROJECT FILL SEQUENCE (1 and 2)

3a



ultrasystems	**Source:** PURCELL, RHOADES & ASSOCIATES	**Title:** PROPOSED LANDFILL PROJECT FILL SEQUENCE (3)	**3b**

from appropriate responsible agencies prior to conducting landfill activities in the City portion of Sunshine Canyon.

The proposed Sunshine Canyon Landfill Extension will be operated as a Class III Landfill which accepts only nonhazardous solid waste* subject to Title 23, Chapter 3, Subchapter 15 of the California Administrative Code.

Since the project site was acquired by BFI in 1978, several alternative fill designs have been considered. Initially, the total landfill capacity of the site was estimated to be approximately 200 million tons. This initial capacity included portions of the Bee Canyon as well as portions of East Canyon which are not now included in the proposed project. Based on a more refined capacity analysis and more efficient fill operations, the proposed project is now estimated to have a capacity of 215 million tons. The reduction in size and surface area of the project by limiting operations to portions of Sunshine Canyon reduces potential visual impacts by allowing the crest of the perimeter ridges of Sunshine Canyon to remain in their present condition. Figures 4 and 5 provide computer-enhanced aerial views of the project site before and after the proposed project.

The proposed extension is adjacent to the existing sanitary landfill which is located within the City of Los Angeles. The existing facility has operated on an uninterrupted basis since 1958. Refuse disposal operations will continue until May 25, 1991, when the Zone Variance granted by the City of Los Angeles expires. The existing landfill accepts approximately 6,400 tons of refuse per day (approximately 2.0 million tons per year), which represents approximately 15% of the County's current disposal requirements (13.4 million tons per year of non-inert solid wastes)**. and 4.5 million tons of inert waste

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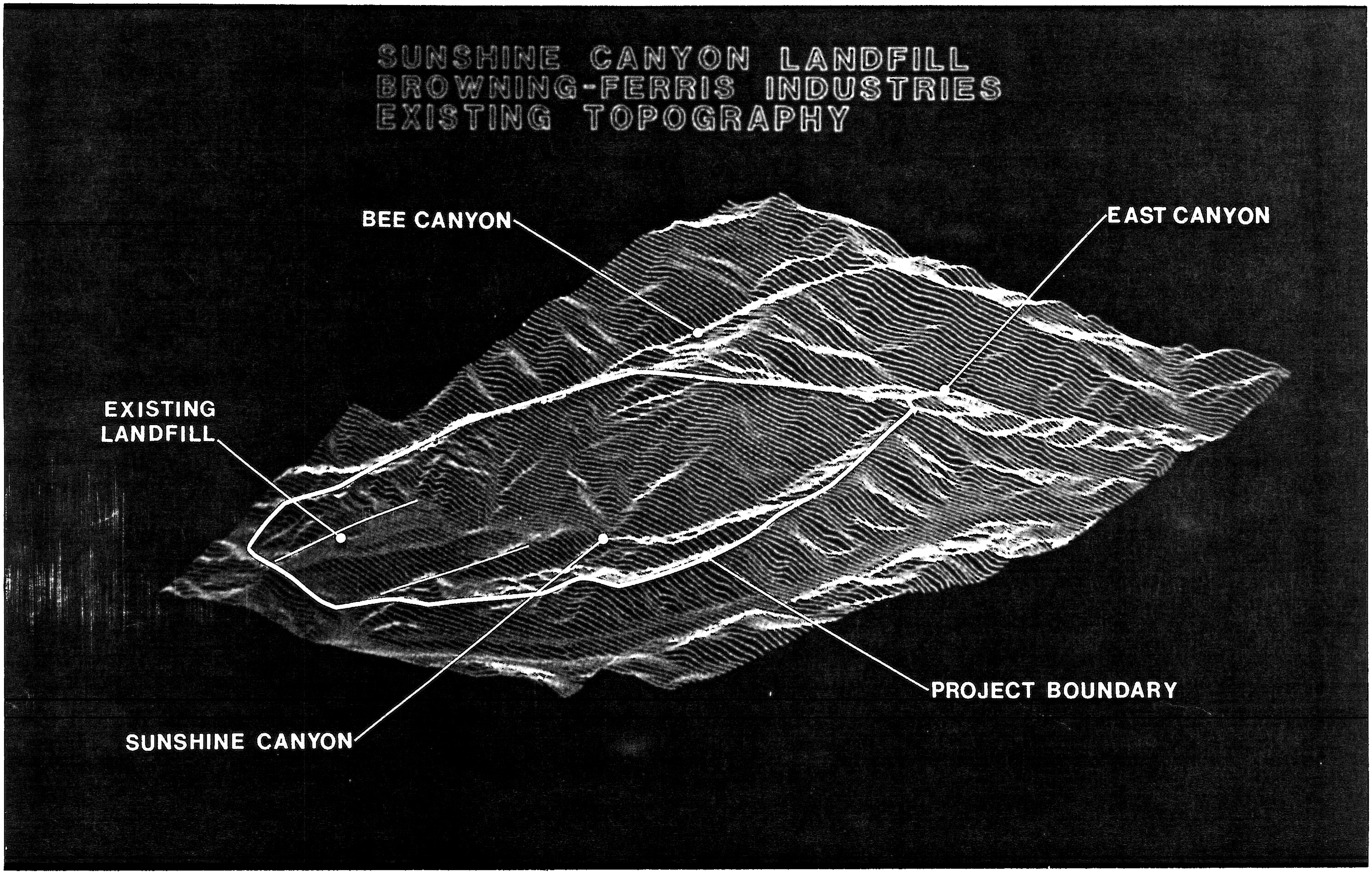
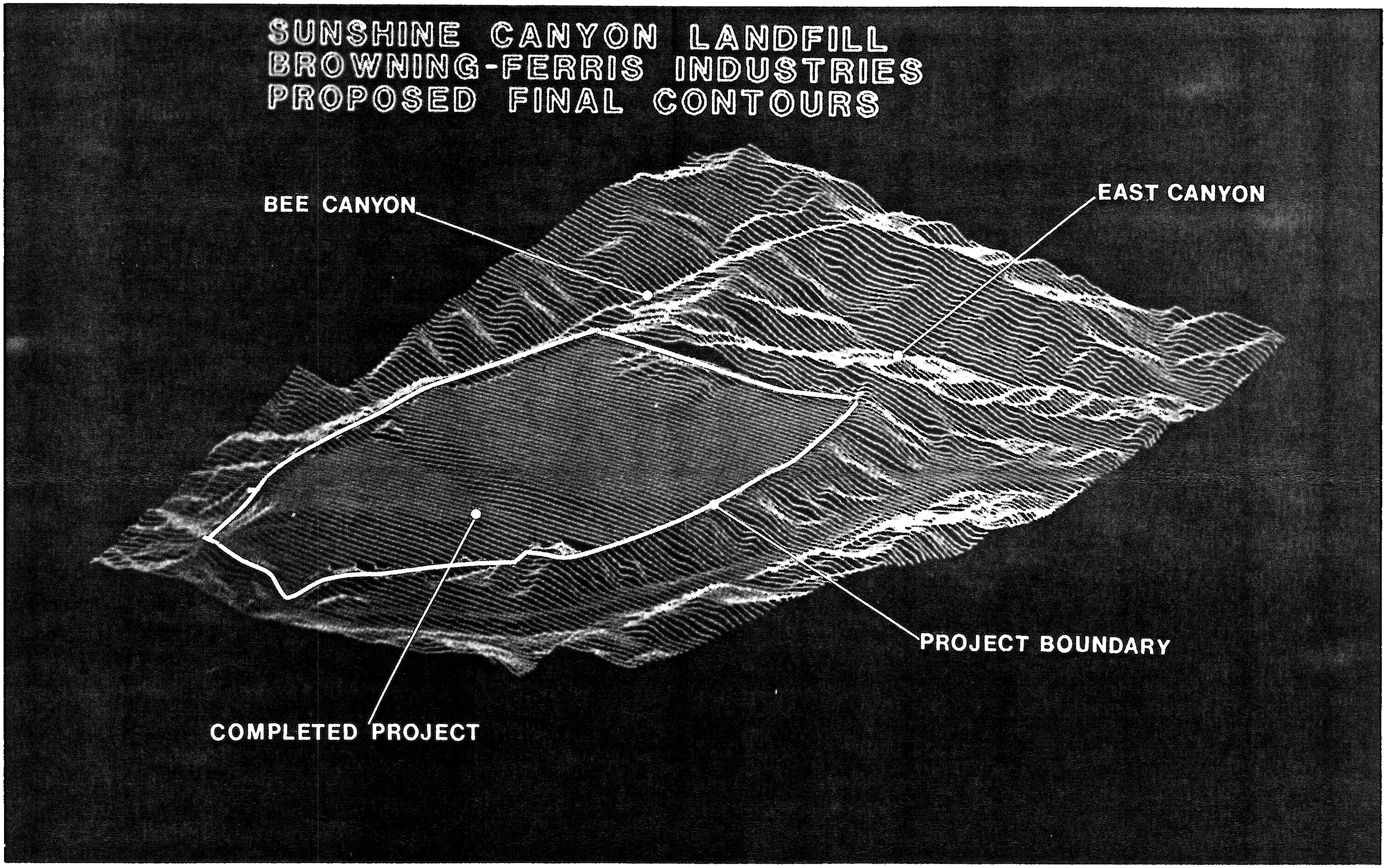
* Class III landfills permit the disposal of such items as garbage, trash, refuse, demolition construction wastes and dewatered sewage or water treatment sludge. However, no sludge material is or will be accepted at the Sunshine Canyon Landfill.

** Telephone conversation with Mr. Mike Mohajer, Los Angeles County Public Works.



ultrasystems	Source: BROWNING FERRIS INDUSTRIES	Title: EXISTING TOPOGRAPHY (Computer-enhanced aerial oblique view)	4



	Source: BROWNING FERRIS INDUSTRIES	Title: COMPLETED PROJECT (Computer-enhanced aerial oblique view)	5

Operational Characteristics

The proposed sanitary landfill design and operational procedures include provisions to properly place, compact and cover the refuse with clean soil on a daily basis, and provide final cover on the face of the slopes at a minimum depth of four feet. Cover material will be obtained from excavated areas within the Canyon which will later be filled with refuse. This excavation and fill procedure reduces the surface area needed for the development of the project.

As proposed, the landfill extension will continue to operate under its present schedule, 6 AM to 6 PM, Monday through Friday and Saturday between 7 AM and 4:30 PM. As discussed more fully in Section 1.3, the inflow to the Sunshine Canyon Landfill extension is anticipated to increase from the existing rate of approximately 6,400 tons per day to between 12,000 and 14,000 tons per day as capacity at existing facilities in the Los Angeles area is exhausted. This estimated demand assumes the availability of other proposed landfills and alternate disposal methods. On a worst-case daily basis, the facility will have the maximum capability to accommodate up to 2,780 trucks or 17,500 tons of refuse. As articulated in Section 3.2.8, this capability is based on the maximum capacity of the local circulation system without major infrastructure improvements. Under these circumstances and subject to a number of other factors which will determine the site life of the project (e.g. tipping fees*, the closure and/or expansion of other landfills, travel distance, and alternative methods of waste disposal), the projected life of this project can reasonably be expected to extend well beyond the year 2000.

The final use of the site after landfilling is completed has not been determined. Several possibilities being considered include uses which fit into the general category of open space uses and activities.

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* Fees charged for the disposal of refuse.

Required Permits

Numerous Federal, State, County and local regulations and requirements govern solid waste disposal in California. The project requires land use and environmental permits which will contain many detailed conditions and monitoring requirements under which it must operate. The review, approval and permits required for the initial proposed extension and operation of the landfill within unincorporated lands need to be obtained from the Los Angeles County Regional Planning Department and Planning Commission, the Los Angeles County Board of Supervisors, the Los Angeles County Significant Ecological Area Technical Advisory Committee (SEATAC), Los Angeles County Solid Waste Management Committee (CoSWMC), California Regional Water Quality Control Board (RWQCB), Los Angeles County Department of Health Services (DOHS), California Waste Management Board (CWMB), the South Coast Air Quality Management District (SCAQMD), California Water Resources Control Board (CWRCB), the Los Angeles County Department of Public Works, possibly the U.S. Army Corps of Engineers, and the State Department of Fish and Game.

Project Impacts

An Initial Study for the proposed extension was completed by the County of Los Angeles and the potential environmental impacts resulting from the proposed project were identified. In addition, other environmental issues were identified in a scoping session and during initial circulation of the preliminary DEIR. Those environmental areas of concern included geology, surface water, ground water, biota, historical resources, air quality, traffic circulation, noise, visual, land use, litter, vectors, hazardous materials, and fire hazard. Detailed analyses of each of these issues and others that were identified during the overall evaluation are contained in this report.

A brief summary of the potential impacts, along with suggested mitigation measures are presented in columnar form on the following pages. It should be noted that after mitigation the only significant adverse impact anticipated as a result of this project is the loss of vegetation.

Areas of Controversy

The initial public circulation of the preliminary Draft EIR and the scoping session held at the request of the applicant resulted in the submittal of comments from citizen groups and private individuals. Based on the nature of these comments, it was concluded that the project itself is very controversial. The comments submitted raise questions and concerns about the operation of the existing facility, question the need for the project, support alternative solid waste management programs and thoroughly critique the assessment of environmental impacts and alternatives in the preliminary document.

Alternatives

The following alternatives have been evaluated in comparison to the project's potential impact profile:

- No Project
- Alternate Project Locations
- Resource Recovery Systems
  - Materials Recovery
  - Recycling
- Smaller Landfill Operation
- Landfill Operations limited to the unincorporated Los Angeles County portion of Sunshine Canyon

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SUMMARY OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

IMPACTS	MITIGATION MEASURES
Earth Several existing on-site landslide areas (90± acres) may pose a hazard to employees during excavation activities.	Where potential landslide material is encountered all material will be removed simultaneously. Excess material will be stored on-site for future use. Refuse cells will be installed. Detailed stability analyses will be performed as the fill program progresses through the canyon.
Fill faces could become unstable during seismic activity if not properly constructed.	Interim slopes will be compacted and graded to a 2 to 1 slope ratio; final slopes to a 3 to 1 ratio to provide for adequate stability.
Erosion may occur on recent cut and/or fill areas.	Excavation and preparation of the landfill will be undertaken during dry weather conditions, and areas of loose soil will be stabilized before the rainy season. Interim and permanent revegetation, interceptor ditches and sedimentation basins, and other measures to control erosion on exposed slopes will be introduced as specified in the proposed Revegetation Program, Appendix H, Volume IIA, and the Erosion Control Plan, Appendix AA, Volume IIB.
Surface Water Surface runoff could become contaminated and carried off-site to adjacent surface waters if not properly controlled.	Project area will be constructed with drainage features (interceptor ditches) to divert on-site and off-site surface runoff away from the refuse to prevent surface water and groundwater contamination. Diverted runoff water will be returned to the natural stream channel below the landfill by use of a retention pond to control discharge flow and sediment load.

IMPACTS	MITIGATION MEASURES
Surface Water - (Continued)	
	Surface water quality will be regularly monitored for proper runoff rates and to meet acceptable RWQCB sediment load standards. Water samples will also be collected for analysis to ensure RWQCB water quality protection standards are met. This monitoring will continue for the entire active life of the landfill, including post-closure monitoring.
	Proper application of daily, intermediate and final cover will restrict the percolation of water into the landfill and the generation of leachate.
	As the site development proceeds, surface drains will be installed and maintained as part of the ultimate landfill drainage design.
Silt and suspended solids may increase in surface runoff waters.	Construction of desiltation basins will be used to contain suspended solids and silt in runoff.
Groundwater	
Excess water use on-site for dust control and landscaping may result in leachate formation.	The vegetation irrigation program will achieve a balance between irrigation and evapotranspiration to reduce percolation. Drought-tolerant plant species will be used for revegetation if possible.
	Dust control water will be applied only as necessary.
	Soil sealant will be used on inactive areas to reduce the water usage.

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IMPACTS	MITIGATION MEASURES
Groundwater - (Continued)	Liquid wastes or hazardous waste) materials will not be accepted for disposal in landfill.
Possibility for formation of leachate in the landfill and infiltration into the groundwater basin.	Proper placement of daily, intermediate and final surface cover material will restrict leachate formation by inhibiting infiltration of precipitation.
	Surface water drainage will be controlled through an artificial drainage system to deter formation of leachate and infiltration through the landfill into the groundwater. Permeability tests indicate the underlying basement materials are adequate to prevent leachate infiltration.
	Natural groundwater seepage will be handled by installation of a filter rock blanket and drains to connect with an underdrain system.
	A retention and desiltation pond will be used to compensate for the reduction in rain water infiltration.
	The landfill design will include vertical and horizontal waste containment features to prevent leachate from contacting groundwaters.
	Groundwater monitoring will provide for early detection of leachate migration, thereby enabling corrective action to be taken. Groundwater monitoring will continue throughout the active life of the landfill, including post-closure as specified by the RWQCB.

IMPACTS	MITIGATION MEASURES
Groundwater - (Continued)	
i.e. - will be treated on site?	A leachate collection and removal system (LCRS) will be installed at the landfill to collect, treat and dispose of any generated leachate, in accordance with RWQCB requirements. The proposed LCRS design is provided in Appendix Z, Volume IIB.
	Installation of a man-made soil liner in areas determined to require supplemental containment measures.
	On-site inspector will oversee installation of soil liner and verify required conditions of operation. Landfill operations will also be monitored by local enforcement agency(s) as designated by the CWMB.
Biota Filling the interior of Sunshine Canyon will destroy or displace existing vegetation and wildlife in the project portion of the canyon.	The existing conditions on tops of exterior ridges of the canyon will be preserved.
	Clearing of existing on-site vegetation will be done only when necessary to provide for new cut and fill areas of the project. Consolidation of area disturbed for cover material to minimize the loss of SEA20 area and minimize disturbances to surrounding topography.
	Oak trees and other natural species will be planted in the 100+ acres that have been and will continue to be retained as a nature preserve at southeast portion of project site.
	Revegetation of disturbed areas with both native and ecologically compatible plant species will be accomplished, in accordance with the proposed Revegetation Program, Appendix H, Volume IIA.

IMPACTS	MITIGATION MEASURES
Biota - (Continued)	
	External slopes and peaks of ridgelines surrounding the landfill will remain undisturbed. Upper portions of internal slopes will only be disturbed as necessary for erosion control.
The proposed project will reduce the size of County SEA #20 by 2-1/2% or approximately 542 acres.	The project's final cover material will be obtained from within Sunshine Canyon to retain native soil composition for native flora.
	Operator will plant oaks off-site through County nursery program. Measures will be taken to cooperate with the Fire and Forestry Department in upgrading nursery facilities and to provide seed for plantings.
	Property northerly of the landfill under the applicant's ownership on the Sunshine Canyon side of I-5 will be retained in its natural state to provide shelter for migrating/foraging fauna.
An increase in non-native fauna or vector activity may occur if not properly controlled.	Daily compaction and covering of the refuse and implementation of vector control measures will be performed.
Potential vegetation disturbance due to relocation of SCE transmission line.	Relocated line should span the largest portion of the canyon and utilize existing service roads to the extent possible to minimize vegetation and terrain disturbances. Environmental analysis will be conducted for identified potential impacts once the relocation route is determined.

IMPACTS	MITIGATION MEASURES
<u>Historical/Archaeological Paleontological Resources</u> Archaeological or paleontological resources in the project area will be disturbed and may be lost.	Specific sections of the canyon area will be resurveyed by a qualified archaeologist/paleontologist, prior to earth excavation. Should any archaeological or paleontological resources be discovered during the resurvey or during earthmoving activities, the grading in that specific area will cease, the findings will be examined by a qualified archaeologist or paleontologist and appropriate salvage action will be taken. Periodic monitoring will occur during grading in the Miocene-early Pliocene Towsley Formation. An archaeologist and paleontologist will be on-site during major infrastructure work requiring excavation.
<u>Air Quality</u> Localized dust impacts may occur from project activities.	Water truck sprinkling frequency will be increased as needed to control dust on working faces and roadways, including Sundays and holidays when the landfill is closed. Soil sealant will be used on inactive areas. Main access roadways will be paved up to active fill areas. Disturbed faces of landfill will be revegetated as soon as practical in accordance with the proposed Revegetation Program, Appendix H, Volume IIA. Transportation distances for cover material on-site will be minimized.

IMPACTS	MITIGATION MEASURES
Air Quality - (Continued) Vehicle exhaust emissions in the area will increase.	Project may reduce potential regional air emissions by reducing distances of trips which would otherwise be taken to landfills located further from waste material generators.
Flaring the landfill gas will increase emissions from gas combustion.	The collected gas will initially be flared. It will be used as an alternative renewable resource (methane as fuel) for energy production or industrial use when sufficient quantities for sale exist.
	Meteorological and gas migration and emission monitors will be used to detect any needed collection system modifications and/or maintenance.
	The landfill will be operated in accordance with Rule 1150.1 and other SCAQMD regulations.
Odor/Landfill Gas The potential for odors from surface refuse and sub-surface anaerobic reactions at the landfill will exist.	Daily covering of the refuse being received will prevent surface refuse odors.
	Continuous surface maintenance (grading) of cover material will minimize subsurface gas release through cracks.
	The proposed landfill gas collection system will preclude gaseous odors, and control gas migration.
	An odor monitoring program will be implemented which complies with the requirements of the SCAQMD Rule 1150.1. and L.A County dept of Public works

IMPACTS	MITIGATION MEASURES
Traffic Increased peak-hour traffic at the project entrance: Existing / Future AM (trips) 265 / 600 PM (trips) 305 / 705 May create additional congestion on San Fernando Road.	Parking of commercial trash trucks along San Fernando Road will be prohibited through regular monitoring by the operator, and notification to regulatory agencies if enforcement is necessary. Posted notices at the landfill entrance and handouts to haulers will also be provided by the operator. The entrance to the project will be widened by the applicant to six lanes (three in and three out) to facilitate increased traffic. Queueing space for 130 trucks will be provided. Speed survey on San Fernando Road will be conducted for landfill entrance warning signs. Conduct a Ballbank study for speed reduction signs in advance of the landfill entrance. Southbound lanes on San Fernando Road at the Balboa Boulevard intersection will be restriped for one through lane, one through/right-turn option lane and one right-turn lane to facilitate increased traffic. Construct a second northbound left-turn lane and a southbound right-turn only lane on San Fernando Road at the landfill entrance.
May increase current accident rate at Balboa Boulevard/San Fernando Road intersection.	Provide a second northbound left-turn lane on Balboa Boulevard at the San Fernando Road intersection to reduce left-turn accidents.

IMPACTS	MITIGATION MEASURES
Noise Noise on San Fernando Boulevard north of the project entrance will increase 0.59 dB from the increase in vehicle activity, and 1.43 dB south of the project entrance.	Landfill hours will be limited to 6 AM to 6 PM, Monday through Friday, and 7 AM to 4:30 PM on Saturday. The landfill will be closed on Sundays. This will minimize noise effects on nearby residences and businesses. Refuse vehicles are prohibited by City ordinance from using Balboa Boulevard to access the landfill.
Noise from on-site fill activities may be perceptible during certain meteorological conditions.	Landfill equipment mufflers will be maintained in proper working order to prevent resulting noise from exceeding ambient levels at the nearest residential receptors.
Aesthetics Views of the upper levels of landfill will be visible from portions of the Golden State Freeway and other areas to the southeast.	The landfill activity will be located in an area which minimizes visibility. Planned development will be a minimum of 50 feet below perimeter ridgelines. Revegetation of fill slopes will reduce visual significance of landfill operations. Inactive areas (one year or longer of inactivity) will be planted with interim vegetation. The proposed Revegetation Program is included in Appendix H, Volume IIA. Excavation areas will be confined to areas which will later receive fill, to minimize the total disturbed area and the amount of exposed cuts. Final cover material will be landscaped with appropriate local plant species.

IMPACTS	MITIGATION MEASURES
Aesthetics - (Continued) Litter from the disposal area and from refuse-hauling vehicles along access roads may occur if not routinely controlled.	All refuse received by the landfill will be covered with soil. Demolition materials will be recycled when possible. During windy periods the fill operations are selectively located in wind-shielded areas of the landfill. The landfill will be operated in accordance with the Litter Control Program (Appendix HH, Volume IIB). The following individual mitigation measures are incorporated in the Program. Local area cleanup crews will continue to be employed daily on the landfill site, and weekly or more frequently off-site, by the landfill operator. Portable litter fences around active fill areas will be used to control litter migration. Radio dispatch will be utilized to quickly engage crews to respond to litter complaints and other complaints from surrounding neighborhoods. Trucks entering the landfill with loose materials will be tarped.
Public Utilities	
Electricity A Southern California Edison (SCE) 66 KV transmission line must be relocated.	The transmission line will be relocated at no cost to electrical users or SCE with minimal interruption in service.
Water Approximately .6 acre/feet per day of water will be required for dust suppression, landscape irrigation and fire protection.	Non-potable water for dust and fire control will be contained in storage tanks and in retention ponds. A dust suppressant will be used to reduce water used for dust control.

IMPACTS	MITIGATION MEASURES
Water - (Continued)	
	Native and drought-tolerant plants will be used for revegetation as feasible which will reduce landscape irrigation requirements.
Fire Services A potential fire hazard from heavy equipment and human activity in area adjoining SEA #20 will exist.	A cleared fire break around landfill will be maintained. Other brush clearance requirements and fire hydrant standards as specified by County Fire Department will be complied with. Water trucks and dozers as well as fire extinguishers are available on-site for emergency extinguishing of fires on the landfill site and in surrounding off-site areas.
Hazardous Materials Small quantities of household hazardous materials may potentially enter landfill.	The landfill will be operated in accordance with the Waste Load Checking Program (Appendix G, Volume IIB). The following individual mitigation measures are incorporated in the Program. All liquids will be prohibited from entering the landfill. Truck loads will be regularly checked for unacceptable waste materials on a routine daily basis. No hazardous wastes will be accepted at the landfill. The Waste Load Checking Program will continue throughout the active life of the landfill. This includes: signed affidavits for waste haulers; signs posted, hazardous waste warning on receipt; radiation monitor; mirrors; and on-going employee training programs.

IMPACTS	MITIGATION MEASURES
Hazardous Materials - (Continued)	
	Procedures for disposal of hazardous material will be provided to waste haulers; notices will be posted on-site indicating pertinent rules and regulations.
	Appropriate authorities will be notified of any illegal waste disposal activities.
	Closed-circuit television will continue to be employed for scanning all incoming refuse loads.
	A full-time inspector will be employed and used solely to check incoming loads for compliance.
	The landfill operator will provide a 24-hour emergency hot-line connected directly to an answering service that will notify landfill personnel for immediate response.

ALTERNATIVES

1. No Project Alternative

The No Project Alternative would avoid site-specific significant adverse impacts associated with the proposed project; however, many project-related impacts would only be diverted to other landfill sites as the existing Sunshine Canyon facility reaches capacity. Even with the No Project alternative, existing facilities at the site will remain subject to geologic, seismic, ground and surface water impacts associated with site-specific conditions.

If the proposed project were not developed, the site could be developed for other various residential, commercial, and agricultural uses allowed under applicable zoning and general plan designations. Development of the site for other uses than the proposed landfill would also eliminate the availability of the site for future open space/recreation use as is intended after landfill closure under the current proposal.

This alternative is not considered desirable since it would impose a waste disposal shortfall. Other sites would need to be developed to provide the necessary future landfill capacity. Additionally, this alternative would not enable an existing landfill location to utilize its available resource capacity.

2. Alternate Project Location

Elsmere Canyon was previously considered by the applicant as a potential landfill site but a number of development constraints made the site infeasible for the project. Primary issues are the expected longer permitting time, the lack of appropriate soil materials in the canyon for fill cover and liner material, impacts associated with landfill operations within National Forest land, oil seeps in the canyon, and the visibility of the canyon from the west. Additionally, unlike Sunshine Canyon, the Elsmere Canyon site does not have any existing infrastructure for use by the applicant. The potential need to import cover soils and liner material could also create constraints on fill operations as well as potentially create associated off-site excavation impacts in obtaining the material. Detailed geotechnical information for this site is not available.

Development of other new landfill sites would avoid impacts in undisturbed areas of Sunshine Canyon and may, in some cases, reduce travel distances and associated mobile air emissions. However, many of the same generic impacts associated with using undeveloped areas of Sunshine Canyon would result from development of new waste disposal sites.

Re-permitting or expanding other existing landfill sites would reduce impacts at the proposed Sunshine Canyon site but may increase impacts at other sites as planned landfill elevations are increased and as daily inflows are increased when other facilities eventually close down. Re-permitting, in addition to delaying planned closures of existing facilities, would also delay the conversion of landfills to planned future uses.

3. Resource Recovery Systems

Resource recovery systems are not an alternative to a landfill extension, but they may reduce some project-related impacts. Waste-to-energy facilities (incineration), centralized waste processing, and residential recycling can decrease the volume of waste taken to landfills. Approximately 75% of all municipal solid waste is combustible material, and approximately 20% of residential waste can be recycled. However, resource recovery systems may also create environmental effects (traffic, noise, aesthetics, air quality, odors, land use conflicts). Other effects of the proposed project could be reduced. Resource Recovery System options are:

a. Material Recovery
b. Recycling

Resource recovery methods do not provide "alternative projects" to the expansion of landfills or development of new landfill sites. The implementation of such programs, in conjunction with the Sunshine Canyon Landfill extension, could prolong the life of the landfill and potentially reduce the intensity of the operation as the daily waste stream into the landfill is reduced.

4. Smaller Landfill Alternative

A smaller landfill alternative would result in the reduction of 30 feet in elevation of the final cover material and a capacity reduction of 42 million cubic yards. This could reduce the life of the landfill extension by approximately 15%. This alternative could reduce potential vegetation and visual impacts; however, other project-related impacts would be generally the same as for the proposed project. Much of the canyon's sensitive vegetation would still be removed under this alternative because the majority of these species exist in the bottom valley portion of the canyon (which would be filled first) and not along the canyon walls. Daily operational impacts would not be reduced; only the project life and duration of operational impacts would be shortened. The one identified unavoidable significant impact for the proposed project (loss of vegetation and oak trees) would not be mitigated to an acceptable level by implementation of this alternative.

This alternative is not desirable because no adverse impacts of the proposed project would be reduced to insignificance, there would be a degree of resource utilization inefficiency, and other landfills would eventually have to be developed to accept surplus future waste material.

5. Unincorporated County Area-Only Alternative

If the extension area were restricted to only the unincorporated County portion of Sunshine Canyon, it would reduce the total capacity of the project by 115 million tons. It could reduce the life of the landfill extension by over 50%. Development of the landfill extension in only the unincorporated County portion of Sunshine Canyon could reduce potential site-specific impacts associated with biota, groundwater, geology, air quality, odor, noise, and aesthetics. However, portions of the riparian areas along the base of the canyon in City land (to be preserved under this alternative) would still incur some effects due to landfill operations in upper portions (unincorporated) of the canyon. Daily operational impacts from the landfill would not be reduced; only the duration of effects would be shortened as the total project life is reduced by more than one-half. The one identified unavoidable significant impact for the proposed project (loss of vegetation and oak trees) would not be significantly mitigated.

This alternative is not considered desirable because no adverse impacts of the proposed project would be reduced to insignificance, it would still leave the County with a landfill shortage in the future, other landfills would have to eventually be developed, the potential for beneficial uses of landfill gas on the site would be reduced, and development of only a portion of the canyon is an inefficient use of the available resource.

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1.0 PROJECT DESCRIPTION

1.1 Introduction

This section describes the location, setting, design and operational characteristics and need for the proposed Sunshine Canyon Landfill extension project as described herein. The ultimate development has portions of the proposed extension located in both the City of Los Angeles and unincorporated Los Angeles County. The ultimate development is fully addressed in accord with CEQA guidelines. However, under the permits sought pursuant to this EIR, the project will be initiated in the upper portions of Sunshine Canyon in the County portion only, and separate approval will be sought for the ultimate extension of the project into the City portion of the Canyon.

Browning-Ferris Industries of California, Inc., (BFI) proposes the extension and further development of its existing 230 acre sanitary landfill that is located in the southeast portion of Sunshine Canyon. The covered portion of the existing landfill extends over approximately 175 acres. The landfill currently serves various San Fernando Valley communities including Granada Hills, Chatsworth, West San Fernando and Encino, and numerous West Los Angeles areas such as Santa Monica, Culver City, Beverly Hills, Inglewood and other neighboring cities. The landfill has been operating at this location since 1958. The landfill has always been permitted to accept residential, commercial and demolition waste. Sludge has not been accepted at the landfill, and will not be accepted at the landfill extension.

The site is located southwest of the intersection of the Antelope Freeway (State Route 14) and the Golden State Freeway (Interstate 5). Undeveloped mountainous terrain borders the site to the north and west. The Golden State Freeway shields the site from urban uses to the southeast. Aliso Canyon to the southwest, East Canyon to the west, and a 100-acre buffer area to the southeast also shield the site from development in the foothills of the San Fernando

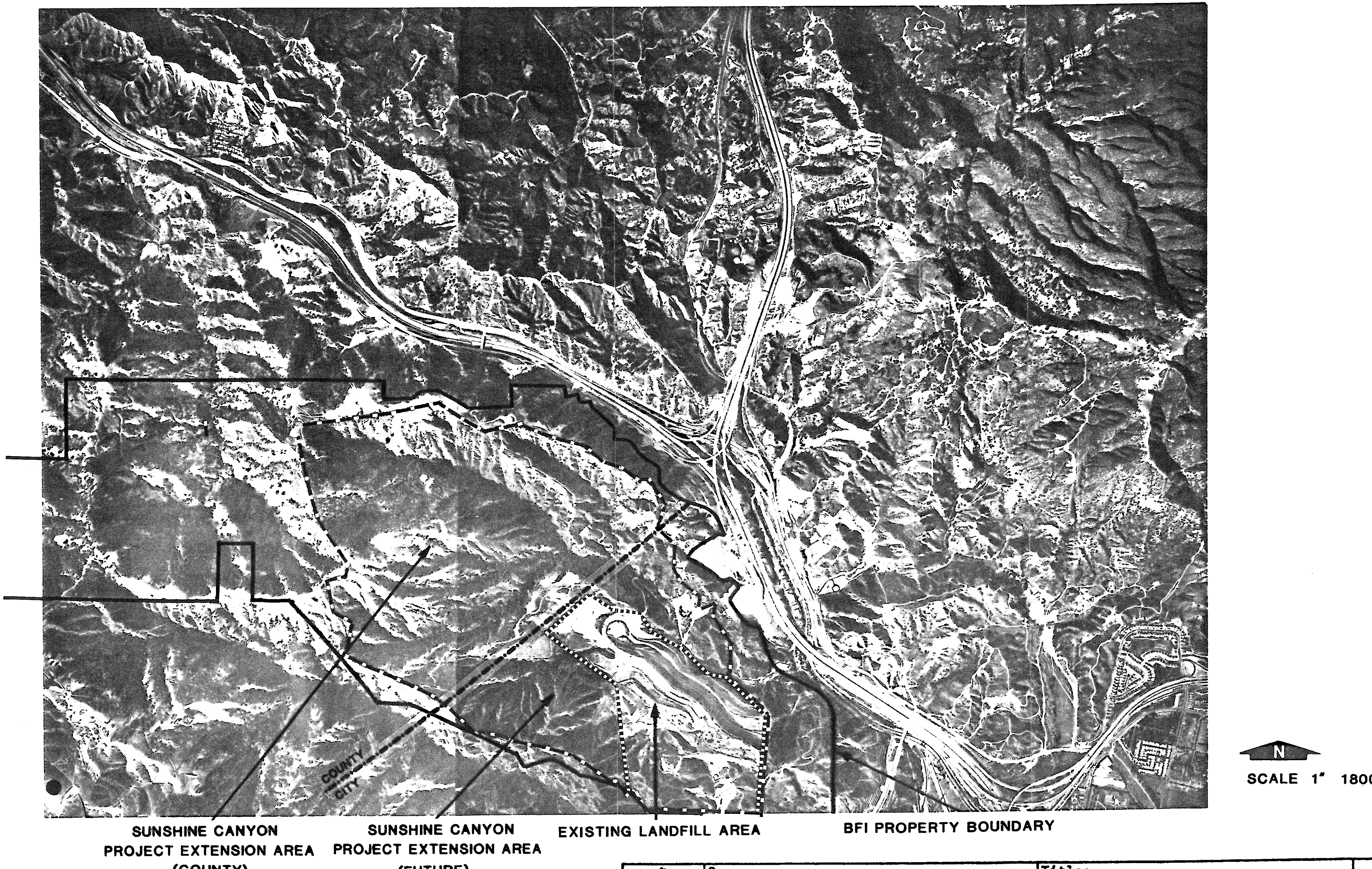
Valley. Directly south of the existing landfill is O'Melveny Regional Park (see Figure 6, Aerial Photo of Site). BFI owns a total of 1,066 acres in the County Area of the property including 524 acres in East Canyon.

This project is being proposed to meet a demonstrable need for landfill capacity. Since the mid 1950's when the municipal incineration of refuse and the backyard incinerators were banned because of poor air quality in the Los Angeles basin, the County has relied on sanitary landfills for disposal of its solid wastes. In the County-wide area of Los Angeles, public agencies and private companies collect and dispose of approximately 13.4 million tons of non-inert municipal solid waste and 4.5 million tons of inert waste annually.* Transportation of that refuse to landfill sites is a major cost. Accordingly, sites close to the generating source in the greater Los Angeles metropolitan area are necessary to minimize these costs along with traffic and air pollution.

The City of Los Angeles collects residential waste only. About 66%, or 11,800 tons per day, of the generated 18,000 tons per day is deposited at the three remaining sanitary landfills in the City (Lopez Canyon, Bradley West and Sunshine Canyon),** which are located above the Lakeview Terrace community in the northeast San Fernando Valley. The remainder is hauled to Los Angeles County Sanitation Districts sites and private facilities, one of which is Sunshine Canyon. The Los Angeles County Sanitation Districts operate four (4) sanitary landfills: Puente Hills, Calabasas, Spadra and Scholl Canyon in addition to the South Gate transfer station. Major private sanitary landfills within the Los Angeles County include Azusa Western (operated by BFI), BKK (operated by BKK Corp.), Bradley West (operated by Waste Management of North America), Sun Valley and Chiquita Canyon (operated by Laidlaw Co.), and Sunshine Canyon (operated by BFI).

* Mike Mohajer, County Department of Public Works, November 1988.

** "Solid Waste Management Status and Disposal Options in Los Angeles County," February 1988.

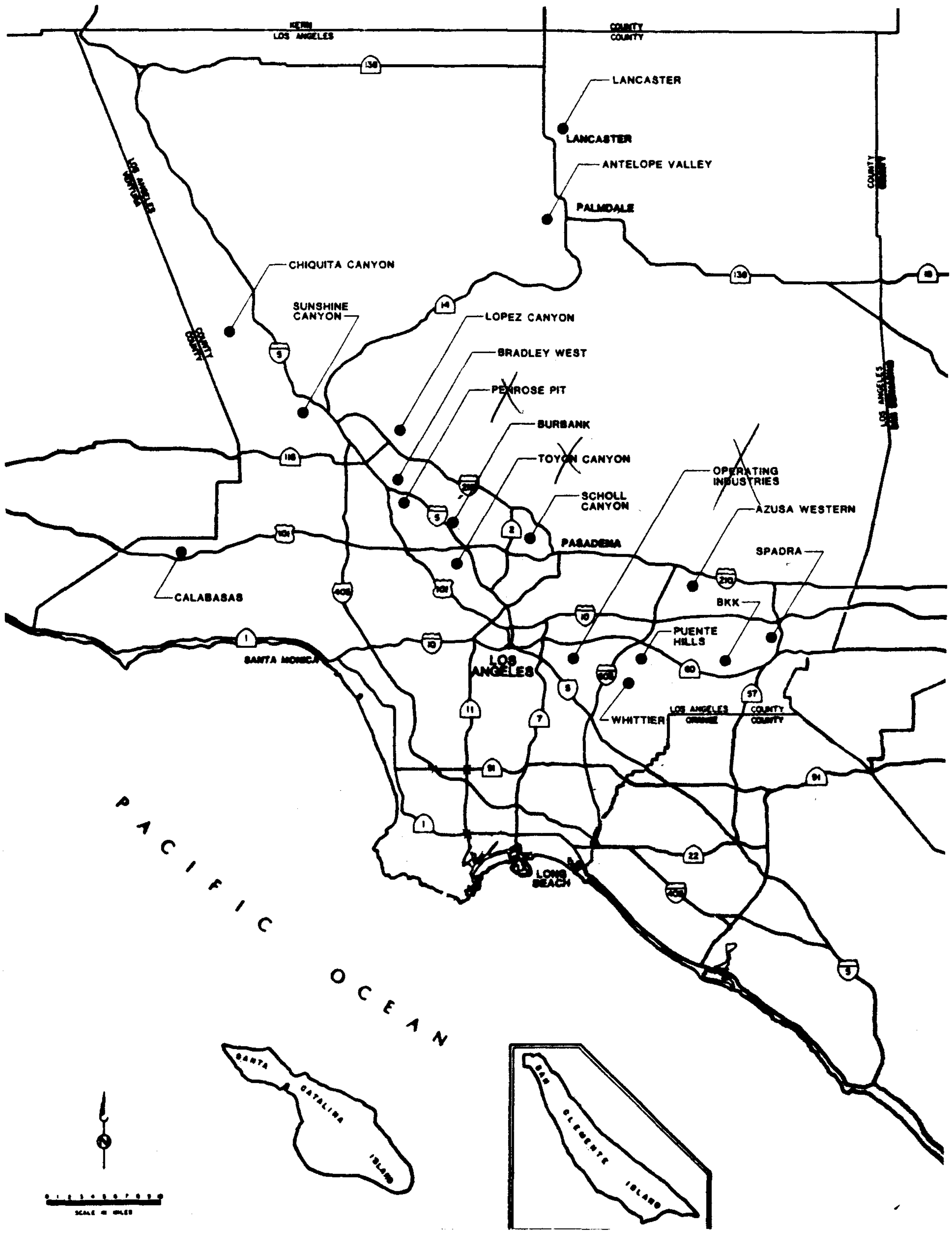


Source:	Title:	
ULTRASYSTEMS, INC.	SITE AERIAL PHOTO (November 1986)	6

General public reluctance to establish new sites has limited the rate of expansion of existing sites within urban communities. Within the City of Los Angeles, the Bradley West Landfill, a depleted gravel pit amidst the gravel pit complex in Sun Valley, recently obtained an extensive increase in permitted capacity. In addition, significant expansions have been approved over the last ten years at the Spadra, Chiquita Canyon, and Puente Hills landfills. Notwithstanding increased capacity at the facilities noted above, a joint study* conducted by the City of Los Angeles, County of Los Angeles, and County Sanitation Districts indicate a potential landfill capacity shortfall of 6,400 tons per day beginning in 1992, increasing to 45,000 tons per day by 1997 if new facilities are not sited. This shortfall assumes the implementation of recycling programs. Figure 7 shows the locations of remaining Class III landfills in Los Angeles County. Table 1 shows the most current and accurate remaining capacity at these facilities, as specified in the "Los Angeles County Solid Waste Siting Project," May 1987, prepared by the County Department of Public Works (data from this study is provided in Appendix EE of Volume IIB).

Alternative methods of solid waste management such as waste-to-energy facilities (incineration), centralized waste processing and residential recycling can decrease the volume of waste taken to landfills. Within the County, approximately 75% of all municipal solid waste is composed of combustible materials. The status of high-volume waste-to-energy facilities in the Los Angeles area is uncertain at this time, primarily because of questions surrounding the health effects of the air emissions from high-volume incineration of the waste products. About 20% of the combustible and non-combustible residential waste stream such as glass, newsprint and metals can be reclaimed or recycled. One refuse-to-energy facility is in operation, one is under construction and several others are planned. A co-composting (refuse and sewage sludge) facility is being evaluated by the City of Los Angeles. one stake down - SORRY

* "Solid Waste Management Status and Disposal Options in Los Angeles County," February 1988.



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(REVISED)

Title:

LOCATION OF MAJOR CLASS III LANDFILLS IN LOS ANGELES COUNTY

7

TABLE 1

REMAINING CAPACITY OF CLASS III (FORMER CLASS II)
LANDFILL FACILITIES AS IDENTIFIED IN COUNTY SOLID WASTE MANAGEMENT PLAN
(TABLE 6-1, PAGE 6-5) UPDATED (1985)

Landfill Site	Operator	Rate of Disposal Tons/Day	Rate of Disposal 10^6 Tons/yr	Remaining Permitted Capacity in Million Tons	Remaining Years of Operations
Antelope Valley	Private	700	0.22	0.65	3
Azusa Western*	Private	3,000	0.78		
BKK	Private	6,000	1.56	10.07	7 (1995)
Bradley West*	Private	7,000	1.82	17.39	10
Brand Park	City of Glendale	100	0.03	.07	3
Burbank	City of Burbank	240	0.06	6.39	11 (2001)
Calabasas	L.A. County	2,520	0.79	10.40	13
Chiquita Canyon	Private	3,000	0.97	3.36	3
Lancaster	Private	500	0.16	0.11	1
Lopez Canyon	City of Los Angeles	5,700	1.48	12.04	8
Pebbley Beach	City of Avalon	4	0.001	0.063	11 (1999)
Puente Hills	L.A. County	12,000	3.75	8.71	2
San Clemente Island	U.S. Navy	3	0.001	0.02	20
Scholl Canyon*	L. A. County	5,600	1.75		
Spadra	L. A. County	2,680	0.84	3.73	4
Sunshine Canyon	Private	6,362	1.98	6.00	3 (1991)
Two Harbors	Private	1	0.0003	0.001	3
Pitchess Honor Ranch	L. A. County Sheriff	65	0.02	0.12	6
Whittier/Savage	City of Whittier	350	.11	0.84	8

* Data regarding the current rate of disposal for Bradley West and the remaining capacities for Azuza Western and Scholl Canyon are not available from the County Department of Public Works.

Source: Base data from "Los Angeles County Solid Waste Siting Project," Los Angeles County Department of Public Works, Waste Management Division, May 18, 1987. This table also contains updated data based on November, 1988 conversations with County Department of Public Works (Mike Mohajer, Solid Waste Management Division).

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Note: Other landfills in the Los Angeles area are also available for disposal of inert wastes only, such as San no Marino Disposal site and others listed in the above referenced study.

Note: Ascon, Operating Industries, Penrose Pit and Toyon Canyon Landfills have been closed.

These alternative methods of solid waste disposal are expensive and take time to develop, but will help reduce the demand for additional landfill capacity in the future, provided they can satisfy stringent environmental air quality constraints. The alternatives will not negate the need for future landfills. Several cities in the County are presently conducting voluntary source separation collection programs for several recyclable materials. The highest level of participation, 65-70% of the residents, results in a reduction of solid waste of approximately 10% that would otherwise be landfilled (City of Los Angeles residential demonstration project, West Los Angeles). This method of conserving landfill availability and capacity was mandated by the State of New Jersey (LA Times, April 21, 1987). not it, do w/ LA

Rewrite

Therefore, the need for sanitary landfills will continue to exist. Landfills will still be needed to accommodate the inert materials such as concrete, asphalt, construction rubble, soil, and the ash and non-combustible/decomposable waste materials from refuse-to-energy and co-composting facilities.

The proposed Sunshine Canyon Sanitary Landfill Extension will satisfy the need for waste disposal resources in Los Angeles County, in part, well beyond the year 2000.

In summary, without this project, landfilling at Sunshine Canyon would cease in 1991. The other remaining sites within the County would be severely impacted. Without the rapid development of expansions of existing sites or establishment of new sites, a County-wide disposal capacity shortfall would occur ~~thereafter~~. as early

~~as 1991~~

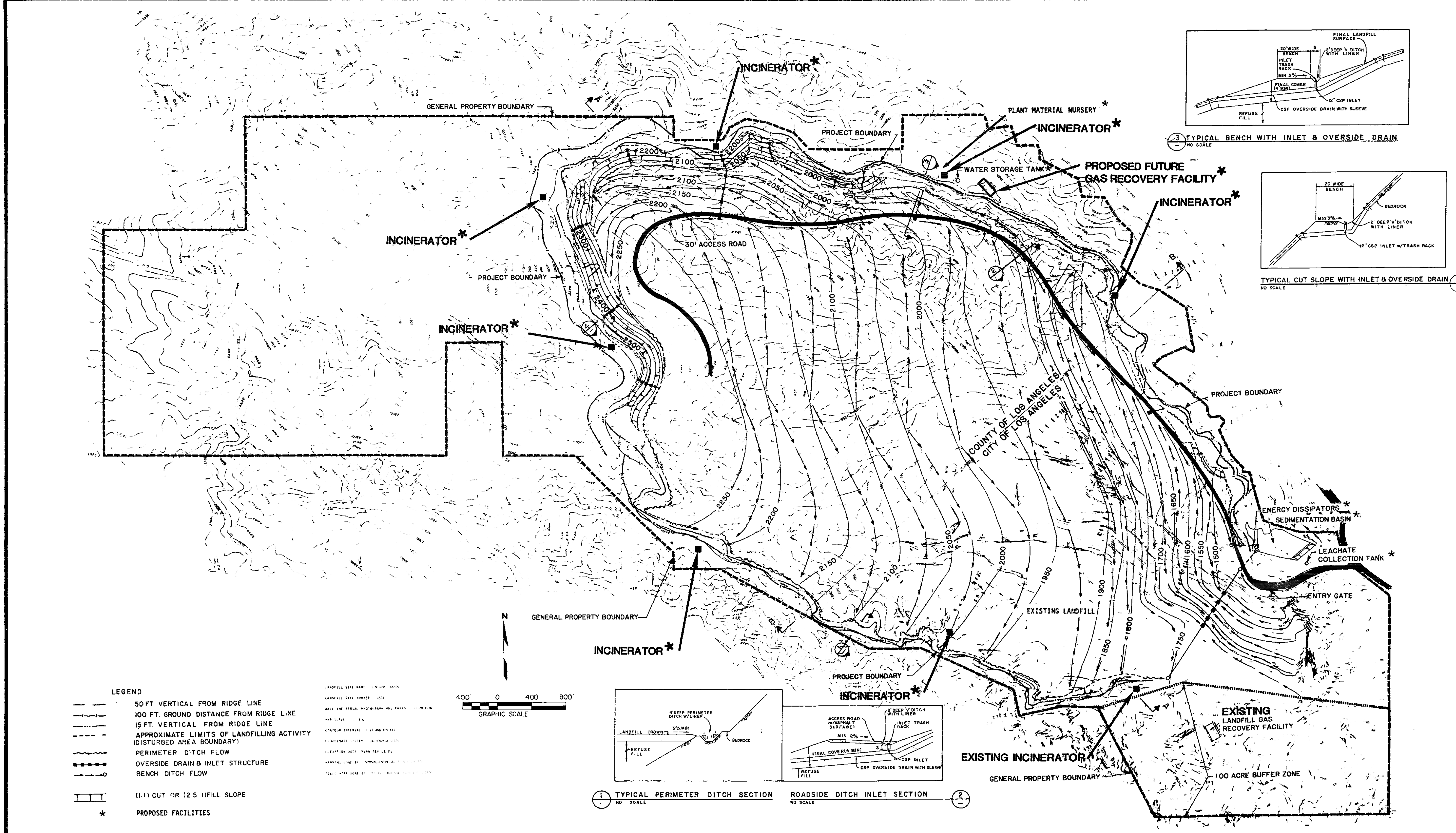
1.2 Project Objective

Extension and development of the proposed project will provide needed sanitary landfill capacity for the County and City of Los Angeles well into the Twenty-first Century.

The ultimate proposed landfill extension project will disturb and occupy approximately 706 acres (542 in County; 164 in City) of the approximately 1,560 acres of land under BFI ownership or control. Of the total 1,560 acres approximately 1,066 acres are located in the unincorporated area and the balance, or approximately 494 acres, are in the City of Los Angeles. Only Sunshine Canyon will be disturbed. There are several small parcels of land needed for complete ownership of the Sunshine Canyon watershed; however, BFI already owns or controls all of the parcels that control the watershed. The project area identified in Figure 6 reflects the limits of the refuse fill, including the current landfill in the City. The initial excavation will be in the base of Sunshine Canyon near the City-County line and will be approximately 10 to 20 acres in size. This is shown by the first fill sequence in Figure 3a. In general, filling will begin from the toe berms in the canyon and progress in lifts. The proposed landfill project area is precisely delineated in Figure 8. Additional design details are provided in the Report of Waste Discharge, Section 2596.

Existing improvements in the canyon include limited, rough graded dirt access roads, and some culverts. An access road will be extended from the existing access road servicing the present landfill site in order to prepare the site for implementation of the landfill.

The proposed landfill extension will initially occur within the County of Los Angeles. Ultimately the development will extend to lands within the City of Los Angeles. Although the applicant is currently seeking only the approval of the initial portion of the project, this draft EIR assesses the impact of the entire project.



Source: BRIAN, KANGAS, FOULK & ASSOCIATES

Title: ULTIMATE LANDFILL DEVELOPMENT

8

The DEIR follows the principle that it must address the "whole of the action" (CEQA, Section 15378). Several discretionary approvals by government agencies will be required. Permits are currently being sought for only that portion of the site within the County because that is where the initial landfill extension activity must occur for proper landfill development. As the landfill is developed to the point where it approaches applicant-owned land within the City, the applications will be filed with the City and other appropriate agencies.

The City and County areas of the Sunshine Canyon Landfill are not separated by natural barriers. The boundary of the landfill area within the City limits is shown in Figure 8. The existing landfill in the City is scheduled to close in May 1991. The City of Los Angeles Bureau of Sanitation and the California Waste Management Board are the responsible agencies which have reviewed calculations supporting this date contained in the operator's Engineering Report Review in conjunction with the 5-year permit review, Sunshine Canyon Sanitary Landfill, Los Angeles, California, Permit No. 19-AR-002.

The final fill surface for the proposed project will be graded to remain below existing major topographic ridges on the north (elevation 2,150'), south (elevation 1,900') and west (elevation 2,200). The project will thus be shielded from public views, except in the comparatively small mouth of Sunshine Canyon and certain areas to the east. Figure 8 presents the area of the project site to be used for the landfill and shows the final contours of the landfill ranging from a maximum elevation of 2,250' to a lower elevation of 1,680'. These are the maximum contours at the time the facility stops receiving waste.

The project will be developed as a Class III disposal site. No toxic, radioactive or hazardous materials/waste will be permitted into or disposed of at this landfill. All operating procedures will comply with the requirements of the various Federal, State, regional, County and City permitting and regulatory agencies. The non-hazardous solid waste materials which are currently accepted and will continue to be accepted at the facility include typical municipal solid waste which consists of and contains chemically or biologically decomposable material, but which neither include toxic substances nor those capable of significantly impairing the quality of the environment. Other materials received at the facility include non-water-soluble, non-decomposable inert solids from municipal, industrial and construction/demolition waste generators. No liquid waste or sewage sludge is accepted for disposal at the landfill.

Since many of the jobs in a landfill operation are not related to the size of the landfill, the number of jobs will not increase in direct proportion to the extension of the facility. There will be an increase in the number of on-site operations personnel for direct operations such as unloading, covering, and inspection of waste. However, there will be no needed increase in management and associated administrative personnel for the landfill extension.

The completed landfill will be developed for open space uses or other uses as deemed appropriate by the controlling agencies at the time of project completion.

1.3 Operations Description

The development plan will be reviewed by the appropriate agencies and the landfill extension will be operated in conformance with all regulatory standards for solid waste handling and disposal set forth by local, state and Federal agencies. These agencies will include Los Angeles County, California Waste Management Board, the California Water Resources Control Board, the California Department of Health Services and the South Coast Air Quality Management District. It is the responsibility of Los Angeles County to approve or deny the request for the extension.

1.3.1 Landfill Use

This landfill extension will be open to private rubbish haulers, the general public, and public agencies. The landfill operators have no plans to restrict the acceptance of legal Class III rubbish from any private citizen, any commercial or private hauler, or any governmental agency.

1.3.2 Landfill Life

The landfill extension will have an estimated gross air space capacity of approximately 351 million cubic yards* and an estimated net air space capacity of approximately 319 million cubic yards. This net air space includes a 15% settlement factor, which reflects the difference between the gross and net estimates. Approximately 5 million cubic yards of final cover (4 feet deep) and 80 million cubic yards of daily cover are included in the net air space value. The net available air space converts into a net tonnage of 215 million tons.

The projected life of the project is dependent upon several different operational factors. The existing waste stream rate is approximately 6,400 tons per day and the market demand is anticipated to increase to 12,000-14,000 tons per day as existing facilities exhaust available capacity. Based on current and projected operational program plans, a maximum of approximately 17,500 tons of rubbish per day could be received. A primary factor is inflow. Based on an assessment of traffic impacts (Section 3.2.8), up to 17,500 tons per day of refuse could be received without resulting in adverse impacts on the local circulation system. Therefore, 17,500 tons per day is the "reasonable worst-case" rate of inflow assessed in the DEIR. This capability is based on the capacity of the local circulation system, not on estimated market demand. Other variables

* Assumes a final in-place density of 1,425 lb/cu.yd.

which will affect the use and life of this landfill are the availability of other landfills within the operational geographic area, the type of vehicles used by governmental agencies and commercial and private rubbish haulers, and future alternate means of rubbish disposal.

1.3.3 Method of Disposal and Project Design

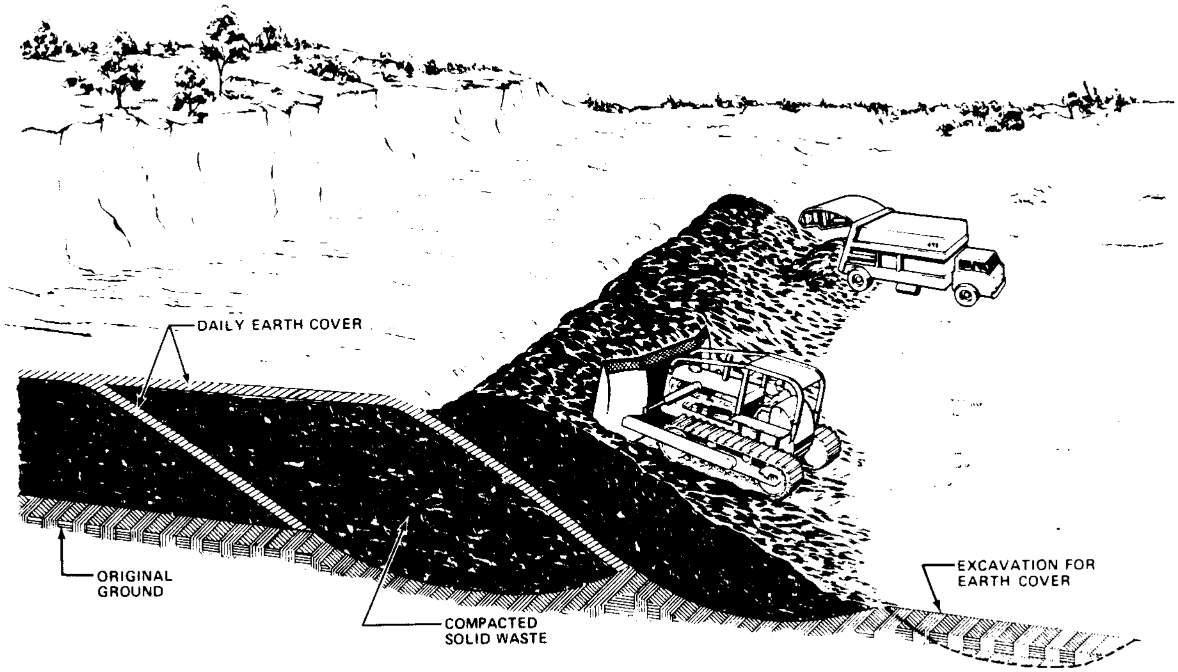
- Refuse Placement and Cover Material

Solid waste will be handled using state-of-the-art sanitary landfill techniques for canyon fills. Rubbish deposition will be made by canyon filling with cuts for cover material being made, as necessary, by excavation of the interior finger ridges which exist within the Sunshine Canyon.

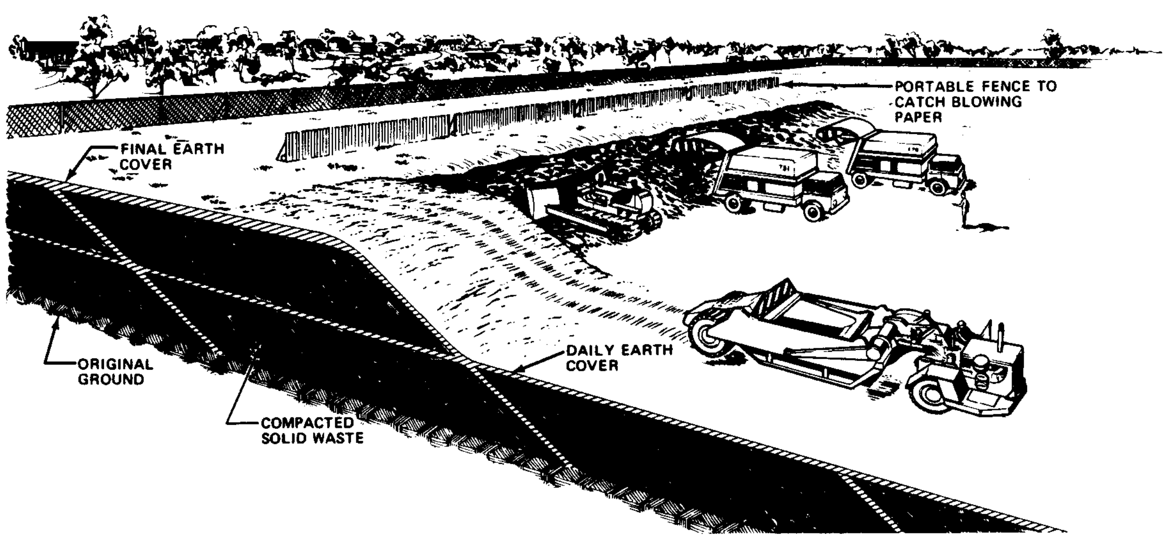
Waste entering the facility will be measured by volume based on vehicle size (averaging 24.05 cubic feet per load) in order to minimize traffic impacts. Charges based on full containers discourage customers with partially full containers. Consequently, most customers will have full containers.

Waste will be placed on the working face of the fill, spread in approximately two-foot layers, and then compacted to an initial density of approximately 1,100 lb/cu. yd. using a Caterpiller D-8L track dozer. A heavy duty 826c Compactor will assist in the compaction process to enable a final density of approximately 1,425 lb/cu.yd. Dozers and 20 cu.yd. scrapers will be used to excavate, haul, and spread cover soil over deposited wastes. A sketch of the activities associated with compaction and waste covering is presented in Figure 9.

All refuse deposited at this landfill will be covered on a daily basis with approximately nine (9) inches of clean on-site soil. This cover material will be obtained from the cut portion of the cut-and-fill process within Sunshine Canyon. Figure 10 presents a section view of a typical landfill after compaction and covering. This practice is in accord with operating procedures currently in

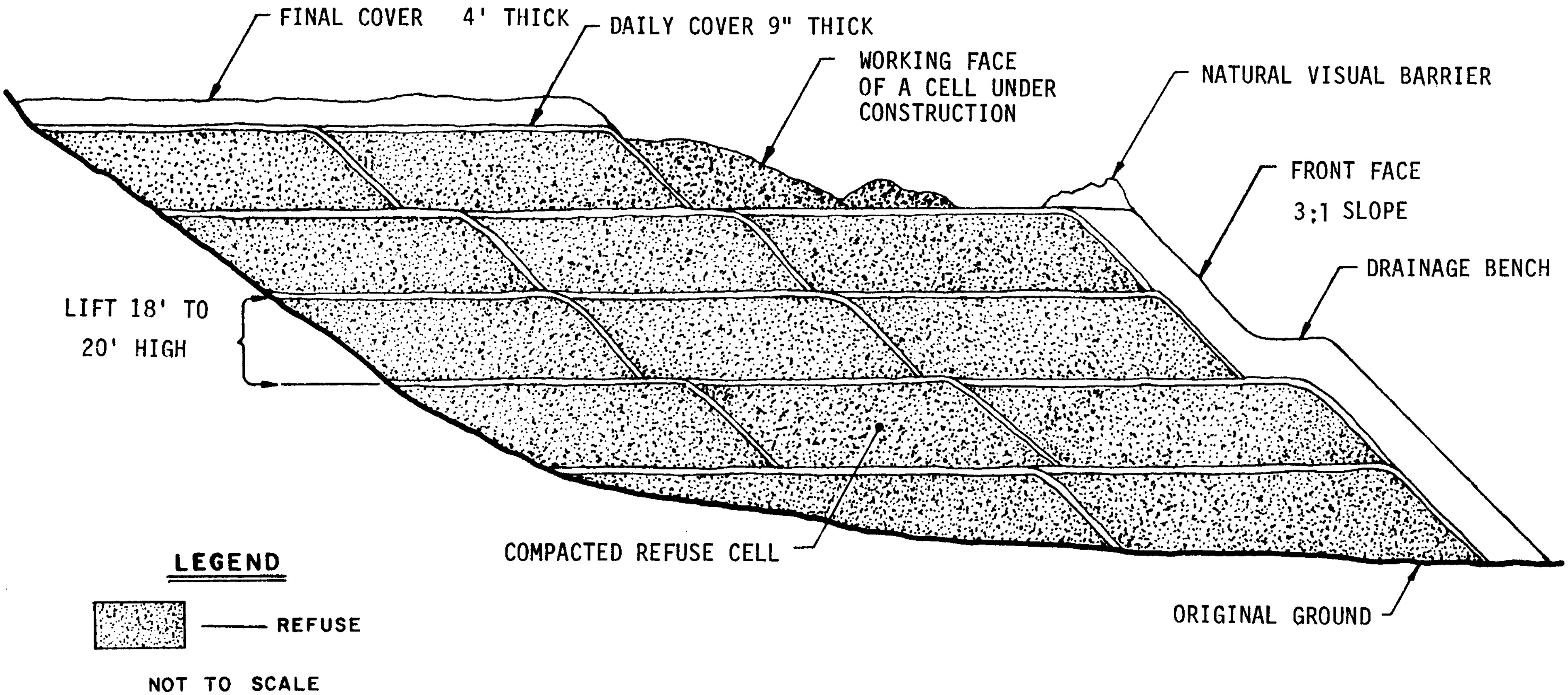


1. Waste compaction



2. Waste covering

	Source:	Title:	
ultrasystems	SANITARY LANDFILL DESIGN & OPERATION (U.S.E.P.A., 1972)	LANDFILL COMPACTION AND COVERING ACTIVITIES	9



Source:
THE SANITATION DISTRICTS OF
LOS ANGELES COUNTY

Title:
TYPICAL SECTION OF A SANITARY LANDFILL

10

effect at this and other sanitary landfills in the City and County of Los Angeles.

Intermediate cover will be applied in conformance with the California Solid Waste Management Regulations. Intermediate cover will be applied on all surfaces where no additional refuse will be deposited within 180 days. It will consist of at least twelve (12) inches of soil that is compacted, or other thickness as approved by the local enforcement agency.

Final cover will be applied in conformance with California Solid Waste Management Regulations and with the California Administrative Code, Title 23, Chapter 3, Subchapter 15 final cover requirements. It will be applied as soon as practical, but in no event shall exceed fifteen months after placement of the final lift as per the California Solid Waste Management Regulations.

° Cover Material Excavation and Handling

The extension will be operated as a cut and cover operation. Cover material will be excavated from on-site slopes and interior ridges approximately fifty (50) feet above the refuse cell in which waste is being deposited. The areas from which cover materials will be removed will be filled with waste as landfill operations increase in elevation reaching areas previously excavated.

On-site soils are suitable for daily and intermediate cover and for the final cover. The compacted on-site soils are sufficiently impermeable to meet the RWQCB requirements for final cover (1×10^{-6} cm/sec). Based on field and laboratory tests, on-site soils expected to be encountered will be adequate to provide 5 million cubic yards of material for daily cover and 80 million cubic yards for intermediate and final cover. According to the applicant, this quantity will be sufficient to avoid importing cover from other locations. Due to the permeability of the cover material that will be applied after closure of the existing landfill, there will be no potential for conductivity between the existing operation and the proposed extension.

Much of the proposed extension is underlain by a bedrock formation with a low overall permeability sufficient to prevent leachate migration. In order to supplement the natural containment features of this site, a compacted man-made liner of soil with 1 x 10^{-6} cm/sec hydraulic conductivity will be placed in areas where the native geologic material does not meet this requirement. Areas to be lined include the canyon floor and side slopes extending ten feet above the base of the canyon. A registered geologist will evaluate and determine areas requiring artificial liner installation. In areas where the liner will be installed, the man-made liner will overlap and be keyed into acceptable natural materials to provide assurance of a good seal.

° Final Elevations, Vegetation

The final elevations of the surface of the proposed landfill will be a minimum of 50 feet below the natural ridge lines to preclude visual obstruction except from the easterly direction. The portion seen from this direction will be primarily from the Foothill Freeway and from urban areas more than a mile away. The completed surfaces of the landfill will be graded to provide appropriate final drainage upon completion of landfill settlement. The final landscaping will be aesthetically blended with that of the surrounding area.

The Revegetation Program for the landfill extension is included as Appendix H, Volume IIA. The slopes and all other disturbed areas will be revegetated with native vegetation and maintained following placement of interim and final cover. A revegetation specialist will coordinate soil thickness and revegetation types to assure the low-permeability integrity of the cover material as well as plant vitality. Landscaping will also serve an aesthetic purpose. The top twelve inches of the minimum four-foot thick final cover will be soil with properties that will support the growing of vegetation.

° Leachate Control and Removal System (LCRS)

The proposed extension area includes an internal leachate collection recovery system (LCRS) for control of any generated leachate with proper disposal thereof consistent with requirements of the Regional Water Quality Control Board (RWQCB). This system will consist of 6-inch pipes placed in a lined trench surrounded by drainage material with a hydraulic conductivity of no less than 1 x 10^2 cm/sec. The drainage blanket will be a minimum of one-foot thick and will be extended over the entire canyon floor or liner as required.

Preliminary field and laboratory permeability tests demonstrate that the overall permeability of the natural basement materials underlying the proposed extension and the permeability of remolded test samples for liner or final cover are adequate to prevent the infiltration of leachate into the underlying bedrock formation. The low permeability of the bedrock and the LCRS described above will effectively prevent leachate from entering and degrading any subsurface waters that may underlie the site.

In the existing Sunshine Canyon landfill area deep monitoring wells have been placed downgradient from the fault barrier to monitor and demonstrate the effectiveness of this natural barrier system. These wells are also downgradient from the proposed extension. To date no leachate has been detected.

° Gas and Condensate Collection and Control

Since November 1981, a landfill gas extraction system has been in operation at the existing landfill to recover landfill gases produced from the anaerobic (oxygen-free) decomposition of deposited refuse. Landfill gases are principally methane and carbon dioxide, both of which are non-toxic and odorless. The system in place includes nine (9) gas recovery wells, gas collection pipelines, and gas processing and flaring facilities. The system extracts, processes and sells or flares the landfill gas. All operations are in accordance with SCAQMD regulations. The current gas treatment system can process all associated gas liquids (primarily water) and 3.0 MMSCFD of landfill gas for commercial sales. It does not have the capacity to handle the extension.

The extraction and processing system for the landfill extension will be located over 4,500 feet northwest of the existing gas processing facility. All landfill gas will first pass through a scrubber to remove free liquids. The landfill gases will then be compressed, metered, scrubbed and flared. Over the life of the project approximately seven flares will be installed around the northern and western property boundaries, within the canyon ridges where they will not be visible. Continuous temperature recording will be a component of the flaring system. In the future, when gas production reaches commercial quantities, it will be processed at a location near the sedimentation basin and then be commercially marketed. The gas will be used on-site for electrical generation, or transported offsite as an alternative renewable fuel source to other energy generation or industrial facilities. The effects of the treatment of gas for commercial sales will reduce emissions from flaring resulting in a reduction of air emissions.

The methods used to collect and control landfill gas are described more fully in the SCAQMD Permit to Construct Application. A system consisting of horizontal collectors in active fill areas and a vertical recovery system at the perimeter of the site will be part of the overall system design used for the extension.

The horizontal gas recovery system will be installed immediately upon preparation of the surface area for landfilling and will be expanded as necessary to assure compliance with SCAQMD Rule 1150.1 which limits surface emissions from landfills. Monitoring probes will also be installed in accord with SCAQMD Rule 1150.1 at appropriate locations around the landfill. The proposed flaring system will use Best Available Control Technology (BACT) to destroy toxic compounds while still meeting stringent air quality standards. Approval of the landfill gas control and disposal system will be required by the Los Angeles County Department of Public Works, the SCAQMD, and the California Waste Management Board. Condensate produced by the landfill extension will be separated into hydrocarbon and water phases. Water will be pH controlled and either sewered or hauled offsite for disposal. Hydrocarbons will be hauled offsite for disposal. Condensate from the existing gas recovery facility is less than 3 gallons per minute and has been checked by the Los Angeles Department of Public Works, Bureau of Sanitation. Existing condensate meets City discharge standards.

° Subsurface Flow

Subsurface flow from underground springs and seeps will be controlled with an underdrain system consisting of 2-inch slotted PVC pipes in trenches through areas where springs have been identified. Trench depth will vary, depending on whether the area will also be lined, to provide the 5-foot waste-groundwater separation required by Subchapter 15 of Title 23, Chapter 3 of the California Administrative Code. Flows will be conveyed from the pipes via a pumping system to the Los Angeles County Flood Control Channel.

° Drainage Plan

On-site flood control drainage channels will meet 100-year storm conditions, while the on-site retention and sedimentation basin will be designed to limit peak runoff levels at or below existing levels. The design detail of on-site drainage channels is discussed in Appendix Z of Volume IIB. Surface water drainage will be handled with an engineered drainage system including ditches, berms, energy dissipators, and other storm water management measures designed for high flow capacity. To insure that leachate resulting from the contact of surface waters with refuse is minimized, runoff will be diverted to a series of interceptor ditches above the landfill along the sides of the canyon flowing to a lower gradient detention pond prior to their release to the flood control channel through energy dissipators.

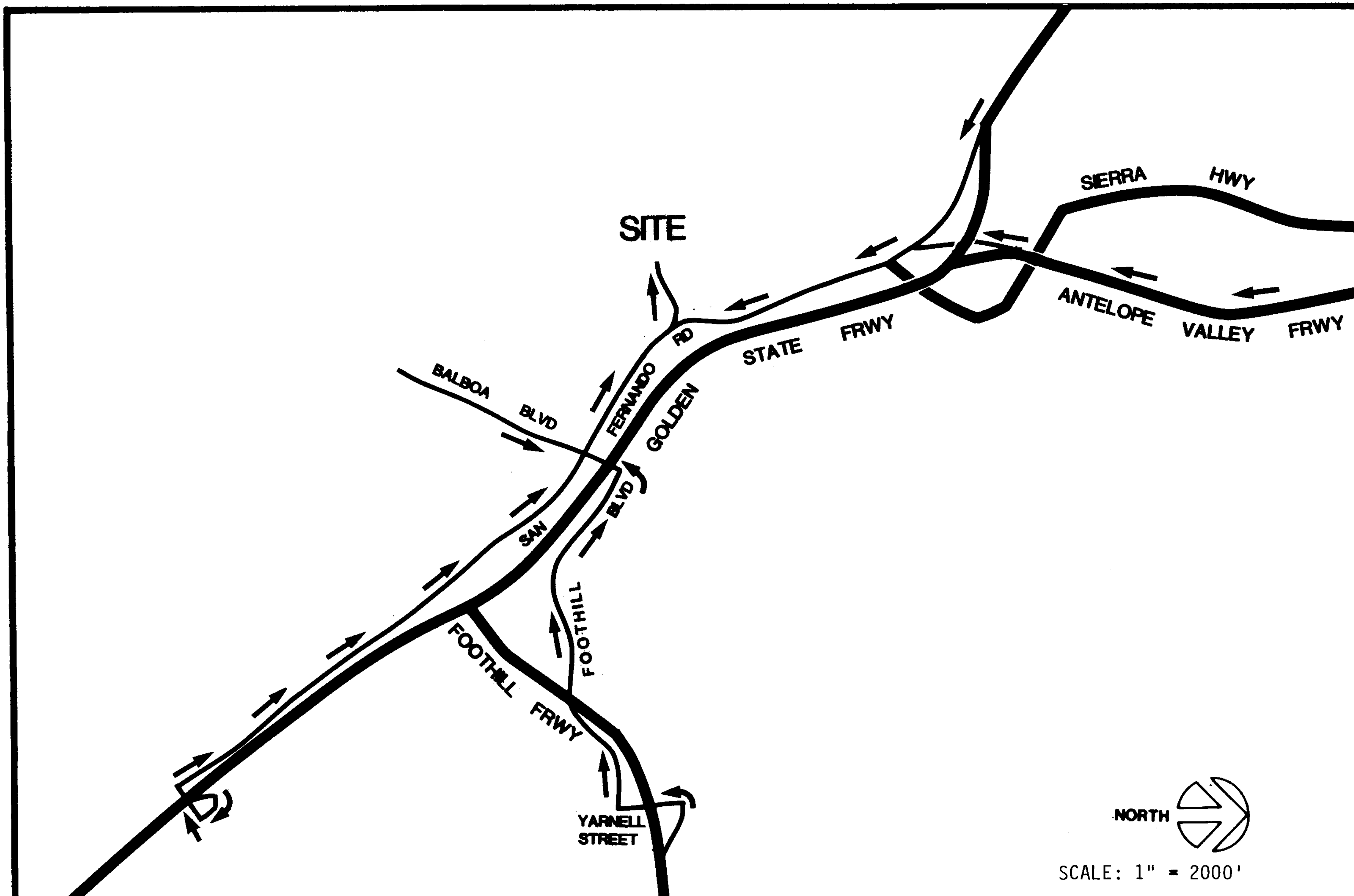
1.3.4 Project Access

Landfill traffic will consist of municipal and private trash trucks collecting solid waste in the City and County, including residential areas, streets and parks, public services, and the school district. Traffic will enter the landfill from San Fernando Road, after approaching the site from one of eight main access routes (Figure 11) which are:

- north along the Golden State Freeway (I-5)
- south along the Antelope Valley Freeway (State 14)
- west along the Foothill Freeway (State 210)
- southeast along the Golden State Freeway (I-5)
- north along San Diego Freeway (State 405)
- east and west along Simi Valley Freeway (State 118)
- north on San Fernando Road
- north on Balboa Boulevard to San Fernando Road (this route is restricted to small vehicles only, less than 6 tons, except for trash collection vehicles which serve the local communities; City Ordinance No. 161201).

The six freeway access routes are presently used and will be used in the future to haul more than 95% of the rubbish to the landfill. Approximately 1,055 rubbish-hauling vehicles per day currently use the facility Monday through Friday. At peak use in the future, the landfill could receive nearly 2,780 vehicles a day without adverse circulation impacts. On Saturdays, the landfill will accommodate approximately the same number of vehicles. However, these vehicles will be mostly small pickups and small trailers which are operated by local area homeowners.

Because the project is topographically isolated by very high ridges, the existing entrance is the only practical access route



Source: ULTRASYSTEMS, INC.

Title: ROUTES APPROACHING PROJECT SITE

11

to the extension area. The construction of other access facilities would require an extensive amount of earth work and excavation that would be costly and might be damaging to existing vegetation.

Once on the landfill, traffic will reach disposal areas via a compacted asphalt concrete and crushed rock access road located on inactive landfill surface areas, or the site perimeter. This road will be made from recycled materials where possible. The roadway will be graded to a slope not greater than 10 percent to allow access by the transfer trucks and other heavy vehicles.

1.3.5 Operation Facilities and Equipment

Facilities which may be added as the project develops include a permanent business office in addition to the present office near the project entry gate and equipment maintenance yards with necessary buildings and support structures. In addition, necessary water system retention ponds and/or water storage tanks and improvements will be constructed to insure adequate coverage for landscaping, dust control and fire suppression.

The amount of equipment and manpower used to operate the site will vary with rubbish volume and will be adequate to meet all regulatory performance standards. Current volumes require eight (8) tractors equipped with dozer blades, five (5) earth-moving scrapers, one (1) road grader, and four (4) water trucks, plus appropriate spare equipment. Approximately fifty (50) people are currently employed to operate the site, collect fees, monitor on-site rubbish hauling traffic and assist in maintenance items such as litter control, cover material repair, fence and barrier construction, landscaping and irrigation. The level of equipment and support manpower will increase, although not on a straight-line proportional basis, as the volume of rubbish received increases.

1.3.6 Hours of Operation

Currently, the landfill is open 312 days a year, Monday through Friday from 6:00 AM through 6:00 PM, and from 7 AM through 4:30 PM on Saturdays. These hours of operation are expected to continue for the extended landfill project.

1.3.7 Dust Suppression and Litter Control

Dust will be controlled primarily through the use of soil sealant on inactive areas, by paving completed access roads, keeping direct access roads to a minimum, and by keeping cover material moist at the working face of the landfill via light water spray from the on-site water trucks.

Measures to minimize litter and debris are discussed in the Sunshine Canyon Landfill Litter Control Program provided in Appendix HH of Volume IIB. Airborne litter is being and will continue to be controlled by litter fences, and by selectively locating the operating areas in the windshielded areas of the landfill during windy periods. A major portion of the landfill extension will be located in more remote and lower portions of the canyon than the present operations. Any new methods or technologies for controlling airborne litter will be used at Sunshine Canyon as appropriate.

On a once-a-week basis, or more frequently as needed, the operator will continue to provide litter control pick-up service in O'Melveny Park, along Balboa Boulevard and San Fernando Road and in other areas in proximity to the project.

1.4 Ultimate Use of Site

1.4.1 Closure Procedures

Final cover will be a minimum of 4 ft. thick and will be provided from on-site soils. The cover will include 2 feet of base material, 1 foot of low-permeability soils (1×10^{-6} cm/sec) and 1 foot of top soil. The final fill surface will slope to the north and south at a minimum final grade of three (3) percent. The maximum slope will be 3 to 1 on the faces of the landfill. The overall east to west grade at the face of the landfill will be about 4:1 or 25 percent when benches are included. The landfill operator will design and construct the fill operation to account for settling in accordance with Subchapter 15, Chapter 3, Title 23 of the California Administrative Code, enforced by the RWQCB.

The final cover soils will come from the eastern slope of the western ridgeline along the disturbed area boundary. It is also possible that enriched soils or compost will be used from off-site sources for optimum plant vitality.

The site will be landscaped with local native plants or new species that are suitable to a sanitary landfill environment. Slopes will be planted once temporary irrigation systems are in place. Where appropriate, a hydraulically applied mix will be applied which includes mulch and fertilizer, as well as a specified blend of ground cover, and shrub seeds. The frontal landscaping plan will use local native plants so that the final cover will blend with the surrounding environment. Ground cover will be applied to the entire surface of the closed landfill. Shrubs and trees will be randomly planted in order to maintain a natural appearance. (See Appendix H, Volume IIA for the proposed Revegetation Program and content of ground cover mix and plant species.) In order to minimize the need for irrigation water, plants will also be selected for drought tolerance. A site on the BFI property has been set aside to raise some of the plant material to be used for revegetation (see Figure 8). This will minimize transplanting shock because the plants will be acclimated to the local environmental conditions.

Vegetation will be planted on finished slopes when at least 4 feet of soil cover (final cover) exists and sufficient water for plant survival is available. The final cover and the watering system will be put in place as soon as possible after the final layer of refuse and daily cover have been installed. Temporary erosion control and soil stabilization measures will be applied on slopes which are inactive for one year or less. The Revegetation Program in Appendix H, Volume IIA provides more details of proposed site enhancement measures for temporary, interim and final slopes.

BFI will be responsible for all future landfill closure and post-closure monitoring and maintenance.

1.4.2 Future Uses

While the ultimate use of the site has not been precisely determined, the filled portion of the property will be maintained as private open space, landscaped, planted, and maintained in a park-like setting. The 100-acre buffer area on the southeast portion of the property will be retained as a buffer in its natural state. Uses for other properties under the operator's ownership have not been defined and are not part of the proposed project.

1.4.3 Permit and Monitoring Requirements

This landfill extension will be subject to the following permits and regulatory requirements.

- Conditional Use Permit (CUP): In order to extend the landfill operation into Los Angeles County, a Conditional Use Permit is required. The CUP application will be reviewed by the County Regional Planning Staff and Regional Planning Commission, as well as other responsible and concerned agencies and individuals. As part of the CUP permitting process and because portions of the project area are located within the County's designated Significant Ecological Area No. 20 (SEA #20), the proposed project must also be reviewed by the Los Angeles County's Significant Ecological Area Technical Advisory Committee (SEATAC).

- General Plan Amendment (GPA): A GPA to the Conservation Element will be required to relocate the boundary of the SEA #20 overlay designation to exclude that portion of the property which is proposed for project utilization. This would require moving the southeasterly boundary of the SEA 1/2-mile westerly resulting in a 2% reduction in the overall SEA area. The existing "non-urban" General Plan designation and "Hillside Management" overlay designation on the site would remain unchanged. See Figure 25 in Section 3.2.4 of this report showing the proposed project site and SEA #20. This amendment will be required unless a waiver is granted according to Government Code Section 66796.42.

- California Waste Management Board (CWMB) Operator's Permit: The landfill will operate under a Solid Waste Facility Permit to be issued by the local enforcement agency, the County Department of Health Services, under the authority of the California Waste Management Board. Although the permit may not contain specific closure requirements, the site is subject to CWMB requirements as stated in Title 14 of the California Administrative Code (CAC) regarding final cover, drainage, erosion, and odor control. The CWMB also enforces control of underground landfill gas migration. In Los Angeles County, the Los Angeles County Department of Health Services (DOHS) acts as the local enforcement agency on behalf of CWMB. In order to receive a CWMB permit, an application and disposal site information report (RDSI) must be submitted to the County Department of Health Services. Prior to the issuance of a CWMB operations permit, a closure plan must be completed with closure/post-closure financial assurances secured.

Discuss AB 2448 (1987) Closure/Post Closure Board, etc.

- Los Angeles Regional Water Quality Control Board (RWQCB) Waste Discharge Requirements: The existing facility presently operates under a Waste Discharge Requirements Permit issued by the RWQCB. The Requirements are directed at the project's design and operating procedures. No specific closure requirements are cited in the Waste Discharge Requirements for the existing landfill. The RWQCB will issue Waste Discharge Requirements for the proposed extension only if the California Environmental Quality Act (CEQA) requirements have been met and a local land use permit has been obtained. In addition, the landfill extension must comply with Subchapter 15, "Discharges of Waste to Land," Chapter 3, Title 23 of the California Administrative Code.

- California Water Resources Control Board (CWRCB) Regulations: These regulations govern discharges of waste to land and were adopted in November 1984. The regulation contains language regarding necessary financial assurances and closure report requirements. In addition, the CWRCB, as authorized by Title 23, Article 8, Section 2581 of the California Administrative Code (CAC), requires that the necessary closure plan include a map and boundaries of waste disposal area; method of drainage control, evaluation of anticipated settlement; method of leachate control; final cover thickness and type; ground water monitoring and protection method; ground water monitoring system; post-closure land use; estimate of the site life; and alternative site closure methods, including costs.

  CCR

  The current operation is being reviewed for issuance of a certificate of compliance with the State Water Resource Board Guidelines. The current operation has been permitted and all inspections have shown compliance with guidelines and permit conditions.

- South Coast Air Quality Management (SCAQMD) Approvals: In addition to having the responsibility to enforce control of surface air emissions including dust (particulates) the SCAQMD is also responsible to enforce control of gases that rise to the surface or migrate from the site. In order to control gaseous emissions from the decomposition of waste materials in active landfills, Rule 1150.1 of the SCAQMD's Rules and Regulations (Adopted April 5, 1985) requires that landfill gas control systems be installed to control emissions. Any proposed system must be approved by the District's Executive Officer. The rule involves the collection system, off-site migration monitoring system, surface concentration limits, collected gas disposal system efficiencies and system installations to ensure that no public nuisance occurs as a result of the landfill gas created during the operation and/or life of the landfill. The Rule lists a series of conditions for compliance and an operational schedule that shall be met by the owner/operator of the proposed active landfill. A Permit to Construct Application has been filed with the SCAQMD.

- An Oak Tree Permit will be required for this project in accordance with the Los Angeles County Code, Title 22, Planning and Zoning Code, Chapter 22.56, 16, Oak Tree Permits.

- Zone Variance (ZV): The ultimate buildout of the proposed project will involve landfill operations in the City of Los Angeles. At the appropriate time in advance of this future development, the applicant will apply for a zone variance from the City of Los Angeles and other permits as required.

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Other Permits and Approvals:

for current expansion in county plan

1 The County must make a finding that the project is consistent with the Los Angeles County General Plan in accordance with Government Code Section 66796.32. Two requirements need to be met before that finding can be made:

- The facility must be designated as a Solid Waste Facility in the General Plan; and

- The adjacent land uses must be compatible with the site.

2 The County must make a finding that the distance from the landfill to the nearest residential structures is sufficient to ensure compliance with the CWMB's State Minimum Standards, in accordance with Government Code Section 66784.2.

3 The Los Angeles County Solid Waste Management Committee, the agency responsible for the Los Angeles County Solid Waste Management Plan (CoSWMP), must make a local finding that the project is in conformance with the plan, in accordance with Government Code Section 66784. The California Waste Management Board must also make a determination as to whether the project is in conformance with the Los Angeles CoSWMP.

4 The methane gas extraction system proposed for the landfill extension will require approval by the County of Los Angeles Department of Public Works, the SCAQMD, and the CWMB.

Permits may also be required from the U.S. Army Corps of Engineers for wetland determination; and the California State Department of Fish and Game for possible stream bed alteration.

The U.S. Army Corps of Engineers will be contacted and provided with the appropriate technical documentation to establish whether a 404 permit application will be necessary. Under Section

404 of the Clean Water Act, the Corps regulates the placing of fill material into "waters of the United States." The Corps, by regulation, defines those waters subject to the act. The regulations include, in addition to waterbodies having impact upon interstate commerce, certain wetlands that are adjacent to such waters. Wetlands, for the purposes of the Section 404 program, are areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances support vegetation typically adapted for life in saturated soil conditions. If an area is subject to the Corps' jurisdiction under Section 404, a permit must be secured from the Corps for placement of fill in those areas within its jurisdiction. The Corps has, by regulation, issued certain nationwide permits applicable to the filling of waters of the United States (including wetlands) of less than 10 acres in size if they are non-tidal and located above the headwaters. The headwaters, for the purposes of the nationwide permit, are that point on a stream where the average annual flow is less than 5 cubic feet per second. Although the nationwide permit may be applicable to a given situation, the Corps does possess the authority to require an individual permit in certain circumstances. Whether the intermittent flows in the creeks and gullies within the site after storm events qualify such creeks and gullies as waters of the United States has yet to be determined by the Corps.

Sunshine Canyon is currently classified as a Class III landfill and is applying for a Class III permit. This is based on the type of waste that is accepted. Class III landfills may accept non-hazardous solid waste which is defined in Title 23, Subchapter 15, Section 2523 of the California Administrative Code. The requirements in Subchapter 15 that apply to Class III landfills will apply to the Sunshine Canyon landfill development. The RWQCB will review the Waste Discharge Application and the CWMB will review the Solid Waste Facility Permit Application, when they are filed by the applicant; both applications will describe in detail the methods to be used to meet the requirements of Subchapter 15 that apply to Class III landfills.

1.5 Existing Facilities

The existing sanitary landfill is located on a portion of the proposed project site that is within the city limits of Los Angeles (see Figure 6) and has been in operation continuously and without interruption for over thirty years, having opened for business in 1958. During the past 12 months the landfill has handled more than 1.75 million tons of refuse.

Structures and facilities that exist and which are necessary for the operation of the landfill include site entry business offices with landfill management office space, an entry booth office, and both public and private restrooms. Also located on the property owned by BFI is a ranch building occupied by the landfill foreman for 24-hour on-site emergency response and security.

Portable restrooms are located close to the actual operating face of the existing landfill. BFI owns the existing water system which now serves the landfill. This system consists of pumps, pipelines and a water storage tank located on a ridge above the actual landfill operations.

Water and electricity are supplied to the project at a service point on the property's perimeter by the City of Los Angeles Department of Water and Power, while General Telephone supplies the telephone service. Power and telephone service is brought to the site structures by privately owned facilities.

Southern California Edison Company maintains a 66 KV transmission line, which traverses the project site, within a 50 foot easement located along the City/County boundary line. This line does not provide service to the landfill operation.

Operating oil wells, on land leased to McCulloch Oil and Gas Corporation, are located on a portion of the property that is outside of the existing and proposed fill area. These facilities are confined to a secluded box canyon on the southerly side of the topographic ridge which shields the landfill operation from public view. A complete record of the location of oil and gas wells within a one-mile radius of the project fill area is presented in the project's Report of Waste Discharge, Section 2595(h)(1-3) and Exhibit B. Electrical service is provided to the oil wells and to the oil field office building. Electrical service is also provided to the oil field superintendent's mobile living quarters which are located immediately adjacent to and just westerly of the landfill.

Getty Synthetic Fuels, Inc., (GSF), under a gas recovery agreement with BFI, constructed gas collection and processing facilities to recover landfill gas from the existing landfill. The GSF processing plant is a low-temperature separation facility used to remove water and trace hydrocarbons at a dewpoint of 32-34°F. The facility is located in a deep box canyon, out of public view, south of the landfill's southerly topographic barrier ridge and north of a smaller ridge. An underground pipeline system, from the GSF plant, crosses the southerly portion of the property in an easterly direction. The pipeline exits the site at San Fernando Road. This pipeline system is used for the transportation of processed landfill gases to industrial users. Water from the GSF facility is treated and sewered.

No public sewer system is provided to the landfill site. Sewerage for the site's entry/business office is collected in a sewerage holding tank. This tank is pumped once or twice weekly, depending on need, and the contents are disposed of at the San Fernando, Piora, or Hayvenhurst dumps by Andy Gump, a licensed hauler. Sewerage for the ranch building is processed through a septic tank and gravity leach field, both of which were installed pursuant to City of Los Angeles Permit and Inspection. Revise

No commercial natural gas service is provided to the site; bottled butane gas serves the business office near the site entrance.

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1.6 Project Overview

1.6.1 Solid Waste Disposal Practices in Los Angeles County

This section presents an overview of how solid waste is handled from generation to disposal within Los Angeles County. The interaction between public agencies and private companies which are involved in solid waste management is very complicated and has many variables. This section will discuss the generation, storage, collection, transfer, and transportation of solid waste to recycling, salvage and disposal sites that either directly or indirectly relate to the proposed landfill extension.

Generation

The County-wide area of Los Angeles produces approximately 13.4 million tons of solid waste and 4.5 million tons of inert waste each year in its residential, commercial, and industrial areas.* The non-inert solid waste is disposed of in Class III landfills. The remainder is inert material such as asphalt, concrete, and clean dirt, most of which is used as construction fill material. The City of Los Angeles generates approximately 40 percent of the solid waste generated in the Los Angeles County metropolitan area.**

Table 2 gives the percentage distribution of waste landfilled in Los Angeles County. Residential, Commercial, Industrial, and Miscellaneous waste are considered Municipal Solid Waste in this table. The percentages of waste produced are considered to be the same as those stated in the County Solid Waste Management Plan (COSWMP) 1984/1985 even though the total volumes have since increased.

Figure 1

* Mike Mohajer, County Department of Public Works, November 1988.
** "Solid Waste Management Status and Disposal Options in Los Angeles County," February 1988.

TABLE 2
COMPOSITION OF WASTE LANDFILLED IN LOS ANGELES COUNTY

Type of Waste	County Average %
Demolition and construction waste	29%
Municipal Solid Waste (MSW)	
Residential waste	39%
Commercial waste	21%
Industrial waste	5%
Miscellaneous waste	3%
Non-Hazardous Liquid Waste	3%
Sewage Sludge	Less than 1%

The percentage distribution of waste landfilled at Sunshine Canyon is somewhat different than the County's average percentage distribution. The composition of waste landfilled in Sunshine Canyon is presented in Table 3. The distribution of waste at Sunshine Canyon is different because no liquid waste and no sewage sludge is accepted for disposal. In addition, the project's location relative to major industrial and commercial areas varies from other landfill sites and the percentages of these types of waste also varies. The landfill extension is expected to receive wastes similar to those being received at the current landfill. It will not accept liquid waste or sewage sludge.

TABLE 3
COMPOSITION OF WASTE LANDFILLED AT SUNSHINE CANYON

TYPE OF WASTE	PERCENTAGE OF WASTE
Residential waste	42%
Commercial waste	34%
Demolition or construction waste	17%
Dirt and Paving	7%
Non-Hazardous Liquid Waste	None
Sewage Sludge	None

Storage

Municipal waste developed by residential land users is generally stored in 30- to 50-gallon metal or plastic containers, cardboard boxes and disposal bags, whereas refuse from multi-family units and general commercial establishments is stored in three- to five-cubic-yard storage bins. Construction and demolition wastes are stored in roll-off containers which are usually emptied at a disposal site.

Collection

Private refuse collectors serve approximately seventy-five percent of the residential communities in Los Angeles County. The balance are served by municipal collection services. Waste is generally collected on a weekly basis and in some cases twice weekly. Refuse from multi-family residences, industrial land uses, and commercial establishments is collected almost exclusively by private contractors at frequencies that vary widely depending on the type and quantity of waste generated. Construction and demolition wastes are normally collected in large box-like bins or dump trucks and disposed of when filled.

Transportation

Most of the solid waste collected is transported directly to the disposal site in the same vehicle which is used for collection. The balance of the waste material is transported to the disposal site after being consolidated in large capacity trailers at transfer facilities. Transfer facilities are owned and operated by both private and public agencies and facilitate local disposal of wastes. Long haul distances by individual small collection vehicles are avoided by the use of transfer facilities, which reduces fuel consumption through the use of more efficient haulers and also reduces traffic volumes both on the streets and at the disposal sites. A list of current major transfer stations is presented in Table 4.

TABLE 4

MAJOR TRANSFER STATIONS IN LOS ANGELES COUNTY
(Volumes Greater Than 100 tons per day)

SITE	OWNERSHIP	LOCATION	CURRENT WASTE VOLUME Tons/Day
Bel Art Disposal	Private	Long Beach	340
American Transfer (Action)	"	Gardena	790
Falcon Disposal Service	"	Wilmington	1,350
Western Refuse Hauling	"	Carson	1,230
Advance Recycling	"	Compton	1,000
DeGarmo St. Transfer Station	"	Sun Valley	550
South Gate Transfer Station	Sanitation Districts	South Gate	490
Santa Monica Transfer Station*	"	Santa Monica	250
Beverly Hills Transfer Station*	"	Beverly Hills	115
City of Los Angeles-Southwest Street Maintenance Yard*	"	Los Angeles	95-100

* Not open to the general public.
Source: LACo SWMP, 1984, Table 5-4. not in Table

Recycling

The composition of solid wastes that are now being landfilled is changing. This change results from the individual homeowners' activity related primarily to the collection of newspapers and aluminum cans for recycling. It also is caused by the large-scale paper and metal recycling businesses - other than those currently recovering materials such as newspapers, cardboard, glass, metals, wood demolition products at various points in the collection, transfer and disposal process.

Separation of the solid waste for recycling purposes is generally not practiced in the Southern California Basin. Only a few communities are involved to any extent in recycling including Downey, Burbank, Claremont, certain areas of Los Angeles and Santa Monica.

As the trend toward conservation in the Country increases and State and Federal legislation is passed which encourages resource recovery, more recycling efforts will surface, and the overall solid waste handling processes will change.

Disposal

Land disposal is the primary final destination for virtually all solid waste disposal in Los Angeles County. Because there are various types of solid wastes other than municipal wastes, such as toxic substances, hazardous materials, wastes that are water soluble, inert wastes, sewer sludge and so forth, there must also be various types of landfill or disposal sites compatible with the wastes. The State has divided these landfills into various categories:

- Class I - Liquid, solid and dry hazardous waste (formerly Class I or Class II-1)
- Class II - Liquid, solid and dry designated waste,* (Limited Class I or Class II-1)
- Class III - Non-hazardous solid waste including dewatered sludge and acceptable incinerator ash (formerly Class II-2)

Because the proposed project is being proposed as a Class III landfill the balance of this discussion will be limited to relevant Class III landfill information.

* Could include certain types of incinerator ash that cannot be accepted at a Class III landfill.

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2.0 DESCRIPTION OF ENVIRONMENTAL SETTING

2.1 General Setting

The proposed landfill extension is located in Sunshine Canyon, a major isolated canyon system of the eastern Santa Susana Mountains. The canyon ranges in elevation from 1325 feet to 2650 feet above sea level and has been used primarily for cattle grazing and oil recovery activities. Surface vegetation consists of coastal sage scrub on south-facing slopes and chaparral on the north-facing slopes with the valleys containing riparian vegetation and oak woodland habitat.

The site is located southwest of the intersection of the Antelope Valley Freeway (Highway 14) and the Golden State Freeway (Interstate 5). Undeveloped mountainous terrain borders the site to the north and west. The Golden State Freeway shields the site from urban uses to the southeast. Aliso Canyon oil field to the southwest, East Canyon to the west, and a 100-acre buffer area to the southeast (owned by BFI) all separate the site from development in the foothills of the San Fernando Valley.

2.2 Area Plans and Policies

The proposed landfill extension area crosses the Los Angeles City/County line southerly of the intersection of Interstate 5 and Highway 14 in the northern portion of the San Fernando Valley. The existing landfill lies wholly within the boundaries of the City of Los Angeles (See Figure 6). The proposed ultimate extension of the landfill is located mostly within the County of Los Angeles with a portion being included within City boundaries. However, the applicant is seeking the approval to conduct landfill operations in only the County portion of the site at this time. Permit approvals from the City will be sought prior to the complete buildout of the project.

The existing permitted portion of the Sunshine Canyon Landfill is not required to show consistency with the Los Angeles City General Plan pursuant to the "grandfather" provisions of Division 7, Title 14 of the California Administrative Code. However, non-permitted areas of the canyon within the City which are proposed for eventual extension are within the boundaries of the Granada Hills-Knollwood District Plan, an element of the General Plan of the City of Los Angeles, which was adopted on November 11, 1974.

The District Plan "encourages the preservation of low-density, single-family residential areas, the conservation of open space lands, and the preservation and strengthening of the Granada Hills Community Business District near Chatsworth Street and Zelzah Avenue". Also, the City Plan proposes that as much of the remaining undeveloped lands as feasible be preserved for open space and recreational uses.

That portion of the property located within the County is under the jurisdiction of the North Los Angeles County General Plan - Santa Clarita Valley Areawide General Plan (dated December, 1983).

Guides for equestrian and hiking trails in the project vicinity are provided by the City and County of Los Angeles and the State of California Santa Monica Mountains Conservancy. The general location of these trails is provided in Figure 12. The Rim of the Valley trail is located south of and outside the proposed project area, but connects with other City and County trails which pass through and around the project development area. Easements for the Rim of the Valley Trail in the project vicinity have not been dedicated at the time of this writing.* The proposed Gavin Canyon Trail runs parallel to and just south of I-5 along the northern boundary of the proposed project. This trail has not been dedicated; the County is currently acquiring trail easements for the development of the Gavin Canyon Trail.** No existing trails would be disturbed;

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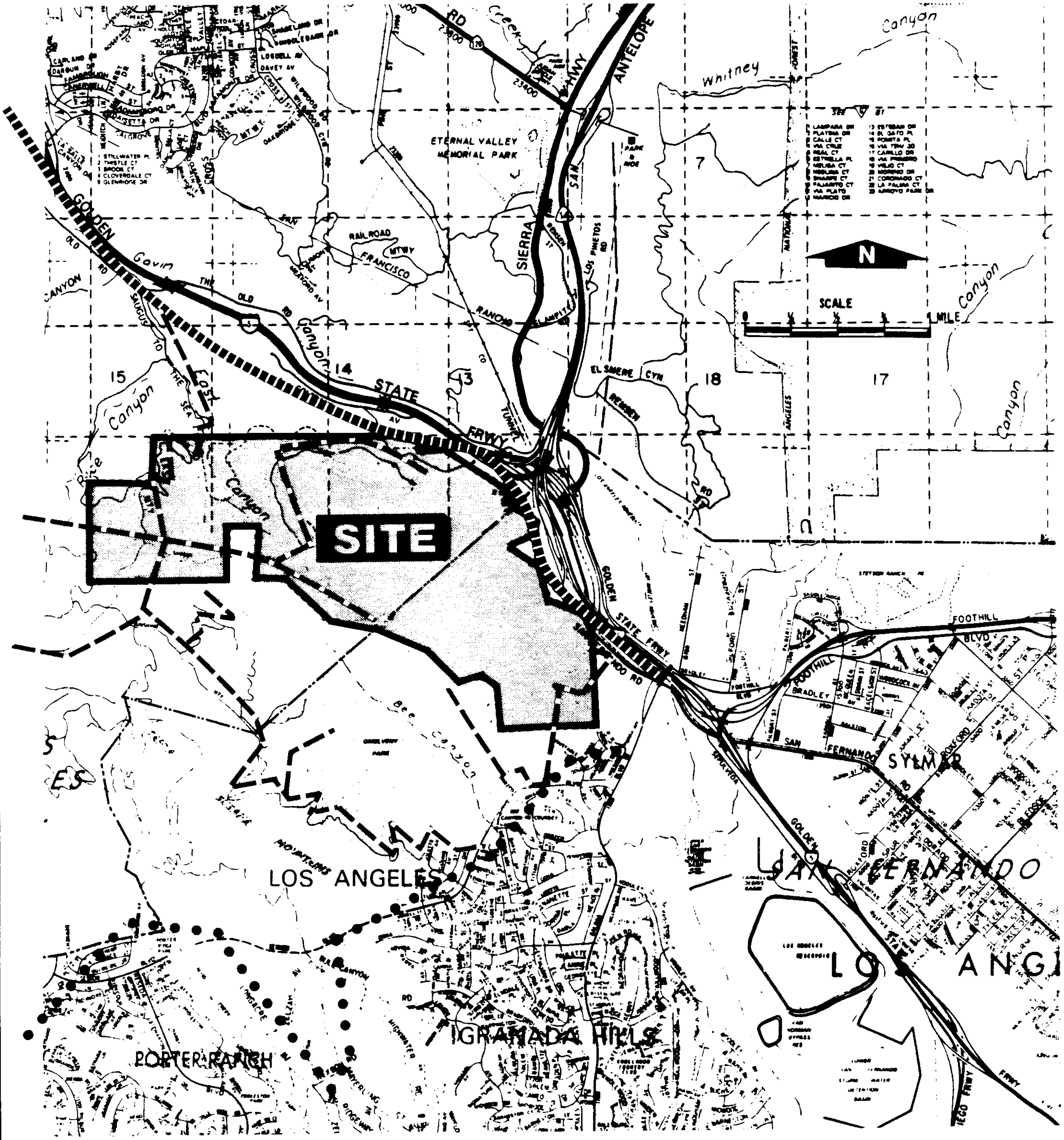
* Sonia Thompson, Santa Monica Mountains Conservancy, February 1989.

** Jim McCarthey, County Department of Parks and Recreation, January 1989.



LEGEND

• • • • RIM OF THE VALLEY TRAIL	— — — OTHER UNNAMED EQUESTRIAN AND HIKING TRAILS
▪▪▪▪▪▪▪▪ GAVIN CANYON TRAIL	——— PROPERTY OWNED BY BFI

ultrasystems	Source: L.A. CO. RIDING & HIKING TRAILS CITY OF L.A. EQUESTRIAN & HIKING TRAILS GUIDE SANTA MONICA MOUNTAINS CONSERVANCY	Title: EQUESTRIAN & HIKING TRAILS MAP	12

however, the project would be visible from portions of the trail along the western ridgetop, which is within the project site boundaries. Visual analysis of the proposed project is discussed further in Section 3.2.10.

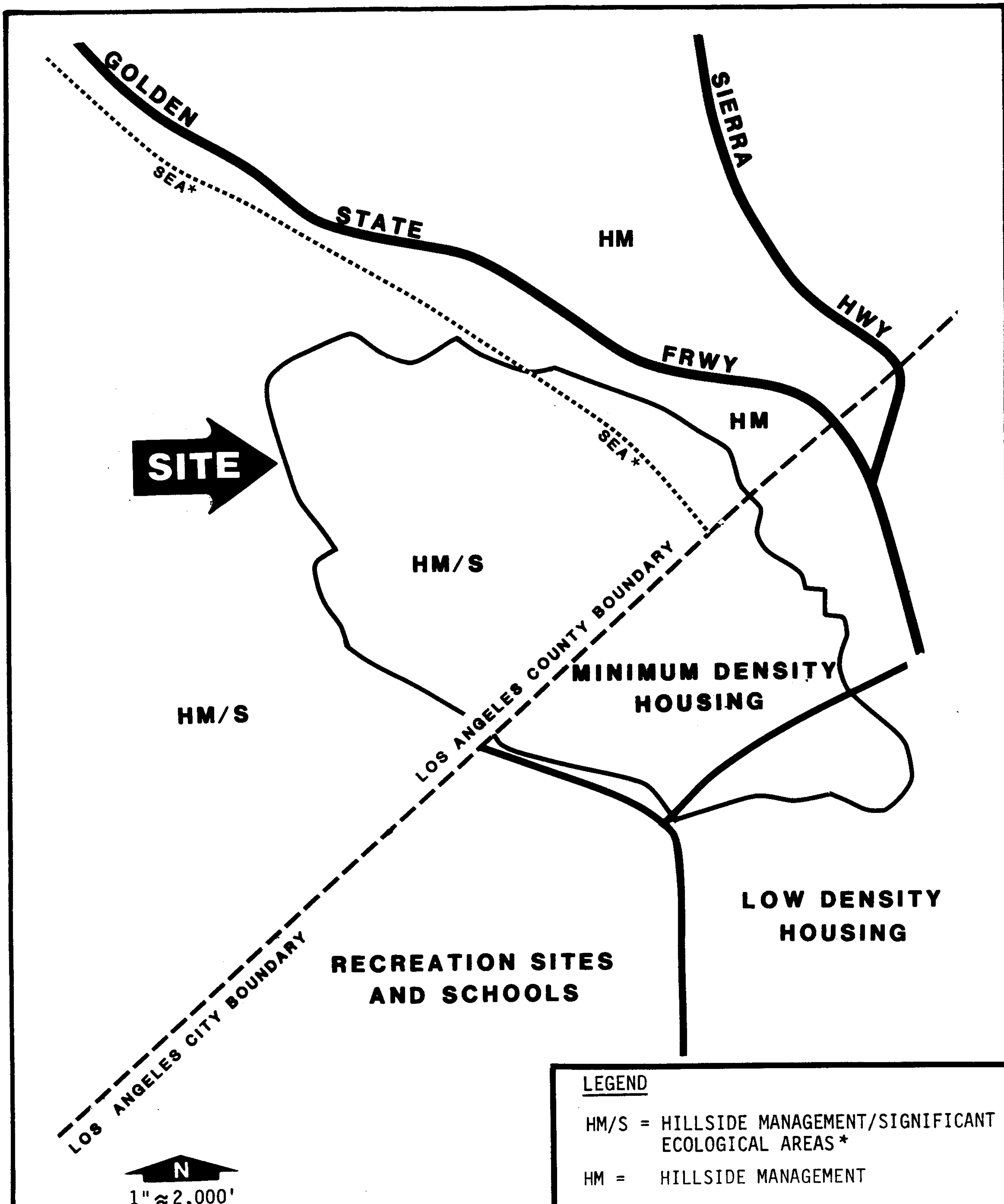
The proposed project is generally consistent with the various equestrian/hiking trail guides and plans as in most instances, the trail routes will be retained because they do not pass through the area of proposed operations. Also, the guides do not indicate an anticipated implementation date, thus the trails could be dedicated subsequent to the completion of landfill activities.

2.3 Land Use Designations

The Los Angeles County General Plan designates that portion of the site within the County as "Significant Ecological Area/Habitat Management" (SEA) and "Non-Urban" (R). The Santa Clarita Valley Areawide General Plan, which is an area-specific component of the County General Plan, delineates overlay designations of "Hillside Management" (HM) and "Significant Ecological Area" (SEA) on the site (See Figure 13). Surrounding properties to the north are also designated with an HM overlay. The property west of the project site extends the SEA designation which applies to the project site.

The HM designation is mainly a mechanism to limit development on steep slopes (i.e. slopes exceeding 25%). The SEA designation is intended to preserve ecologically important or fragile biotic resources. Development in the area is restricted to uses found to be compatible with existing resources.

The SEA designation is a land use management strategy for lands in the private domain which have unique biota resource values. The Santa Clarita Valley Areawide General Plan defines certain types of development which may be compatible with an SEA designation depending on site-specific biota and natural resource constraints:



ultrasystems	Source: ULTRASYSTEMS, INC.	Title: SANTA CLARITA VALLEY AREAWIDE GENERAL PLAN LAND USE DESIGNATIONS	13

"- Residential uses at densities compatible with the resource values present (not to exceed those specified by the Land Use Policy Map) and consistent with community character;

- Commercial uses of a minor nature serving local residents and visitors;

- Where no alternative site or alignment is feasible, public and semi-public uses essential to the maintenance of public health, safety and welfare;

- Where compatible with identified biotic resources, extractive uses including oil and gas recovery and rock, sand and gravel quarrying."

Los Angeles County has established the Significant Ecological Area Technical Advisory Committee (SEATAC), a group of professionals who review proposed developments in or near SEAs, in an advisory role, and forward their comments to local decision-makers.

SEA 20, the area in which the project is located, was established as a representative area, within the small dry interior mountain ranges of Los Angeles County, to provide for an assortment of oaks and for gene flow and species movement between the San Gabriel and Santa Monica Mountains.

The Granada Hills-Knollwood District Plan designates that portion of the property located within the City as Minimum-Density Housing which corresponds to the City A-1, RE 40 and A-2 zoning. These plan and zoning classifications apply to the existing landfill and the proposed project site within the City of Los Angeles.

Surrounding property to the southwest is designated in the District Plan as a Community Recreational Site. A strip of Greenbelt Open Space borders the site's south margin and Public Lands designation is located to the site's southeast for that portion within the City and adjacent to I-5. In general, surrounding land use designations are low-intensity categories.

2.4 Zoning

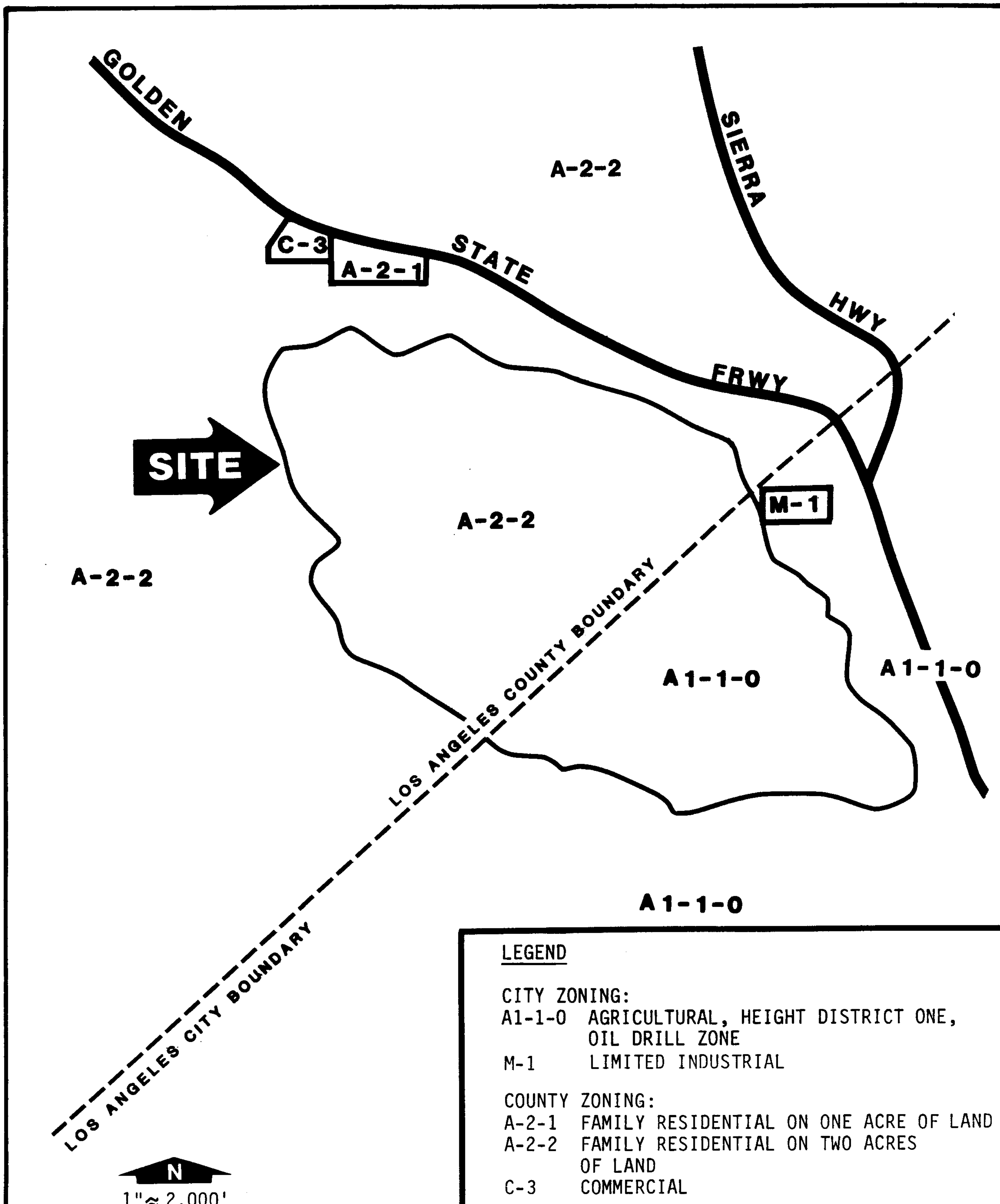
That portion of the project site located within the County is zoned A-2-2 (Agricultural) while the balance of the site located within the City is zoned A1-1-O (Agricultural with Oil Overlay), as shown in Figure 14. The respective zones permit sanitary landfills, subject to the granting of a Conditional Use Permit for the County area and a Zone Variance for the City area.

Surrounding properties are similarly zoned A-2-2, A-2-1 and A1-1-O in the County (northerly) and A1-1-O in the City (southerly). A small area of M-1 (Limited Industrial) zone is located near the site entrance.

The existing landfill operation is permitted through City of Los Angeles' Zoning Variance Case No. 17804 (April 18, 1966) which allows operation of the landfill within the City until May 1991. The elevations of the existing landfill conform to the provisions of the zoning variance. It is the applicant's position that the landfill is being operated in accordance with the zoning variance conditions permitted by the City.

2.5 Existing Land Uses

The existing Sunshine Canyon Landfill operation occupies a portion of the property located within the City. The remainder of the property in both the City and County is generally vacant, undeveloped hillside which is used for cattle grazing and occasionally used by unauthorized hikers and riders. Several operating oil wells with oil storage facilities and a plant for extraction of landfill gases, pipelines for transportation of landfill gases to off-site users, a ranch building, and the landfill's main offices exist on the project site.



Source: ULTRASYSTEMS, INC.

Title: ZONING MAP

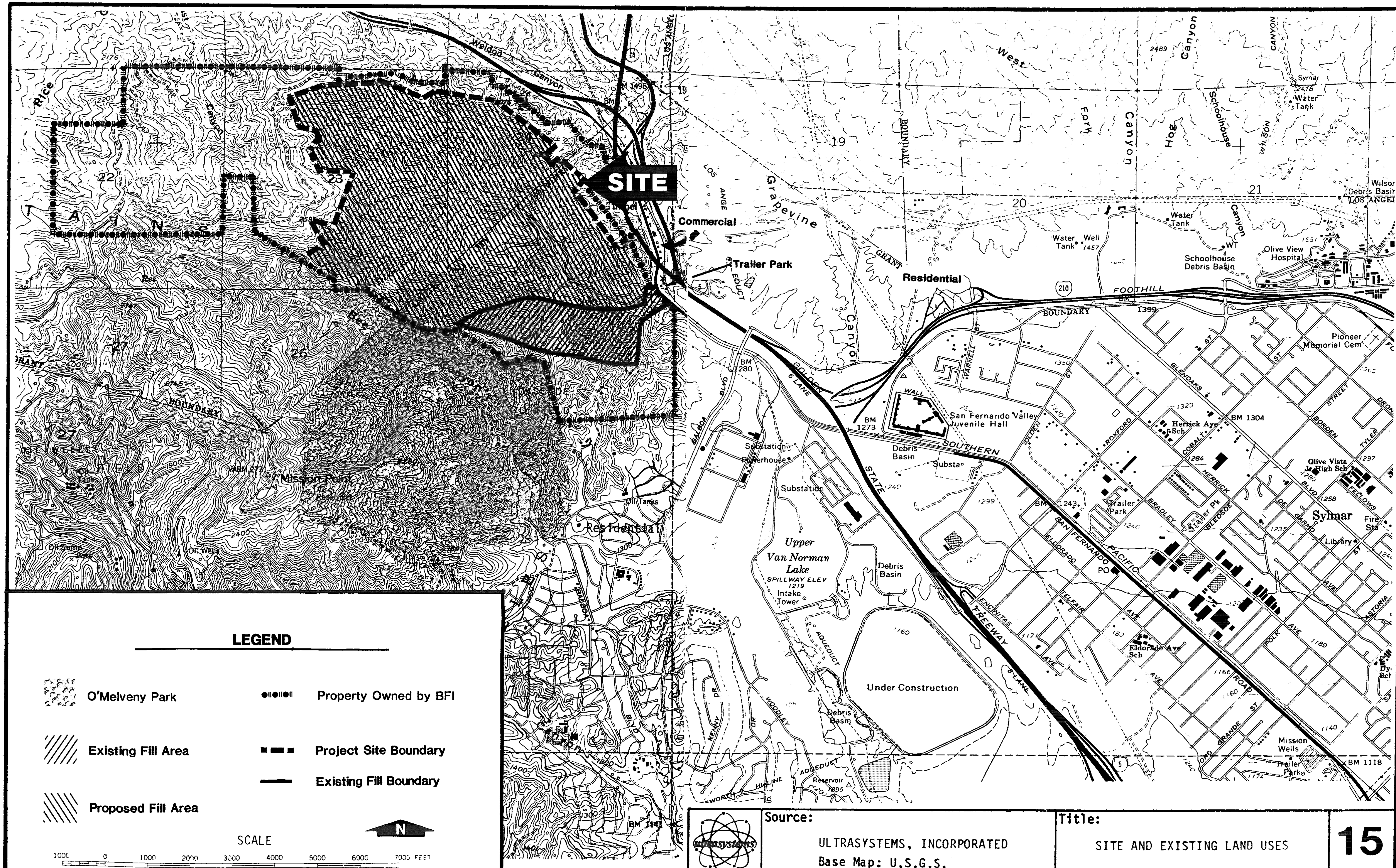
14

Surrounding land uses (see Figure 15) include a small trailer court and light manufacturing complex opposite the landfill entrance on San Fernando Road. This trailer park existed in 1946, when the Comprehensive Zoning Plan for the City of Los Angeles was adopted, and the property on which the trailer park exists was zoned A1-1-0. The trailer park is a non-conforming use in an A1-1-0 zone and is located more than 1000 feet from the landfill activity and will be more than 2,100 feet from the proposed extension.

A housing development was recently constructed about one-half mile southerly of the existing landfill operation. The two areas are separated by an intervening mountain ridge. Most of this ridge is owned by BFI and was covenanted at the time of purchase to restrict landfill operations from extending further south and to restrict further extension of development from the south towards the landfill. The ridge exists primarily as a natural greenbelt and as a permanent buffer between the landfill and residential uses.

The attractiveness of Granada Hills neighborhoods, the continued appreciation of home prices in Granada Hills ("Area Home Sales," Daily News, Valley Business section, September 12, 1988), the construction of new homes even closer to the existing landfill, and the location of the proposed project site farther from residential development than the existing facility are all factors which signify that the proposed project is not expected to have a significant effect on real estate values. To date, there is no evidence that the Sunshine Canyon Landfill has affected property values in the subject residential area.

Subsequent to the preparation of the Preliminary DEIR, grading for a single home located just south of the 100-acre buffer zone boundary (1,350 feet from the nearest inactive fill area) began. When the home is ultimately occupied, it will be the closest home to the existing landfill. Substantial grading and scarring from earth preparation activities for this home is evident in the site photographs shown in Figure 43, in Section 3.2.10 of this document.



Source: ULTRASYSTEMS, INCORPORATED
Base Map: U.S.G.S.

Title: SITE AND EXISTING LAND USES

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The homes nearest the landfill were, in most cases, built after the landfill was in operation.

2.6 Project Consistency with Applicable Plans

The acquisition of adjacent lands and the extension of the existing landfill operation is in accordance with the County's Solid Waste Management Plan (CoSWMP) and the Water and Waste Management Element (WWME). The Sunshine Canyon Landfill extension is specifically identified in the current Los Angeles County Solid Waste Management Plan Triennial Review, relative to location and size. The County's Water and Waste Management Element cites a need to "Reduce Service Deficiencies," and proposes to do so through a number of policies including:

> Policy 9 - "Expand the countywide capacity of sanitary landfills pending the implementation of advanced technology for solid-waste disposal and for the continued disposition of residual wastes."

The proposed Sunshine Canyon Landfill extension project meets the intention of this policy.

The "Proposed Plan for the Disposal of Household Waste Within the City of Los Angeles," adopted by the City of Los Angeles City Council, November 13, 1985, discusses the current use of Sunshine Canyon and other landfills as primary disposal sites. The Plan envisioned the elimination of direct landfilling of waste by the year 2000, being replaced instead by waste-to-energy facilities called LANCER projects. These projects have since been dropped and the Plan is no longer considered the City's current policy document. The City Bureau of Sanitation is in the process of preparing a Solid Waste Management Plan for the City and currently uses the County's Solid Waste Management Plan as its primary guideline for solid waste disposal within the City of Los Angeles. As discussed above, the proposed project is consistent with the CoSWMP.

The applicant is requesting from Los Angeles County a General Plan Amendment (GPA) to relocate the southern boundary of the SEA #20 overlay designation to exclude that portion of the site proposed for landfill activity. Other existing General Plan designations on the site would not change. The change in the SEA No. 20 boundary will result in a reduction of SEA area, a reduction in County-wide significant ecological habitats. The reduction would represent 2-1/2% of the SEA No. 20's total area. Upon closure of the landfill, the area will be developed for open space uses or other uses as deemed appropriate by the public agencies at the time of completion. A Conditional Use Permit (CUP) is necessary for that portion of the project located within the County. Approval of the CUP would be consistent with the provisions of the County zoning (A-2-2) provided that the appropriate conditions are achieved.

The City District Plan does not clarify if landfills are compatible uses within a Minimum-Density Residential designated area. However, this designation allows for uses provided for within A-1, RE40 and A-2 zoning. Landfills are a permitted land use in A-1 zones with an approved zone variance; therefore, landfill operations could be considered to be generally consistent with the existing land use designation within the City. At some future date, the applicant will request a Zone Variance to operate the extension within the City of Los Angeles.

For a project to be considered consistent with the SCAQMD's Air Quality Management Plan (AQMP), it must conform to the local agency's general plan and SCAG guidelines.* The SCAG guidelines basically address waste water facilities, transportation systems and residential/office developments which increase population or employment in a specific area (i.e. growth-oriented developments). The

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* Source: "Air Quality for Preparing Environmental Impact Reports," South Coast Air Quality Management District, Revised April 1987.

proposed landfill extension is not considered a growth-inducing development (see Section 5.1, Growth-Inducement), and since the project will serve to alleviate an anticipated shortfall in landfill capacity (see Section 1.1, Introduction), will satisfy existing waste disposal needs and accommodate planned growth and development in the region, and will comply with SCAQMD rules and regulations regarding pollutant emissions, the proposed landfill extension is consistent with the AQMP.

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3.0 ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES

3.1 Introduction

This section contains discussions of the potential impacts associated with the proposed landfill extension. The impacts are discussed by: 1) describing the environmental conditions existing on the site and in the surrounding area prior to development of the project; 2) discussing the impacts which are anticipated to occur if the project is approved and implemented; and 3) describing the mitigation measures which reduce or eliminate the adverse environmental impacts that may be caused by the proposed project.

3.2 Environmental Impact Assessment

3.2.1 Geology*

Environmental Setting

The proposed landfill extension is located within the southeastern limit of the Ventura Basin (Winterer and Durham, 1962). The Ventura Basin is a narrow, trough-like landform in the western part of the Transverse Ranges that began to develop at the beginning of the Miocene epoch (about 23 million years ago).

The thick section of the sedimentary rocks that fills the Ventura Basin was thrust southward along the north-dipping Santa Susana thrust fault during the mid-Pleistocene epoch (Saul, 1975). The oldest rocks exposed in the region are pre-Tertiary granitic and metamorphic rocks that are present in the San Gabriel Mountains.

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* Technical material for this section was provided by Purcell, Rhoades & Associates (PRA). See Appendix B, Volume IIA, for Technical Report and Field Test Results.

The geologic structure of the canyon consists of a paired syncline and anticline trending roughly parallel with the axis of Sunshine Canyon.

3.2.1.1 Lithology

Information regarding the bedrock lithology and soils of Sunshine Canyon was obtained primarily during exploration mapping, drilling, and trenching throughout the Summer of 1986. The soil thickness in the Sunshine Canyon watershed as determined from borings and trenches ranges from zero (outcrops) to about 19 feet within the bottom of ephemeral streams and gullies. Soil cover on side slopes and ridges is as much as 16 feet in thickness, and typically is between 2 and 8 feet in thickness.

Underlying the soils is bedrock consisting of siltstones, claystones, and silty sandstones of the Pliocene Towsley Formation. Geologic mapping in the extension area of Sunshine Canyon has not encountered any limestone. This bedrock is generally easily ripped and pulverized by on-site construction equipment. The canyon slopes and lower ridge lines are rippable using a D-8 or equivalent crawler-tractor to depths of about 50 feet. The higher topographic ridges can be excavated to about 25 to 30 feet. The excavated material will provide large quantities of material to be used as compacted base and cover for refuse cells.

To investigate the effectiveness of these materials for refuse cell sealing, laboratory investigations were undertaken. To simulate field operations, samples were obtained from the exploratory borings by PRA. Exploratory borings performed by others (Geolabs, 1981) did not include this laboratory test method in their program. The samples were compacted to 90% relative density at optimum moisture content for the material. They were then subjected to a falling head permeability test in accordance with ASTM Method D2434-68. The purpose and intent of the recompacted laboratory permeability tests are to obtain and test on-site soil and bedrock material that may be used for engineered fill purposes including potential liners, daily cover, final cover, earthwork berms, and so on. A wide range of soil types were tested for basic soil properties. Soil types include silty clay, sandy clay, clayey silt, sandy silt, clayey sand, and silty sand. The Packer test results and bore holes suggest that the actual permeability of native undisturbed materials is higher than the refuse tested. The results of these laboratory permeability tests are summarized in Table 1 of Appendix B, Volume IIA.

The permeabilities of the tested samples ranged from 4.7 x 10^{-6} cm/sec to as low as 3.7 x 10^{-8} cm/sec. These low permeability values are indicative of impermeable compacted soil and bedrock conditions. These permeability values indicate that the native geologic materials at the site have excellent containment characteristics and are suitable for use as either liner materials or for interim and final cover according to Sections 2533, 2544, and 2581 of Title 23, Subchapter 15 of the California Administrative Code concerning discharge of waste to land. The field packer permeability test results and additional packer tests, falling head tests, and pumping test data are included in the Report of Waste Discharge, Appendix F.

Given the wide range of soil types tested representing a majority of the Unified Soil Classification, bias in the materials chosen for testing is not possible. The results of these twenty tests verify the presence of low permeability soil when recompacted to engineering specifications. It can be concluded that ample soil materials are available and suitable for on-site engineered fill and containment structure purposes.

Geologic evidence gathered from cores retrieved from borings indicate that the bedrock materials are moderately fractured, with most fractures being closed and generally tight. Since the bottom of the refuse will be separated by an adequate distance to ground water as defined by Subchapter 15, Chapter 3, Title 23 of the California Administrative Code, and the landfill will possess vertical and horizontal containment structures and a leachate collection system, the probability of leachate left within the landfill, to migrate into bedrock fractures, is considered low.

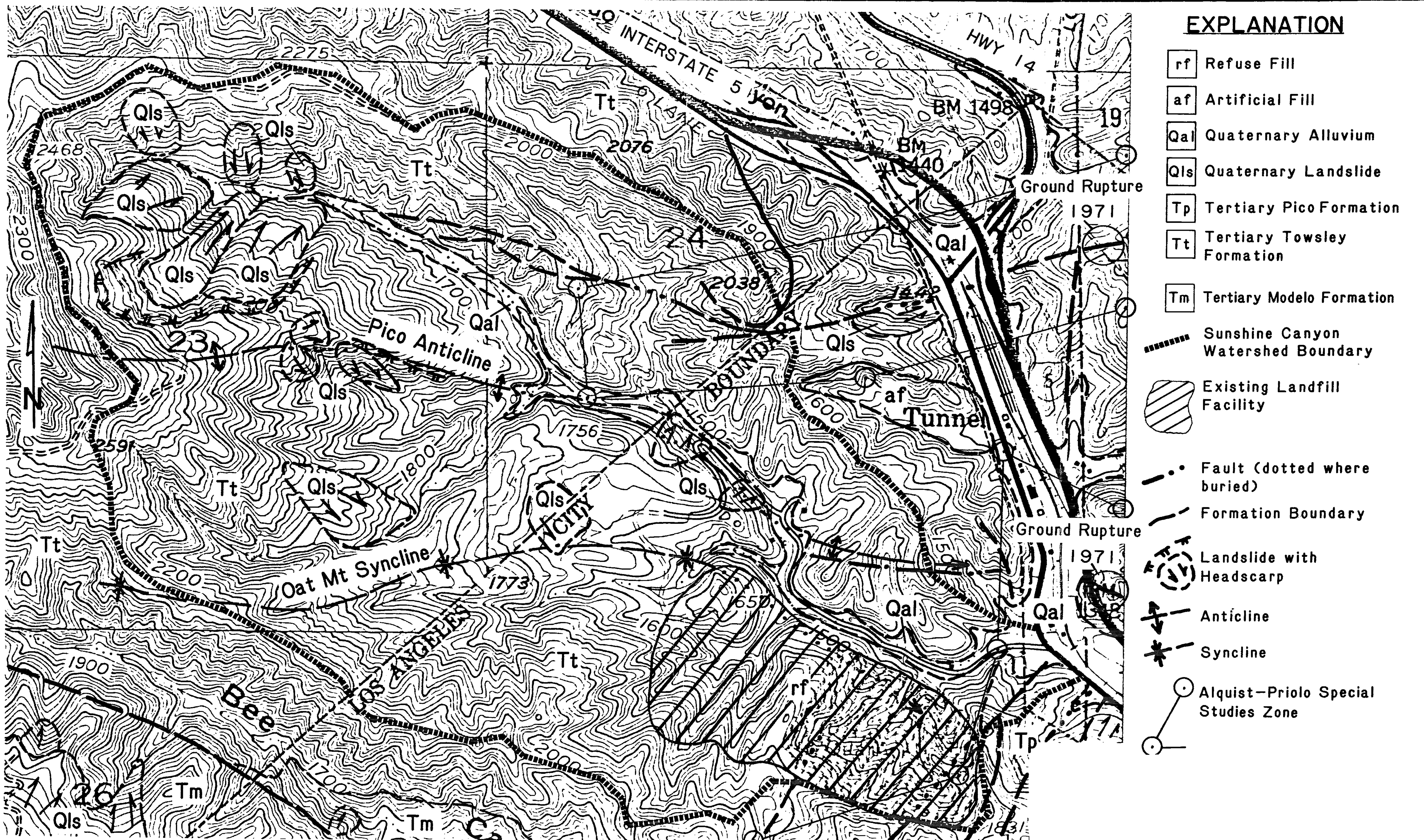
Evaporative salts exposed on fresh rock surfaces are the result of condensation of atmospheric moisture and from isolated seepage of discontinuous lenticular lenses. The overall low permeability of the bedrock formation below the proposed extension will limit leachate migration of this type into the bedrock formation.

3.2.1.2 Landslides

Air photo interpretation has turned up evidence of old landslides covering approximately 90 acres of the site (see Figure 16). These areas were identified by features such as hummocky topography, stream realignments, and eroded head scarps. In most cases, the headscarps have been so extensively modified by erosion and vegetation cover that their real limits are difficult to delineate accurately, indicating that there has been no recent movement.

These older slides probably occurred as long as 20,000 years ago during a time when precipitation appears to have been much heavier than at present (Stout, 1977). These older features are considered static and have a low probability of reactivation.

A few of the smaller slope failures appear to be relatively young. This is suggested by the fresh appearance of down-slope movement features. Some appear to be as young as 15 years old (Barrows and others, 1975b) and were probably triggered by the 1971 San Fernando earthquake. The majority of slides noted to have occurred during the 1971 earthquake were of the shallow debris type. The slide reported to have renewed movement during the 1971 event adjacent to CM-3 has been monitored by periodic survey. No movement has been detected by these surveys. Slide areas will be excavated and removed prior to refuse placement.



Base Map Source: Oat Mountain Quadrangle, USGS 7.5 Min. Topographic Series, 1952 (photo revised 1969)

0 500 1000 2000

Scale (feet)

Source:	Title:	
PURCELL, RHOADES & ASSOCIATES	SITE GEOLOGIC MAP	16

3.2.1.3 Folds and Faults

Several east-west trending, eastward plunging folds were mapped within the site area (see Figure 16). The Oat Mountain syncline lies in the southern portion of the site south of and adjacent to the Pico anticline. The coincidental occurrence of inclined rocks and steep topography has resulted in dip-slope conditions within the canyon in many places. In the main canyon of the proposed extension area a dip-slope condition exists for north-facing slopes, while in adjacent canyons to the south, dip-slope conditions exist on south-facing slopes. The varying orientations of the dip slopes are a result of the broad anticlinal fold that runs through the northern and central portions of the proposed extension site.

Several inactive faults have been mapped in the vicinity of the Sunshine Canyon site (see Figure 16) (Winterer and Durham, 1962; Barrows and others, 1975a; Saul, 1979; Geolabs, 1981). The orientations and sense of movement of the mapped faults as well as their close proximity to the Santa Susana thrust fault system suggest that they are all tectonically related.

In the northern area of the site, a prominent east-west fault trace was mapped by Geolabs in 1981 as an extension of faults included in the Alquist Priolo special studies zone. A detailed investigation of this zone was undertaken by PRA in 1982. Investigations included trenching and seismic surveys (Gasch and Associates 1982) at several localities along the fault trace and determined that the fault shows no evidence of recent activity. While the trenches were open, exposing the fault plane, independent inspection by a private consulting geologist and a geologist from the State Division of Mines and Geology also determined that the suspected fault shows no evidence of being active (Dr. Alvin L. Franks, Consulting Geologist, written communication, 1982; Richard B. Saul, State Geologist, written communication, 1982). The 1982 fault investigation, including the locations of the trenches, has been included as Appendix B of the

Report of Waste Discharge. Appendix Q of Volume IIB of this DEIR contains a summary letter which states that there is no evidence of active bedrock faults on the project site. Documentation of procedures for specific geologic mapping in exposed areas during the excavation are included in the Report for Waste Discharge, Appendix B. The study concluded that active faults are not present on the site. Potentially active faults are not considered in the design of Class III landfills.

None of the fault traces found on the site can be traced across stream-bed alluvium where they cross gullies, indicating that activity on those faults predated the sediments. Additionally, no other features indicative of recent faulting, such as fault scarps or offset structures, were detected from field investigations and detailed analysis of aerial photographs.

The Santa Susana fault zone has probably not been active since the middle Pleistocene (Saul, 1975). No movement was detected on the Santa Susana fault traces in the vicinity of the site during the San Fernando Earthquake in 1971. Limited portions of that fault did show movement several miles east of the site, but that movement is felt to be the result of wave propagation along the old zones of weakness (Saul, 1975, 1979) rather than actual thrusting.

3.2.1.4 Seismicity

Moderate to large earthquakes are inevitable in the Los Angeles region. Forty damaging earthquakes have occurred in the region since 1800. The primary hazards associated with such potentially damaging seismic activity include ground surface rupture along a fault trace and strong ground shaking. Secondary hazards that can result from ground rupture and shaking include liquefaction of loosely consolidated, saturated sediments, and landsliding.

Ground ruptures associated with the major San Fernando earthquake of 1971 are known to have occurred throughout the San Fernando Valley region (Barrows and others, 1975a). Two such occurrences lie east of the Sunshine Canyon site, across San Fernando Road and Interstate 5 (see Figure 16). Offsets of between 6 and 10 cm (2.3 to 3.9 in) were detected. For this reason, the most recent version of the Alquist-Priolo Special Studies Zone (SSZ) map (Oat Mountain Quadrangle, 1976) has extended the SSZ boundaries westward, into the Sunshine Canyon site (see Figure 16). However, studies by P.R.A. (1982), Gasch & Associates (1982), and inspections by independent geologists all concur that there is no evidence for active faulting on the landfill site (see Section 3.2.1.3, Folds and Faults).

Ground shaking can cause damage to earth structures if of sufficient intensity and duration. The active faults (those that have moved within Holocene [last 11,000 years] time) that lie within an approximate 30-mile radius of the Sunshine Canyon site are listed on Table 5. The landfill and ancillary features underwent slope stability and seismic design modelling to observe the effect of a maximum probable earthquake on the integrity of the entire system, as required under Section 2547 of Subchapter 15, Title 23, Chapter 3 of the California Administrative Code. This analysis will be thoroughly reviewed by the Regional Water Quality Control Board before a Waste Discharge Permit is issued.

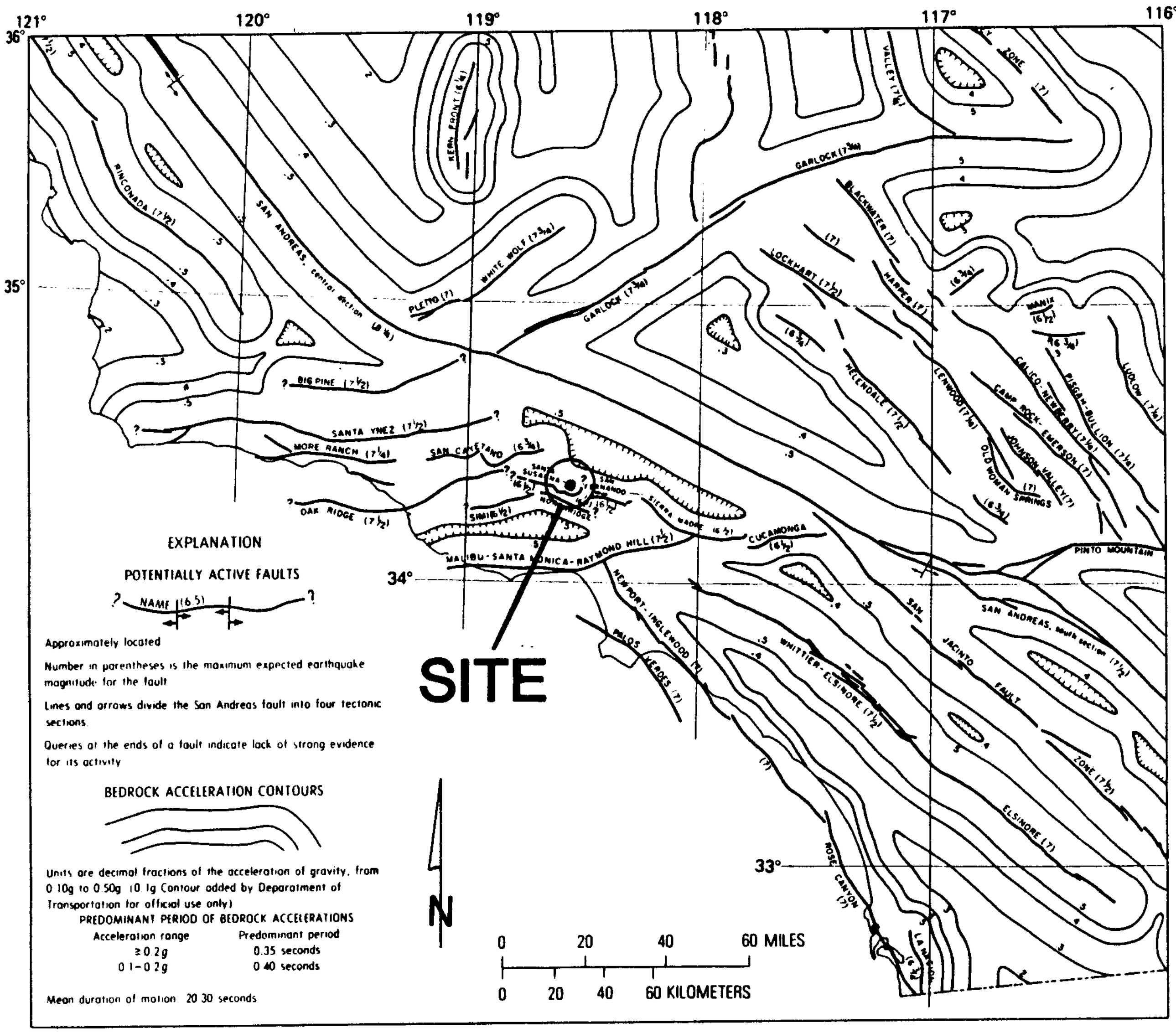
Maximum probable peak horizontal ground accelerations that could potentially result from earthquakes related to those faults were calculated using the methods of Campbell (1981) and are included on Table 5. The highest value for peak ground acceleration using this method is 0.3g which is derived from a maximum probable earthquake magnitude of 6.6 on the Santa Susana-San Fernando-Sierra Madre fault system.

A Class III landfill is designed to withstand maximum probable earthquakes. The maximum probable ground acceleration data used for design criteria should be augmented by the ground acceleration values shown on the map of Greensfelder (1972) which shows a theoretical peak ground acceleration at the subject site of about 0.5g (see Figure 17). A revised version of this map is currently being finalized for publication by Dr. Laliana Mualchin of the California Division of Mines and Geology. Although these maps were originally intended to be used as regional planning tools, Dr. Mualchin's maps are used in this analysis because the maps show maximum credible earthquakes of 0.55 and 0.65 at the site location, greater than the MPE accelerations, which were based on a site-specific investigation. The higher values were used in order to be conservative.

The single peak ground acceleration can contribute less to the total damage of a structure than the repeated shaking at lower levels of acceleration that typically occurs during earthquake events (Ploessel and Slosson, 1974). Structural design parameters should incorporate the repeatable high ground acceleration value (see Table 5) which has been shown to average about 65% of the peak acceleration (Ploessel and Slosson, 1974).

Seismic accelerations are attenuated within a sanitary landfill due to the make-up of the fill. Dr. Singh of the University of Santa Clara has performed computer analyses using the SHAKE program to determine the peak acceleration to be expected within the Sunshine Canyon Sanitary Landfill. This analysis, using a peak bedrock acceleration of 0.5g, resulted in a peak acceleration at the landfill surface of 0.1g.

The active San Fernando fault was used as the design earthquake due to its combination of proximity, expected magnitude, and recent activity. It should be noted that during the 1971 earthquake on this fault, the Sunshine Canyon Landfill did not experience any structural damage, although considerable damage occurred south of the property to natural slopes and to the Highway 5 overpasses. Slopes in the canyon did not fail and ground rupture did not occur in the



Maximum credible ground acceleration on bedrock from future earthquakes, prepared by Greensfelder (1972) at an original scale of 1:2,000,000 to show potentially active faults and acceleration contours for part of southern California. Numbers next to a fault name indicate the maximum assumed magnitude for an earthquake on that fault.

	Source:	Title:	
ultrasystems	PURCELL, RHOADES & ASSOCIATES	MAXIMUM CREDIBLE GROUND ACCELERATIONS FROM EARTHQUAKES	17

TABLE 5
EARTHQUAKE FAULTS AND EXPECTED MAGNITUDES AND GROUND MOTION PARAMETERS

Fault	Approximate Distance From Site (miles)	Maximum Probable Earthquake* Magnitude	Maximum Peak Ground Acceleration (g)	Repeatable High Ground Acceleration (g)
Santa Susana	1	Small (b)	----	----
San Fernando	4	6.6 (a)	0.30	0.20
San Gabriel	4	?	----	----
Northridge Hills	6	Small (b)	----	----
Verdugo	7	Small (b)	----	----
Simi-Santa Rosa	10	5.5 (a)	0.08	0.05
Raymond Hill Santa Monica Malibu Coast	18	Small (b)	----	----
Hollywood	18	Small (b)	----	----
Oakridge	24	6.8 (b)	0.10	0.06
San Andreas	24	7.9 (b)	0.20	0.13
San Cayetano	24	Small (b)	----	----
Newport-Inglewood	25	6.9 (a)	0.10	0.06

NOTES: (a) = Yerkes (1985)
(b) = Ziony & Yerkes (1985)
? = No historical seismicity

* The maximum probable earthquakes reported here are from those faults which could generate the largest amount of energy at the landfill.

canyon. The City of Los Angeles Bureau of Sanitation has reviewed a photograph, in the applicant's 5-Year Engineering Report Review, of this natural phenomenon taken the day after the San Fernando earthquake, which demonstrates the stability of the natural slopes of a properly designed and maintained sanitary landfill to resist the impacts of major seismic events.

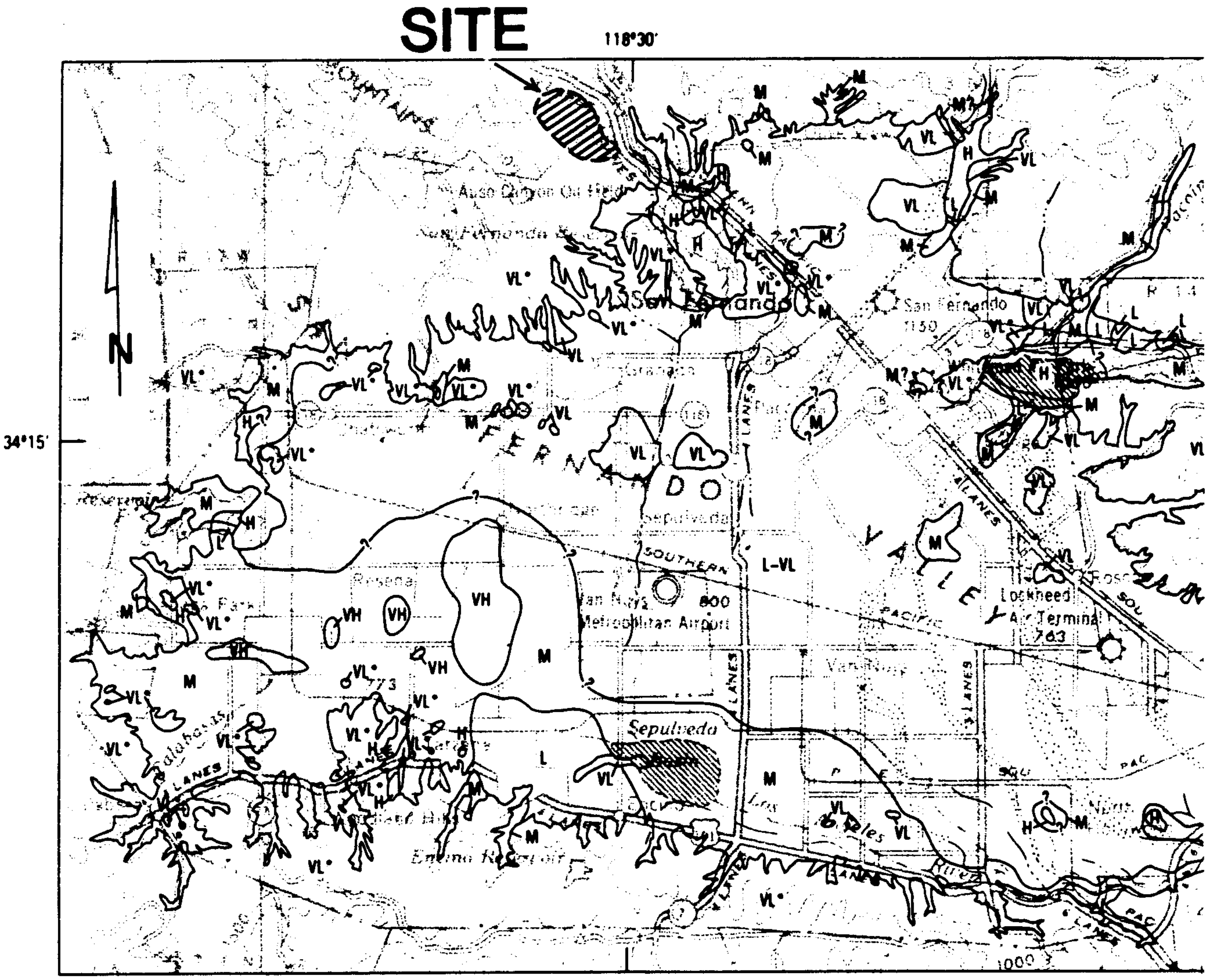
Ground liquefaction is a process whereby water-saturated, loosely consolidated sediments lose strength and subsequently fail due to the strong shaking from earthquakes. The geologic conditions that could lead to liquefaction-related damages are well known due to the extensive studies performed following several recent large earthquakes (i.e., Anchorage, 1964; San Fernando, 1971).

On the map of liquefaction susceptibility for the San Fernando Valley (Figure 18), the Sunshine Canyon site lies entirely within the area designated as "bedrock" with the lowest relative risk of liquefaction in the area. Saturated alluvium is the only deposit presently at the site that might be subjected to liquefacation. These relatively thin deposits will be excavated prior to placing fill, thus eliminating the potential for liquefacation.

The Los Angeles region has a high potential for seismically-induced landslides due to the favorable conditions of mountainous terrain and numerous earthquake events (Wilson and Keefer, 1985). The potential for landsliding in the region was exemplified by the abundant occurrences that resulted from the San Fernando earthquake of 1971 (Morton, 1971; Barrows and other, 1975).

3.2.1.5 Slope Stability

Numerous landslide deposits are delineated on the Sunshine Canyon site (see Figure 16). The landslide deposits range in age from 15 years old (those that were triggered by the San Fernando earthquake [Barrows and others, 1975]) to possibly as old as 20,000 years (those that occurred during the Tioga state of glaciation [Stout, 1977]).



Relative liquefaction susceptibility in the San Fernando Valley based on the ground-water data (Tinsley and Others, 1985)

0 1 2 3 4 5 KILOMETERS
0 1 2 3 MILES

EXPLANATION

VH	Very high	L	Low
H	High	VL	Very low
M	Moderate	VL•	Bedrock areas

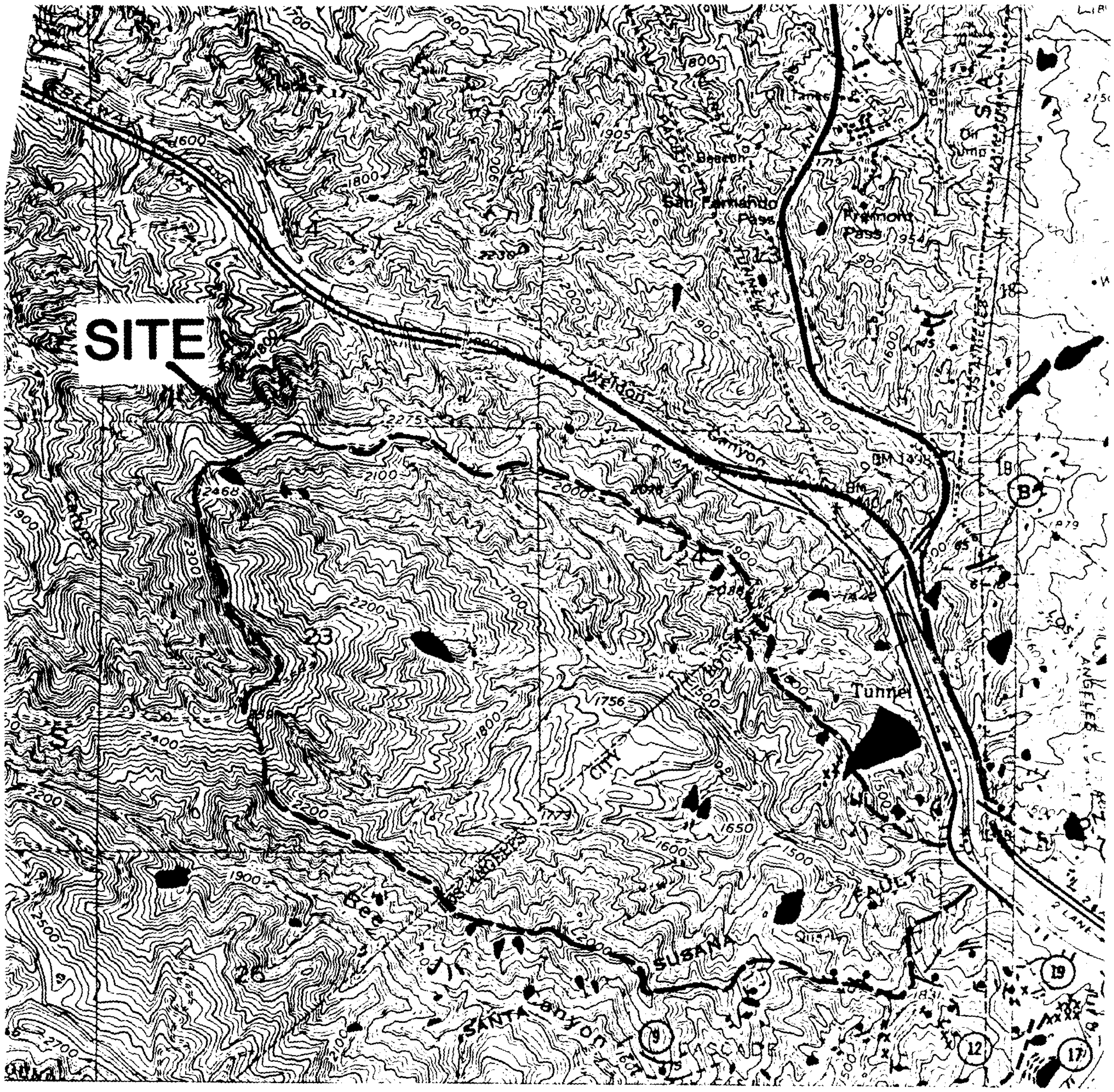
ultrasystems	Source: PURCELL, RHOADES & ASSOCIATES	Title: LIQUEFACTION SUSCEPTIBILITY MAP	18

Several small to moderate-sized landslides in natural slopes occurred on the Sunshine Canyon site during the 1971 earthquake (see Figure 19). The existing hill slopes on the site are considered to be relatively stable although future seismicity will probably generate additional minor downslope failures. Recent slope failures are rare in the larger, older, landslide deposits. These deposits formed during a period when precipitation was much higher than at present (Stout, 1977) and appear to be in static equilibrium under modern conditions.

The canyon slopes are often steeper than 1:1 (horizontal to vertical) but are typically about 2:1. For a measure of safety, a peak acceleration value of 0.2g was used to compute slope stability factors for the current landfill with slope angles of 2 to 1. This study indicated that the slopes had a minimum factor of safety of approximately 1.1 even at the 0.2g peak acceleration value. That is, the slopes should be stable even at a peak acceleration value of twice the theoretical maximum probable 100-year earthquake event. These theoretical studies are supported by the performance of the landfill both during the 1971 San Fernando earthquake (6.6 on the Richter Scale) and the recent (1987) Whittier earthquake (6.1 on the Richter Scale). In both cases, there was no damage to refuse slopes due to seismic shaking and less severe shaking was reported by workers on the landfill than by those on bedrock areas.

Potential Impacts

Based on recent and past geotechnical investigations of the proposed landfill site, Sunshine Canyon is well suited for use as a Class III sanitary landfill site. Under worst-case conditions, however, this or any other landfill site in the seismically active Southern California region could experience a number of potentially significant adverse impacts including leachate migration, slope failure, seismic settlement, damage to drainage facilities, monitoring wells, and other landfill installations. While these impacts are, to a degree, unavoidable, the facility will be designed and operated to limit these potential adverse effects.



(Barrows and Others, 1975b)

N

EXPLANATION

Sunshine Canyon Watershed Boundary

Seismically Induced Landslide during San Fernando Earthquake of 1971

Source:	Title:	
PURCELL, RHOADES & ASSOCIATES	LANDSLIDES TRIGGERED BY 1971 EARTHQUAKE	19

To supplement the natural containment features of the site, a compacted man-made liner of 1 x 10^{-6} cm/sec hydraulic conductivity will be placed along the base of the canyon, extending 10 feet up the side slopes from the canyon floor. Field testing during excavation and subgrade preparation will determine areas requiring a liner. Where utilized, the liner will provide an additional measure of protection for the geologic substructure which underlies the site.

After seismic events, the operator will inspect gas collection, drainage, and related facilities to insure they are in proper working order. After closure the cover will be inspected to fill cracks which may result in the release of landfill gas.

In the event that a fault rupture would occur beneath the refuse fill, it is unlikely that any increased potential for leachate migration would be created. Fault movement in fine-grained sedimentary materials like those beneath the landfill tends to grind up and smear out the rock in the fault plane to create a "gouge" zone with permeabilities even less than those of the bedrock before disturbance.

In the event that fault displacement were to occur beneath the landfill, it would not be expected to translate topographic relief to the surface of the fill. An offset occurring at the bedrock surface would be attenuated within the fill, thus decreasing greatly in magnitude with increasing distance from the bedrock interface.

Final refuse fill slopes will be designed to withstand failure due to ground shaking from earthquakes in accordance with geotechnical recommendations consistent with professional practice in the construction of landfills with adequate safety factors to prevent damage to the landfill or to ancillary structures. The State Minimum Standards for Solid Waste Handling and Disposal (Title 14, Division 7, California Administrative Code) specify that final fill slopes shall not be steeper than 1-3/4:1 (horizontal to vertical). The proposed final fill slopes for this extension project are conservatively designed not to exceed a grade of 3:1. Interim fill slopes for the proposed project will not exceed a slope gradient of 2:1. Ground shaking caused by an earthquake would attenuate within the fill, thus lessening the impact at the fill surface.

The suitability of the proposed final and interim fill slopes has been demonstrated by the slope stability analysis contained within the Report of Waste discharge, Appendix C, for the proposed extension which includes a review of the final cover, drainage facilities, and gas and leachate controls. Analysis of wet slopes will be performed by an engineering geologist to determine if localized adverse geologic structures require irrigation.

The existing landslides in the Sunshine Canyon watershed could create a temporary problem when excavation is initiated. Because operations will most likely begin in the lower elevations of the drainage basins the lower portions, or toes, of the slides will probably be removed first, weakening the support of the naturally stabilized slides. Slope failure could result given the right combination of ground shaking and precipitation to increase the efficiency of the removal process. It is recommended that once the toe of a landslide is encountered, all material constituting the landslide be removed and stockpiled in a stable area for use as cover material.

All landslide soil debris and weathered bedrock will be removed during normal operation of the site to provide daily cover material and will therefore not provide an avenue for leachate migration. Since all soils found in trenches will also be removed, the location of surficial permeable lens and zones are not critical to the siting of the proposed landfill.

Erosion is a significant potential impact both during landfilling and following site closure due to downstream sediment accumulation and subsequent flooding. Mitigation measures listed below will reduce these impacts to non-significant levels.

Detailed soil characteristic information on various sections of the proposed site has been obtained to confirm that the site contains the appropriate soils and geotechnical features to support the proposed project. Detailed specific soils and geotechnical information will be obtained for each section of the canyon as it is proposed for filling. An on-site geotechnical investigator will be employed to ensure the integrity of the liner material is maintained for each specific fill area prior to filling. To obtain this type of detailed soils information for the entire canyon area of the proposed project would represent an extensive undertaking not warranted in this period of the development process.

Mitigation Measures

- When excavating for the landfill operation it is recommended that, once the toe of a landslide is encountered, all material constituting that landslide be removed. Excess slide material not used for immediate cover material will be stockpiled on-site for future use. A geotechnical engineer will accurately delineate such zones during excavation. In addition, it is recommended that landslide removal not be commenced during the rainy season or when the ground is saturated. Installation of refuse cells, which are lighter in weight and therefore less dense than adjacent native bedrock materials, generally absorb vibrating forces during landfill construction, and will not result in excessive vibrations that would result in landslides at the facility or beyond.

- Detailed stability analyses will be conducted on proposed surface impoundments and engineered fill slopes due to the potential seismic hazard with all final designs incorporating the stability recommendations.

- Revegetation and erosion control of all exposed slopes will be an ongoing process. Due to the size of the proposed landfill extension project, it will be necessary to adopt rigorous erosion controls for operations in the extension area. The primary erosion mitigation controls to be implemented at the site will include soil stabilization measures and revegetation of all exposed slopes in accordance with the proposed Revegetation Program included in Appendix H of Volume IIA, the installation of interceptor ditches designed to eliminate washouts and slumps, the diversion to sedimentation basins of all runoff laden with a high suspended-solids load, and the use of sediment traps at the perimeter of exposed slopes. An Erosion Control Plan is provided in Appendix AA, Volume IIB.

- In order to reduce the erosion potential of the soil, excavation and preparation of the landfill will be undertaken during dry weather conditions and areas of loose soil (i.e., around haul roads, etc.) will be stabilized before the onset of the rainy season.

- To prevent erosion from the soil cover on the face of the landfill, interim enhancement measures will be applied subsequent to emplacement of the soil layer on a continuous basis, even though the area may soon be disturbed by future filling operations. Vegetation cover on slopes inactive for one year or longer can be planted with grasses, as specified in the proposed Revegetation Program, Appendix H, Volume IIA, and maintained throughout the rainy season. These vegetated areas can be disced or moved during the spring season, if necessary, to reduce the fire danger potential.

- The vegetation will be supplemented with other on-site erosion control measures while growth is in progress. Sediment that is eroded from the face of the fill will be prevented from traveling far from the source. Mitigation measures would involve a maintenance plan including the use of either settling ponds for the intercepted water or the placing of filters in the interceptor ditches so that the transport of eroded soil will be restricted.

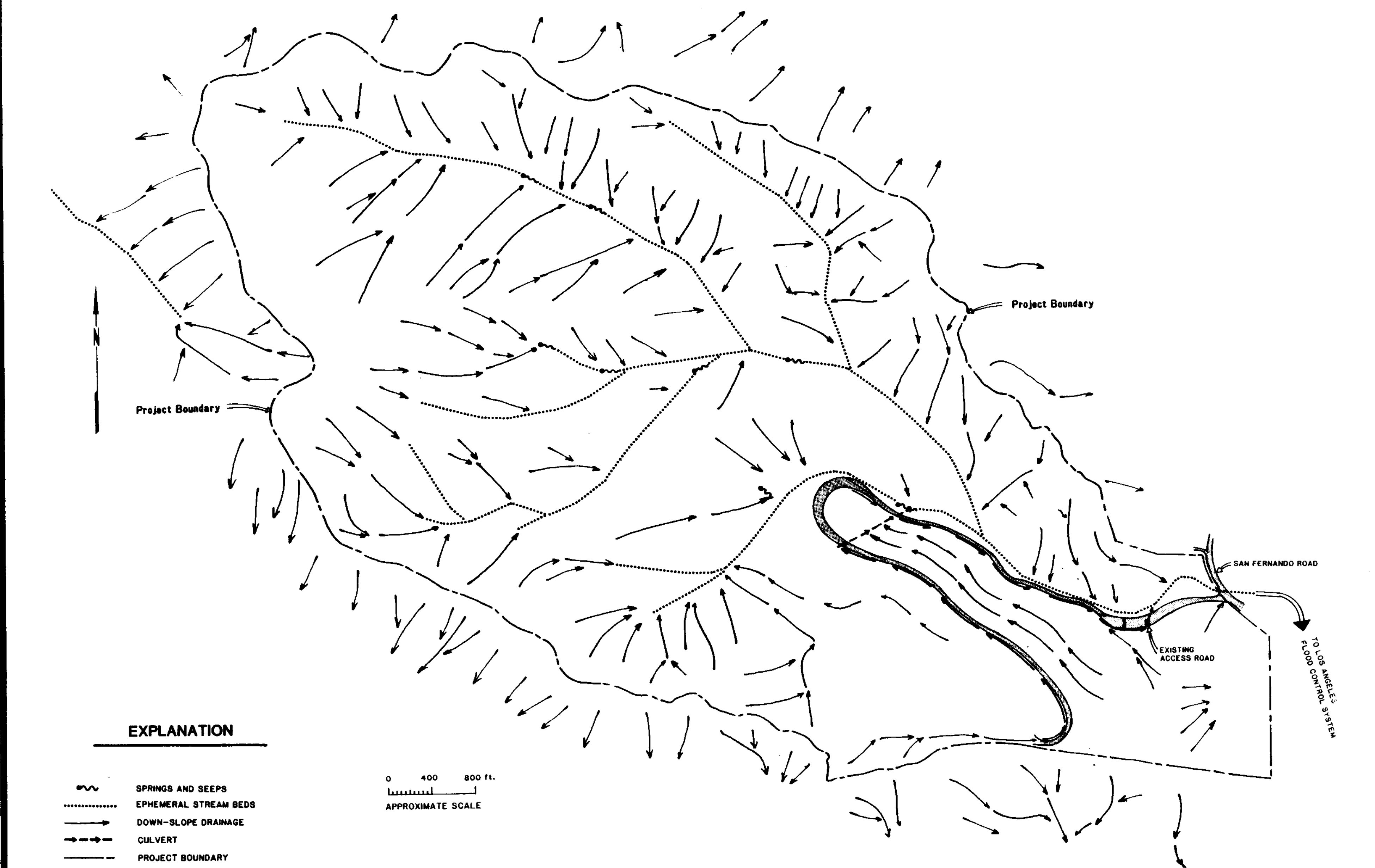
3.2.2 Surface Water

Environmental Setting

Drainage from Sunshine Canyon flows eastward into the San Fernando Valley and is tributary to the Los Angeles River basin (see Figure 20). The total area of the Sunshine Canyon Watershed (about 890 acres) constitutes a very minor portion of the total 900-square mile Los Angeles River watershed basin (see Figure 21). The proposed total effective landfill extension will comprise 73% (650 ac) of the Sunshine Canyon watershed (890 ac) while the existing landfill facility comprises approximately 17% (148 ac) of this watershed.

Precipitation in the Sunshine Canyon basin is not currently measured directly, but isohyetal maps (CDWR, 1957) show an average of 20 to 21 inches of annual rainfall which normally occurs between the months of December and March. Precipitation records from meteorological station No. 446 located in the Santa Susana Mountains approximately 9000 feet southwesterly from the extension site show a 100-year normal precipitation value of 22.71 inches per year (See Appendix FF, Volume IIB). Rainfall values are measured at the Van Norman Reservoir area which is located approximately 2 miles to the south of the landfill site in the San Fernando Valley. Precipitation normals for the past 75 years at the Van Norman site indicate a yearly average of 18.3 inches per year (see Table 6). Rainfall data from Station No. 446 has been considered in hydrologic calculations for pipes, "V"-ditches, sedimentation basins, and other drainage facilities as presented in the Report of Waste Discharge, Section 2596.

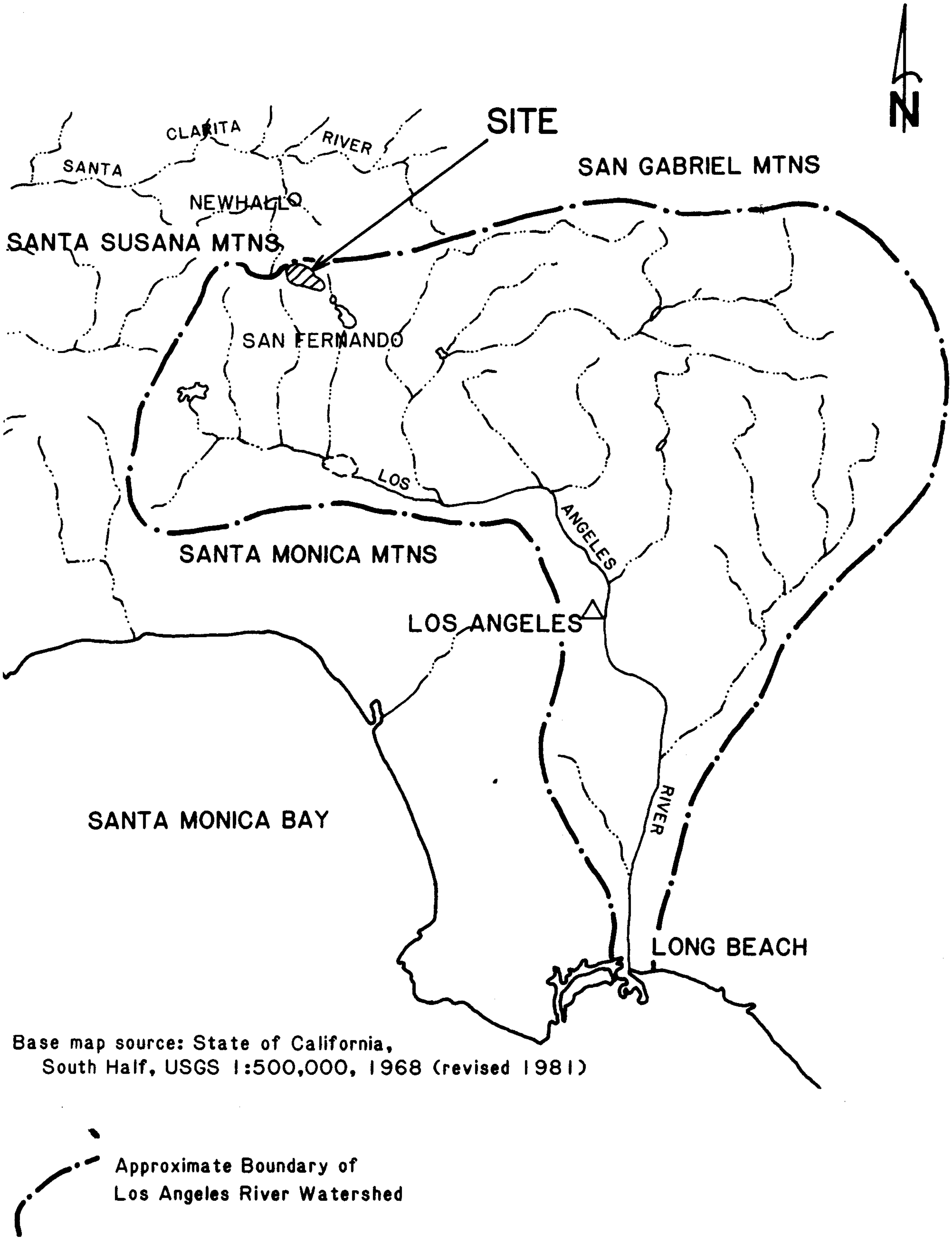
Surface water flow in the gullies of Sunshine Canyon occurs only during the wetter months of the year as a direct result of run-off and delayed seepage from precipitation. The major streambed of the Canyon contains flow intermittently during about 3 months in a year of average precipitation. Flow is concentrated primarily in the lower reaches of the basin and is considered negligible as it leaves



Source: PURCELL, RHOADES & ASSOCIATES

Title: EXISTING DRAINAGE

20



ultrasystems	Source: PURCELL, RHOADES & ASSOCIATES	Title: LOS ANGELES RIVER DRAINAGE BASIN	21

the site (L.A. County Dept. of Public Works, Written Commun., 1986). Minor flow may occur into the summer months, however, following years of unusually heavy precipitation (Bean, 1978, page 4).

TABLE 6

PRECIPITATION NORMALS IN INCHES
VAN NORMAN RESERVOIR

January	4.0
February	3.6
March	2.8
April	1.5
May	0.3
June	0.1
July	Trace
August	0.1
September	0.3
October	0.4
November	1.9
December	3.3

AVERAGE NORMAL RAINFALL IS 18.3 INCHES

SOURCE: Records of the Department of Water and Power of the City of Los Angeles.

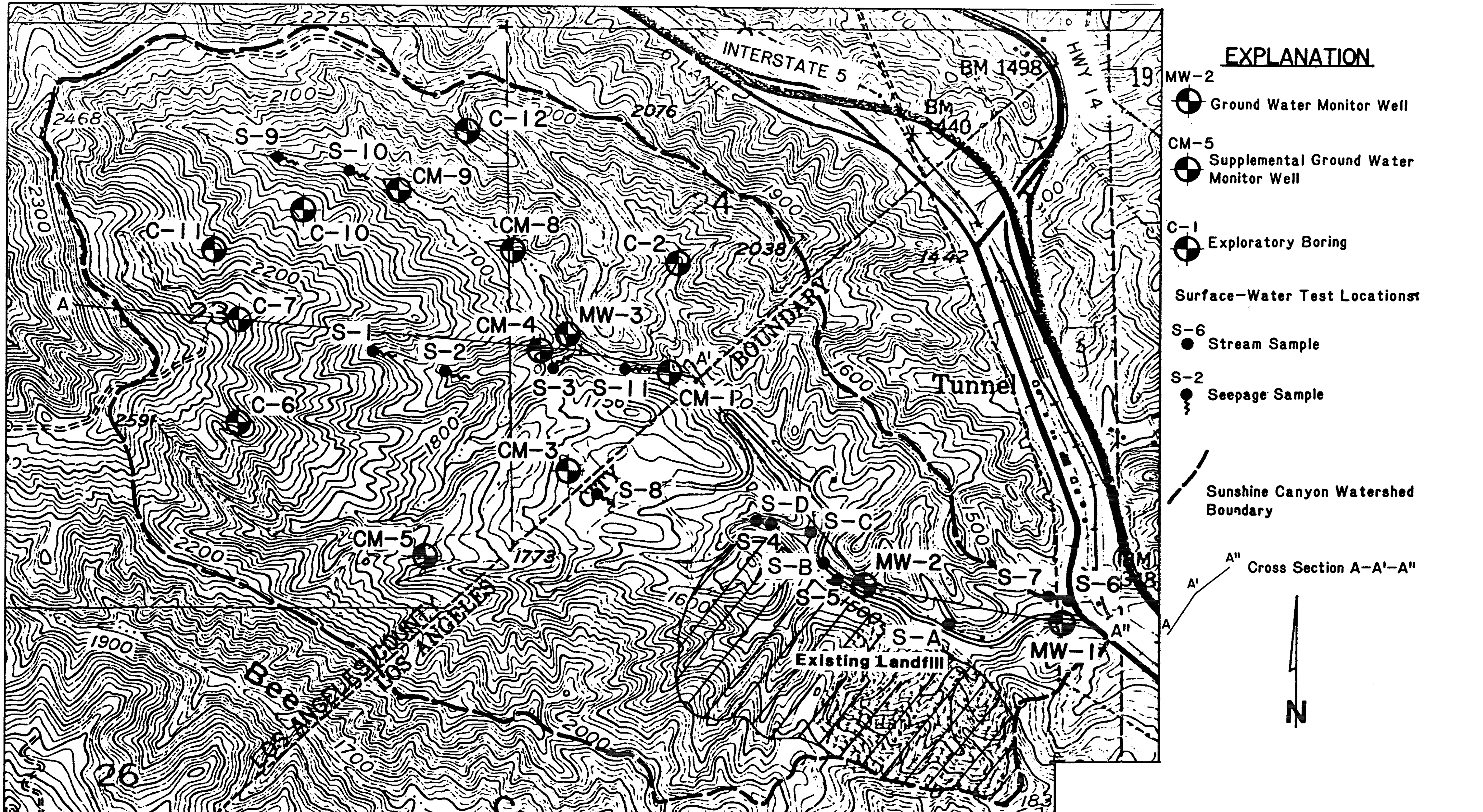
Current runoff in the Canyon follows natural drainages and then empties into the flood control system along San Fernando Road (see Figure 20). The drainage improvements along the roadway eventually discharge the runoff into the Los Angeles River Flood Control System and thus into the Los Angeles River.

Small springs and seeps (Figure 20) were encountered in some of the canyon bottoms during the investigation in the summer of 1986; however, there was no perennial creek flow observed at that time. The seeps and springs observed to have an average annual flow of less than 1 cfs at the site have been monitored for several years. In all instances, the surfacing waters were observed to stagnate within several feet of their seepage sources. Based on historic examination, springs and seeps are dry during hot summer months. This seasonality is due to a lack of continued recharge during the summer months.

The 100-year storm runoff rate in the Sunshine Canyon watershed has been estimated by the Los Angeles County Flood Control District to be 1200 cfs at the point where the main stream channel exits the property. Such high exiting flow is presumably due to the low infiltration potential of the soils within the proposed landfill site and to the occurrence of intense short-duration storms. Total yearly discharge through the mouth of Sunshine Canyon has not been recorded and is not known at this time. Once this discharge leaves the Sunshine Canyon watershed, it moves with other uncontrolled runoff along San Fernando Road.

Historic water quality data from Sunshine Canyon vicinity is restricted to data available from the several limited site-specific studies completed in the past 8 years: Bean (1978), Geolabs (1981), PRA (1982), and to an extensive sampling and testing program recently initiated by PRA in 1986.

Surface waters within the Sunshine Canyon watershed have been monitored for stream water quality down-gradient from the existing facility on a monthly basis since 1978. Prior to 1986, the monitoring program consisted of limited stream locations and chemical analysis. During the field exploration program in June - July 1986, eleven surface water and spring localities were sampled for water quality (S-1 through S-11; see Figure 22). This new stream monitoring program has greatly broadened the scope to include increased sampling locations and a more comprehensive chemical analysis program containing general mineral and leachate indicators. The sample locations include 7 up-gradient points, all within the proposed landfill extension area, and 4 points lying down-gradient from the existing facility. More recently, new localities have been sampled as dictated by favorable flow conditions (S-A through S-D; see Figure 22). Continual sampling at particular localities is inconsistent, as flow from the springs and seeps is intermittent.



Base Map Source: Oat Mountain Quadrangle, USGS 7.5 Min. Topographic Series, 1952 (photo revised 1969)

0 500 1000 2000

Scale (feet)

ultrasystems

Source:

PURCELL, RHOADES & ASSOCIATES

Title:

LOCATION OF MONITOR WELLS, EXPLORATORY BORINGS & SEEPS SUNSHINE CANYON SITE

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Test results on water quality samples taken from the existing stream in the lower part of the canyon from 1978 through 1986, water-quality test results from the initial expanded stream sampling program in 1986, and results from all surface water-quality tests from 1987 to date are presented in Appendix F of Volume IIA. The water report on heavy metals was conducted in accordance with requirements established in the latest Waste Discharge Order of the RWQCB (see Appendix K of Volume IIB). The RWQCB designates the types and frequency of chemical tests conducted. Tests are presently run for the heavy metals of copper, iron, magnesium, manganese, and zinc. The results of the tests are included as Appendix E of the Report of Waste Discharge.

Groundwater and surface water from Sunshine Canyon are prevented from entering Van Norman Reservoir because the reservoir is lined. A telephone conversation with the Department of Water and Power (DWP) indicated that the landfill has no effect on the drinking water in the aqueduct or Van Norman Dam. The DWP has an on-going water-quality monitoring system that would detect any influences the landfill would have on the water. The DWP has no evidence of contamination of the drinking water in Van Norman Dam. The Los Angeles County flood control channel, which receives runoff from Sunshine Canyon, bypasses the Jensen Water Filtration plant. No water from Sunshine Canyon enters the water supply.

The natural waters of the proposed Sunshine Canyon extension area are characterized by high levels of Total Dissolved Solids, conductivity, sulfate, color, and iron. Such high levels of these constituents indicate that the existing surface and groundwaters in Sunshine Canyon are unacceptable as a source of drinking water. The intermittent nature of surface waters, the limited occurrences of groundwater, and the poor water quality preclude any future significant beneficial use. For those periods of the year where surface water flows through the watershed, this water serves to support local fauna. This fauna will be removed if the project is implemented.

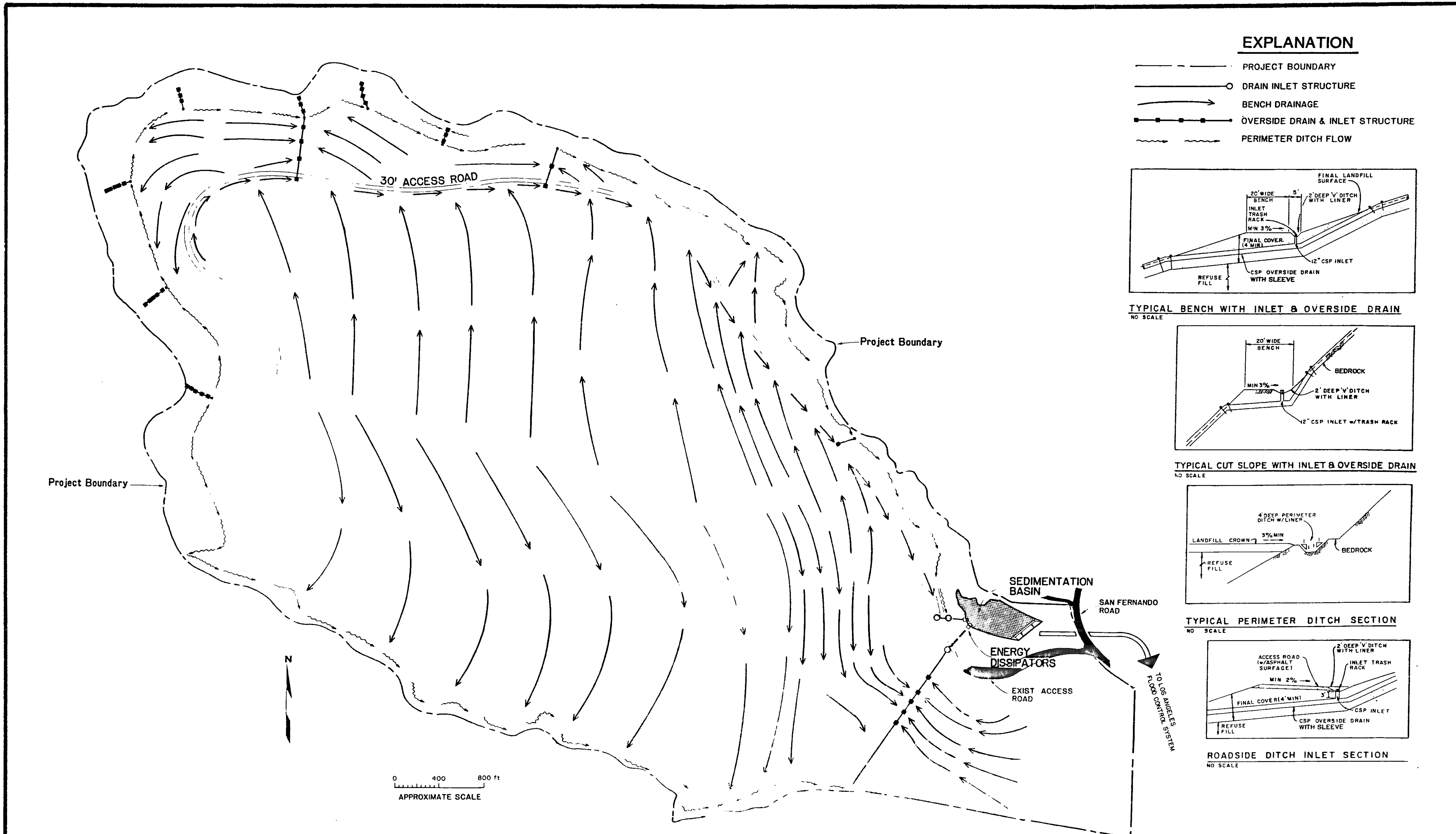
At no time was the quality of water at a level that could be considered acceptable for human consumption.

Potential Impacts

Potential significant adverse impacts associated with the project include increased surface runoff and peak discharges, increased erosion and sediment transport, and water-quality impacts associated with increased sediment loads. Erosion of newly-cut slopes, fill slopes, or stockpiles will also increase sediment loads to surface runoff flows. During heavy precipitation periods, the active fill areas will be subject to erosion and infiltration.

Surface water coming into contact with refuse by infiltration could saturate the fill and become contaminated. The contaminated water (leachate) could potentially migrate from the refuse fill and pollute downgradient surface or groundwaters. However, implementation of design features presented in the mitigation measures section will ensure that the landfill extension project will be designed and operated to prevent surface water from coming into contact with refuse and forming leachate.

The drainage plan to accommodate surface runoff is presented in Figure 23. Surface drainage controls will be phased over the life of the project with facilities sized to accommodate the 100-year storm frequency event. Surface storm water will be diverted from waste fill areas through grading and surface water collection ditches. When precipitation does contact refuse at the working face of the landfill, it will be pumped to a leachate control tank from which it will be pumped to an on-site treatment plant for future treatment and disposal (see Section 3.2.3, Groundwater). Upon completion of the project, the application of final cover at the prescribed minimum thickness (four feet) and the construction of the crown of the landfill at a 3% minimum gradient will insure that surface waters are conveyed from the finished slopes of the landfill in a manner that minimizes infiltration and prevents ponding.



ultrasystems

Source: PURCELL, RHOADES & ASSOCIATES

Title: DRAINAGE PLAN

23

Mitigation Measures

- To insure that leachate resulting from the contact of surface waters (principally storm water infiltration) with the refuse contained within the landfill is minimized, surface runoff will be intercepted and diverted around the operation. The method of diversion that will be used in the proposed landfill plan includes the use of interceptor ditches placed along the sides of the canyon at the edge of the fill area with lower gradient retention ponds as presented in Figure 23. These perimeter ditches will divert overland runoff from flowing onto the fill areas in addition to collecting runoff from precipitation that falls directly onto the covered fill surface. The ditches will be lined except in bedrock or on slopes of less than 1 percent. Otherwise they will be constructed as shown in Figure 23.

- The surface runoff collected in the interceptor ditches never contacts the refuse waste and hence will be free of leachate contaminants. The runoff will be returned to the natural stream channel below the operational portion of the site with use of a retention pond to control storm water discharge flow and reduce final sediment load. need testing

- Placement of a series of underdrains, in areas where seeps and springs have been identified, will collect and convey runoff from this source.

- Daily, intermediate, and final covers will be designed to minimize infiltration through the refuse and the resulting generation of leachate.

- The surface water collection system will be designed to contain excess runoff and suspended sediments. Water leaving the sedimentation ponds will be monitored so as to achieve proper runoff rates and acceptable suspended sediment loads. Energy dissipators will also decrease the peak flow rate. Levels of acceptable suspended sediment loads will be established by the Regional Water Quality Board in the Waste Discharge Requirements, based on background surface water conditions.

- The application of daily, intermediate, and final covers will limit the percolation of water into the landfill. The final cover will be compacted and graded with a minimum 3% gradient to preclude percolation of rain water and to direct run-off away from the refuse into drains and subdrains that ultimately discharge into the sedimentation basin. On-site retention and sedimentation basins will be designed to limit peak runoff levels at or below existing levels.

- As development of the site proceeds, surface drains will be installed and maintained so that surface run-off is diverted from working slopes and isolated from contact with the refuse waste. These drains will be developed so that at ultimate landfill development the drain system will be as shown in Figure 23. On-site drainage channels will meet 100-year storm conditions and 24-hour rainfall.

- Surface water quality will be monitored by collecting grab samples on a regular basis for water quality analysis to ensure that water-quality protection standards as determined for the site by Regional Water Quality Control Board are not exceeded. Samples will be taken both below the sedimentation basin and at each major discharge site into the sedimentation basin. This monitoring program will continue for the entire active life of the site, which will include post-closure monitoring.

3.2.3 Groundwater

Environmental Setting

Data pertaining to groundwater was obtained from several studies of the subject site and was supplemented with information gathered from the recently-installed monitoring well network (see Figure 22 in Section 3.2.2). Previous studies include those by Bean (1978), Geolabs (1981), and Purcell, Rhoades and Associates (PRA) (1986).

Nine groundwater monitor wells have been installed by PRA within the Sunshine Canyon wastershed basin. Two wells lie down-gradient from the existing landfill facility and the remaining seven monitor wells all are up-gradient (Figure 22). The majority of the exploration borings and accompanying packer tests were conducted within the planned refuse boundaries of the proposed site. However, several borings were purposely located outside the refuse boundary of the site where surface geologic features warranted further subsurface documentation. Numerous borings (C-6, C-7, C-10, C-11, and C-12) were located within unique geologic features typically known to produce higher permeabilities such as deep-seated landslides, axis of anticlines, and ridge tops.

The up-gradient wells all were installed and designed to ascertain and monitor the natural groundwater conditions present within the local watershed basin. Groundwater generally was encountered in the exploratory borings drilled in the gully bottoms (CM-1, CM-3, CM-4, CM-8, and CM-9, as shown on Figure 22) with one exception. Boring C-2, which was drilled to the bottom of the northern-most canyon, did not intercept groundwater. Exploratory borings CM-3 and CM-5 do not lie in a stream gully and did encounter groundwater at depths of 40 to 50 feet. The wells that encountered groundwater were completed in bedrock and sealed off from the near-surface alluvium and colluvium.

Groundwater was not encountered in the remaining exploratory borings (C-6, C-7, C-10, C-11, and C-12; see Figure 22), although indications of previous groundwater circulation existence were found in recovered drill core soil material (i.e., iron and manganese staining in fractures).

Indications from the drilling program and subsequent water level readings suggest that confined groundwater conditions may be present in the vicinity of monitor well CM-1. The well is slotted from approximately 23 to 35 feet below ground surface and water levels have reached as high as ground level. Further studies would be necessary to delineate the extent of this groundwater source.

Groundwater studies in progress and those published to date indicate potentially limited groundwater resources beneath the proposed site. There are no high permeability groundwater-bearing formations at this site which will come in contact with the in-place waste.

Movement of shallow groundwater at the site is primarily in the direction of surface drainage (see "Existing Drainage," Figure 20, presented in Section 3.2.2). All water stored in the soils and shallow bedrock generally flows toward the nearest gully. The average annual flow in the gullies of Sunshine Canyon is less than 1 cfs. Groundwater in the bottoms of the gullies and canyons flows slowly toward the mouth of the watershed basin which is located at the entrance to the landfill facility. Because of the topographic and geological conditions in the area, groundwater and infiltration surface water remain within Sunshine Canyon and do not affect the roots of native vegetation in adjoining canyons. The Mission Hills well field, approximately 3½ miles from the site, is the closest well water supply system.

The transmissivity of the bedrock is calculated to range from 3 to 775 gallons per day (gpd/ft), with an average value of approximately 61 to 145 gpd/ft. Transmissivity is a calculated hydrologic parameter contained within the Report of Waste Discharge,

Exhibit B. Due to the pervasively folded, faulted, and anisotropic nature of the bedrock (i.e., interbedded sandstone and shale), the flow rate of groundwater on the subject site will vary significantly over short distances. However, the presence of non-active faults in addition to the interbeds of low-permeability shale and mudstone tends to greatly restrict the flow of groundwater. The subsurface water in Sunshine Canyon is effectively hydraulically separated from the San Fernando Valley alluvium by the low-permeability bedrock.

The existing operation is being reviewed for issuance of a certificate of compliance with State Water Resource Board guidelines regarding groundwater quality. Groundwater testing to facilitate compliance with these guidelines for the proposed extenson is currently taking place. It is anticipated that this testing will be completed by year end (1989) unless additional testing is requested by the Board. Beginning in June 1986, PRA initiated a comprehensive groundwater sampling and monitoring program in accordance with procedures stipulated in Article 5, Subchapter 15, Title 23 of the California Administrative Code. Chemical analysis of groundwater samples is identical to the surface water analysis which includes tests for general mineral analysis and leachate indicators. The intent of monitoring the proposed expansion site is to obtain background water-quality levels for the applicable chemical constituents present in the natural waters beneath the site. Results of the groundwater testing to date are presented in Appendix F, Volume IIA. Data collected to date gives no indication of groundwater degradation from the existing landfill.

Subchapter 15, "Discharges of Waste to Land", Chapter 3, Title 23 of the California Administrative Code, states that a period of one full year of sampling on a quarterly basis is necessary to establish baseline (background) groundwater quality standards. Subsequently, standards for adherence will be set. The operator of the landfill will then insure that the quality standards are maintained during site preparation, operation, and closure. This type of program is required by the Regional Water Quality Control Board (RWQCB) as part of the use permit issued by that office.

Preliminary indications from the testing of both surface and groundwater samples suggest that the waters of the Sunshine Canyon watershed at the proposed landfill extension site are of poor quality and unfit for use as a drinking water source. An analysis of selected chemical constituent levels from the existing groundwater is summarized below (refer to Appendix F, Volume IIA for comparison).

Total Dissolved Solids (TDS)

California Secondary Drinking Water Standards (SDWS) recommend a maximum level of 500 mg/l TDS with an upper limit of 1,000 mg/l, although short-term levels of 1,500 mg/l are acceptable. As shown in Appendix F, samples taken from all nine groundwater monitoring wells indicate TDS levels above the SDWS recommended maximum level. Seven of the nine monitoring wells also show TDS levels above SDWS maximum upper limit levels.

Conductivity

Conductivity is measured in micro mhos/cm and is an electrical measure of salinity. The higher the reading, the higher the salt content of the water sample. SDWS recommends a public health maximum of 900 umhos/cm with an upper limit of 1,600 umhos/cm and a short-term allowable level of 2,200 umhos/cm.

As shown in Appendix F, samples taken from all nine groundwater monitoring wells show conductivity values at or above the SDWS recommended maximum level.

Sulfate

SDWS recommends a maximum level of 250 mg/l sulfate in drinking water. The upper maximum level is 500 mg/l with a short-term maximum of 600 mg/l sulfate.

As shown in Appendix F, all of the groundwater monitoring wells show high levels of sulfate in excess of the SDWS recommended maximum level, with seven of the nine monitoring wells showing sulfate levels above the SDWS upper maximum level.

Color

The maximum level of color (color units) allowed in drinking water by SDWS is 15 color units. As shown in Appendix F, all of the nine groundwater monitoring wells show color values (color units) at or above the SDWS maximum level.

Iron

The SDWS maximum level for iron is 0.3 mg/l. Levels of iron in the surface waters were found to be as much as 4 times the maximum level set by the State. As shown in Appendix F, seven of the nine groundwater monitoring wells show iron content in excess of the SDWS maximum level.

Groundwater sampling of the existing groundwater quality beneath the landfill indicates that the natural waters within the watershed are of poor quality and non-potable. This existing groundwater quality is not related to the current landfill operations.

Potential Impacts

Excess water use on and near the landfill may generate leachate and have an adverse impact on the existing groundwater. Excess water used for irrigation of slopes to support vegetative growth and for dust-control water could create the potential for leachate formation within the landfill mass.

A leachate collection and removal system (L.C.R.S.) will be installed for the landfill extension to prevent the infiltration of any leachate into the groundwater system beneath the landfill. An on-site leachate treatment system will be designed to accommodate a flow of up to 55 gallons per minute. Details of leachate generation calculations, the L.C.R.S., and the leachate treatment system are contained in Appendix Z of Volume IIB.

With regard to the long-term contamination potential of a typical sanitary landfill permitted for and accepting municipal wastes, an extensive review of published material conclusively demonstrates that landfill leachate possesses a trend of decreasing pollutional loads with time (unpublished letter from M. Reinhard, Ph.D., Stanford University, December 21, 1987 to Purcell, Rhoades & Associates [PRA]). Observed studies show that key leachate indicators (TOC, COD, BOD and Cl) substantially decrease in concentration relative to an initial value, and eventually stabilize both chemically and biodegradably. In addition, the design proposal to install a leachate collection and removal system (L.C.R.S.) beneath the landfill will provide for the removal of any leachate buildup for proper disposal.

Data from other landfills in Southern California show little observed leachate formation. Leachate generally does not appear in the L.C.R.S. system until field capacity is exceeded, several years after the start up of the landfill. Tests conducted by the Los Angeles County Sanitation Districts at the Palos Verdes and Mission Canyon Landfills indicate that the moisture content of the landfill mass decreases with depth. The higher moisture content near the top may reflect the downward advance of water that has percolated through the cover. These tests concluded that the anaerobic decomposition of municipal landfill waste is utilizing rather than producing moisture. Leachate formation at one facility was attributed to a spring contacting the bottom of the waste pile. Monitoring of the chemical compaction of this leachate showed that it was localized and became less concentrated with time. At other facilities, effluent captured by subsurface barriers has been identified as groundwater rather than a discharge from landfills.

Preliminary designs of the proposed expansion site indicate that potential groundwater (non-potable) infiltration will be reduced by reducing the area of rain water percolation within the canyon area. However, Sunshine Canyon is not a groundwater recharge area. It should also be noted that, as discussed previously in the environmental setting section, groundwater in the canyon is non-potable, an existing condition that cannot be mitigated through landfill operations. No damage to the water table is projected from landfill activities with the implementation of the mitigation measures listed below.

Mitigation Measures

- The operation and final closure of the landfill project will be monitored by the local enforcement agency(s) as designated by the California Waste Management Board (CWMB) as well as by the RWQCB. These authorities have broad latitude in their authority to require measures of abatement regarding water quality problems that may arise during the operation of the landfill.

- To supplement the natural containment features of the site, a compacted man-made liner of 1×10^{-6} cm/sec hydraulic conductivity will be placed along the base of the canyon, extending 10 feet up the side slopes from the canyon floor. Field testing during excavation and subgrade preparation will determine areas requiring a liner. Where utilized, the liner will provide an additional measure of protection to the geologic substructure which underlies the site.

- To reduce the possibility of excessive landscape irrigation water percolation into the refuse fill, irrigation will be limited to insure that a balance will be achieved between irrigation and evapotranspiration, i.e. just enough water for vegetation survival. Where feasible, plant species with low water requirements will be used for vegetation of cut slopes and the soil-cover surfaces. Evapotranspiration at the site exceeds precipitation.

- Dust control water will be applied sparingly to wet only the upper soil surface. Evaporation is the natural means whereby this water is dissipated.

- The proposed project will be operated as a Class III landfill and will not accept liquid waste or hazardous materials. This will prevent leachate formation from excessive liquid waste disposal and the concentration of organic chemicals.

- The proposed landfill extension is designed to control surface drainage and restrict the amount of infiltration of surface waters into the landfill that would generate leachate. Preliminary field and laboratory permeability tests demonstrate that the overall permeability of the natural basement materials underlying the proposed extension and the permeability of remolded test samples for liner or final cover are adequate to prevent the infiltration of leachate into the underlying bedrock formation. Thus, leachate is effectively prevented from reentering and degrading any subsurface waters that may underlie the site. On-site grading and compacting of the semi-permeable surface cover will prevent the infiltration of precipitation and will direct excessive amounts of surface water away from the fill. Surface water drainage will be handled with an artificial drainage system, including ditches, berms, energy dissipators, and other stormwater management measures, all designed for high-flow capacity. This will prevent ponding (inundation), and the infiltration and percolation of the runoff through the refuse fill.

- A retention and desiltation pond will mitigate the reduction in available rain water infiltration.

- Areas of natural groundwater seepage will be accommodated by installation of a filter rock blanket and drains to connect with the installed underdrain system. These areas of seepage will then be sealed by at least a 12" clay liner to ensure isolation from potential contact with leachate in the landfill.

- Because of the size of the proposed project, an internal leachate collection and removal system (L.C.R.S.) will be installed at the base of the landfill (see Appendix Z, Volume IIB for a detailed description). This system will control any generated leachate with proper disposal thereof consistent with RWQCB requirements. The collection system will consist of a filter rock blanket embedded with a system of collection pipes that transport the collected fluid to a leachate tank. The filter rock blanket will be comprised of angular, well graded, crushed rock. The blanket will be emplaced over the basal surface of the landfill and extend up the sides of the excavation as far as is possible. The collection pipe will be sized and spaced so as to maintain the hydraulic head in the leachate collection system as specified in Waste Discharge Requirements, in accordance with Regional Water Quality Control Board Order No. 87-158, adopted November 23, 1987. The leachate collection tank will be sampled and monitored on a regular basis for leachate characterization. Actual design and operating conditions including leachate disposal will be as specified by the Regional Water Quality Control Board (RWQCB) in the Waste Discharge Requirements.

- The leachate collection and removal system (L.C.R.S.) will be designed and installed in accordance with Article 2543(a) of Subchapter 15, Title 23, Chapter 23 of the California Administrative Code which requires that the L.C.R.S. be "...designed, constructed, maintained, and operated to collect and remove twice the maximum anticipated daily volume of leachate from the waste management unit."

- The proposed design and construction features of the Sunshine Canyon site will incorporate both vertical and horizontal waste containment structures, including grout curtains or slurry walls, and a base structure or an impermeable toe berm which will be designed and installed to impede and prevent landfill leachate from contacting groundwaters. Groundwater monitoring will continue throughout the active life of the landfill, including the post-closure monitoring period until the RWQCB decides that it need not be continued. Samples will be collected and analyzed as directed by the Regional Water Quality Control Board in the Waste Discharge Requirements to insure that there is no leakage of leachate from the site that could impact on the groundwater supply in the San Fernando Valley to the south.

- Application of daily, intermediate, and final covers in accordance with applicable regulatory requirements serves to restrict leachate formation by limiting the infiltration of liquids to the landfill mass.

- An independent inspector shall be on-site during preparation of the soil liner and for verification of required conditions of operation, to the satisfaction of the local enforcement agency(s).

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3.2.4 Biota

The Sunshine Canyon site was visited on four days between November, 1985 and February 1986 by Dr. Ted L. Hanes, biologist, and previously in May and June 1978 by Dole and Fisler. The 1978 study recorded both animals and plants. During these numerous visits the vegetation types were determined and mapped, and flora and fauna were listed with particular attention being paid to the possible presence of rare and endangered species. Plant surveys were conducted over several years, during various seasons. Dr. Joel Weintraub, biologist, visited the site in November 1986 and prepared a detailed fauna list for the site. The reports by Hanes and Weintraub also contain a discussion of the potential impacts of the project on the gene flow of the native biota in the region (see Volume II A, Appendix C).

Environmental Setting

The extension site is located in a major canyon system in the Newhall Pass area in the eastern end of the Santa Susana Mountains. The Santa Susana Mountains include the foothills of the northern San Fernando Valley, all having heavy urban development, and the foothills of the Santa Clarita Valley, containing Magic Mountain and some urban developments, with the remainder scheduled for development soon. Elevations range from about 1,325 feet at the mouth of the canyon in the east to about 2,650 feet in the western portion of the property. Aside from some oil wells in the vicinity, the landfill in Sunshine Canyon is the only major development in the eastern Santa Susana Mountains. Cattle ranches have existed in this region for many years, but other than ranch buildings no other large structures exist in the area. A single, graded dirt road provides access to the undeveloped portions along the north and western ridgelines. Signs of heavy cattle grazing are evident on the site and noise from nearby freeways and the existing landfilling operation can be heard from several locations within the canyon.

Approximately 480 acres of the landfill area located in the County are within the 22,000± acre Significant Ecological Area (SEA) No. 20, as referenced in the proposed Santa Clarita Valley Areawide General Plan. SEA No. 20 is specifically identified in the General Plan as follows:

> "The Santa Susana Mountains are one of several relatively small ridges that form the western end of the transverse ranges and blend eastward into the larger San Gabriel and San Bernardino Mountains. The Santa Monica Mountains are part of this system and form a barrier that shields the interior ridges from the influences of moist marine air, thus causing them to be drier. The vegetation consists of coastal sage scrub on south-facing slopes, dense chaparral on north-facing slopes and valleys of riparian and oak woodland. The oak woodland habitat is extremely diverse, supporting six species of oaks. These include coast live oak (Quercus agrifolia), valley oak (Q. lobata), canyon live oak (Q. chrysolepis), scrub oak (Q. dumosa), interior live oak (Q. wislizenii), and Dunn's oak (Q. dunnii). The latter species is known only from this area in Los Angeles County."
>
> "The Santa Susana Mountains are the main representative of these small dry interior mountain ranges in Los Angeles County. The core of this range is in good condition and has not been heavily disturbed by human use. As urban growth continues in the San Fernando and Simi Valleys and the Saugus-Newhall area, these mountains will become isolated from surrounding natural areas. As this occurs, it will become an important corridor for gene flow and species movement between the San Gabriel and Santa Monica Mountains, via the Simi Hills."

The SEA is a land use management strategy. Most of the land within SEAs are in the private domain which poses a problem to the owners and a challenge to the County as to their future development. In addition, certain biological assumptions have been used to initially establish the SEA boundaries which may no longer be supported in the ecological literature (vegetation types, migration corridors, etc.).

The County has established SEATAC, a group of professionals who review proposed developments that are located in or near the designated SEA. The SEATAC is and has been reviewing the biota material in this application and will forward their comments to the decision makers.

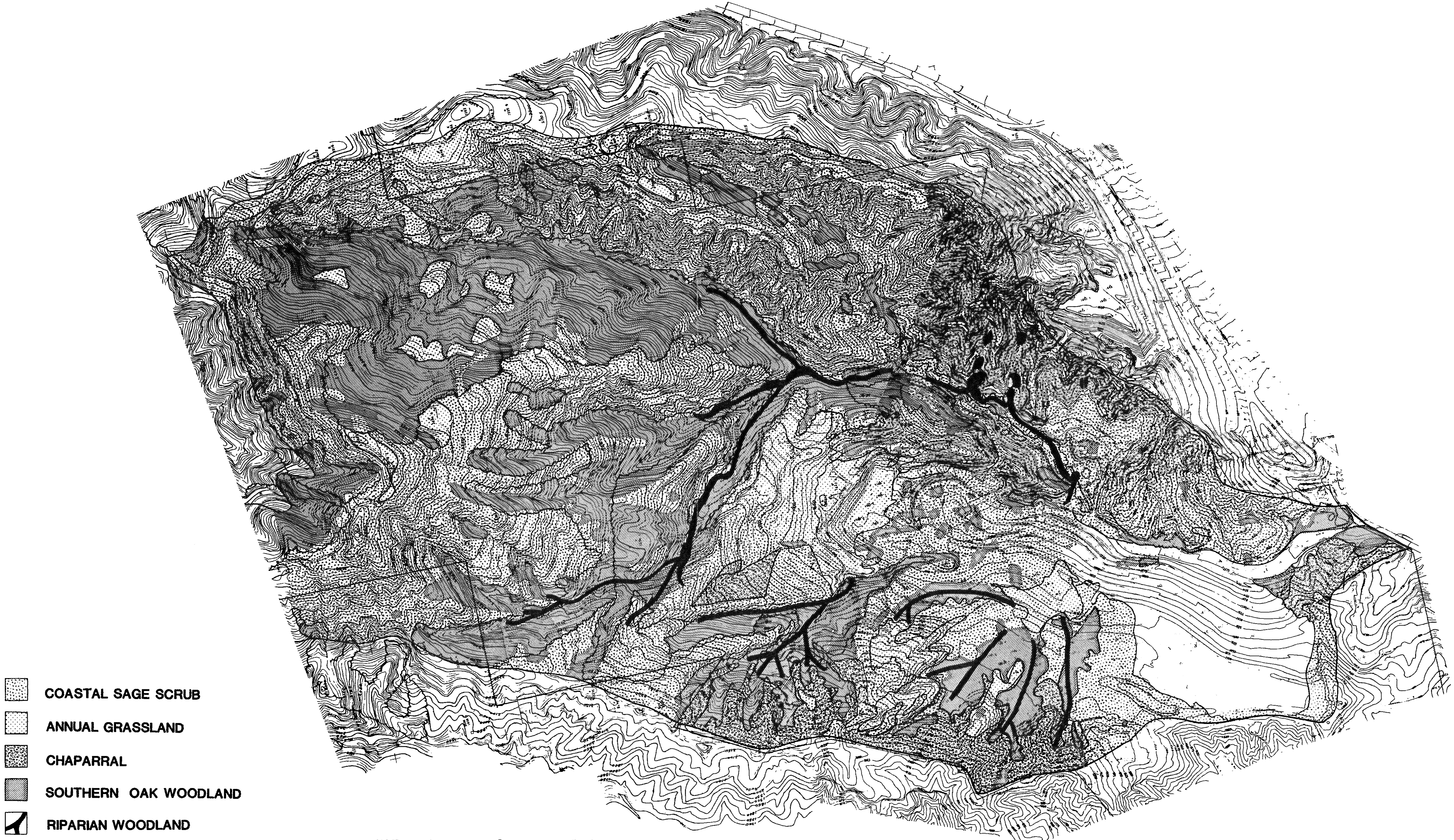
SEA 20 was established as a representative area within the small dry interior mountain ranges of Los Angeles County. It was further recognized for its unique assortment of oaks and as an important corridor for gene flow and species movement between the San Gabriel and Santa Monica Mountains. This report discusses the impacts to the biological resources that would result from the proposed extension of the sanitary landfill into SEA 20.

Flora

Major vegetation types have been mapped on the attached map (Figure 24). These include coastal sage scrub, chaparral, annual grassland, southern oak woodland, and riparian woodland. Acreages of each of these major vegetation types that are located within the boundaries of the entire landfill extension project, including City and County land that has yet to be disturbed, are as follows:

Coastal Sage Scrub	-	427 Acres
Chaparral	-	30 Acres
Annual Grassland	-	50 Acres
Southern Oak Woodland	-	186 Acres
Riparian Woodland	-	13 Acres

The oak and riparian woodlands are noteworthy due to their extent and full maturity while the grasslands provide a valuable habitat for rodents which are a primary food source for raptors. The scrub is a habitat for many of the wild species of concern and the chaparral provides a habitat for deer and other large mammals. The



NOTE· Large scale map included in Appendix C.

Source: ULTRASYSTEMS, INC.	Title: VEGETATION MAP	24

dominant tree species is California Live Oak (Quercus agrifolia), but large specimens of Canyon Oak (Quercus chrysolepis), California Sycamore (Platanus racemosa), California Walnut (Juglans californica), Big Leaf Maple (Acer macrophylla), and Big Cone Douglas Fir (Pseudotsuga macrocarpa) are also abundant in the canyon bottoms and on the higher mountain slopes.

The specific plant species found on-site are listed and identified by plant community in Table 7.

To date no rare or endangered plants including Nevin's Barberry (Berberis nevinii), Slender Horned Corizanthe (Chorizanthe leptoceras), Many-Stemmed Dudleya (Dudleya multicaulis), Santa Susana Tarweed (Hemizonia minthornii) that could occur on the site have been found.

As noted in the County's discussion of SEA No. 20, oak woodlands are of major concern in this SEA. Oaks of the southwestern United States have been recently studied by Dr. Kevin Nixon of Cornell University. His revision of the oaks as they relate to the Sunshine Canyon site represents the most current oak classification for Southern California oaks, and is summarized as follows:

Red (or Black) Oaks include oaks with tomentose endocarp:

Quercus wislizenii
Q. agrifolia
Q. kelloggii
Q. chrysolepis
Q. dunnii

TABLE 7

PLANT SPECIES FOUND ON THE SUNSHINE CANYON LANDFILL SITE,

BY PLANT COMMUNITY (Source: Dole and Fisler 1978; Hanes 1985-86)

Scientific Name	Common Name	Plant Community: Grassland	Chaparral	Coastal Sage Scrub	Southern Oak Woodland	Riparian Woodland
Acer macrophyllum	Big-Leaf Maple					C*
Adenostoma fasciculatum	Chamise		D			
Ambrosia psilostachya	Western Ragweed	I		I		
Amsinckia sp.	Fiddleneck	C	C			
Artemisia californica	California Sagebrush			D		
Artemisia douglasiana	Mugwort					I
Asclepias californica	Milkweed	I	I			
Avena barbata	Slender Wild Oats	C				
Avena fatua	Wild Oats	D				
Baccharis glutinosa	Mulefat					D
Baccharis pilularis	Coyote Bush			I		
Brassica nigra	Black Mustard	D				
Bromus diandrus	Ripgutgrass	C	I	C	C	I
Bromus rubens	Foxtail Chess	C	C	C	C	C
Calystegia macrostegia ssp. *intermedia*	Morning Glory	I		I		
Ceanothus crassifolius	Hoaryleaf Ceanothus		C			
Ceanothus oliganthus	Hairy Ceanothus		I			

* D = dominant, C = common but not dominant, I = infrequent (one to few sightings)

TABLE 7 (Continued)

Scientific Name	Common Name	Plant Community: Grassland	Chaparral	Coastal Sage Scrub	Southern Oak Woodland	Riparian Woodland
Centaurea melitensis	Tocalote	C*		C		
Cercocarpus betuloides	Mt. Mahogany		C			
Chenopodium murale	Goosefoot	I				
Cirsium californica	California Thistle	I	I			
Cirsium vulgare	Bull Thistle	I	I	I		I
Clarkia purpurea	Purple Clarkia	I		I		I
Clarkia unguiculata	Elegant Clarkia	I		I		
Corethrogyne filaginifolia	Chaparral Aster	I	I	C		
Datura meteloides	Jimsonweed	I		I		
Elymus condensatus	Chaparral Rye		I			
Eremocarpus setigerus	Dove Weed	C		I		
Eriodictyon crassifolium	Thickleaf Yerba Santa	I	I	C		
Eriogonum fasciculatum ssp. *fasciculatum*	California Buckwheat		I	C		
Eriophyllum confertiflorum	Golden Yarrow		I	I		
Erodium cicutarium	Filaree	I		I		
Fraxinus dipetala	Flowering (Foothill) Ash	I				
Galium angustifolium ssp. *angustifolium*	Narrowleaved Bedstraw		I		I	
Galium aparine	Annual Bedstraw		I	I		
Gnaphalium palustre	Lowland Cudweed	I		I		
Haplopappus pinefolius	Pine Bush			C		

* D = dominant, C = common but not dominant, I = infrequent (one to few sightings).

TABLE 7 (Continued)

Scientific Name	Common Name	Plant Community: Grassland	Chaparral	Coastal Sage Scrub	Southern Oak Woodland	Riparian Woodland
Helianthus gracilentus	Slender Sunflower		I*			
Hemizonia fasciculatum	Tarweed	C		I		
Heteromeles arbutifolia	Toyon		C			
Heterotheca grandiflora	Telegraphweed	I				
Juglans californica	California Walnut				C	
Keckiella cordifolia	Heartleaved Penstemon		I		I	I
Lactuca serriola	Prickly Lettuce	I				
Lotus scoparius ssp. *scoparius*	Deerweed		I	I		
Lupinus bicolor ssp. *marginatus*	Bicolored Lupine	I				
Lupinus formosus	Bush Lupine			I		
Malacothamnus fasciculatus var. *laxiflorus*	Chaparral Mallow		C	I		
Marah macrocarpus	Wild Cucumber		I	I		
Marrubium vulgare	Horehound	I		C		
Mimulus longiflorus ssp. *longiflorus*	Sticky Monkey-Flower		C	I		
Nicotiana glauca	Tree Tobacco			C		I
Paeonia californica	California Peony		I			
Phoradendron tomentosum ssp. *macrophyllum*	Mistletoe				I	I

* D = dominant, C = common but not dominant, I = infrequent (one to few sightings).

TABLE 7 (Continued)

Scientific Name	Common Name	Plant Community: Grassland	Chaparral	Coastal Sage Scrub	Southern Oak Woodland	Riparian Woodland
Platanus racemosa	California Sycamore					C*
Prunus ilicifolia	Holly-leaved Cherry		I			
Pseudotsuga macrocarpa	Big-cone Douglas Fir		I		C	
Quercus agrifolia	California Live Oak				D	C
Quercus berberidifolia (*dumosa*)	Scrub Oak		C			
Quercus chrysolepis	Canyon Oak				C	
Rhammus ilicifolia	Holly-leaved Redberry		C			
Rhus ovata	Sugarbush		C		I	
Rhus trilobata	Squawbush			I	I	I
Ricinis communis	Castor-Bean			I		I
Salix lasiolepis	Arroyo Willow					C
Salvia apiana	White Sage			C		
Salvia leucophylla	Purple Sage			I		
Salvia mellifera	Black Sage		C	C		
Sambucus mexicana	Blue Elderberry			C	I	I
Senecio douglasii	Creek Senecio	I		I		I
Sisybrium altissimum	Tumble Mustard	I				
Soncus asper	Prickly Sow Thistle	I		I		
Stephanomeria virgata	Stephanomeria	I		I		
Toxicodendron diversilobum	Poison-Oak		C	I	I	
Tricostema lanatum	Wooly Blue Curls		I	C		

* D = dominant, C = common but not dominant, I = infrequent (one to few sightings).

TABLE 7 (Continued)

Scientific Name	Common Name	Plant Community: Grassland	Chaparral	Coastal Sage Scrub	Southern Oak Woodland	Riparian Woodland
Tricostema lanceolatum	Vinegar-Weed	C				
Typha latifolia	Cattail					I
Verbena lasiostachys	Verbena				I	
Yucca whipplei ssp. *parishii*	Our Lord's Candle			C		
Zauschneria californica ssp. *californica*	California-Fuchsia		I		I	

* D = dominant, C = common but not dominant, I = infrequent (one to few sightings).

White Oaks include oaks with glabrous endocarp:

Quercus douglassii

Q. lobata

Q. turbinella

Q. dumosa complex

- Q. berberidifolia - tuberculate cup scales; widespread
- Q. cornelius - mulleri - eastern slope of Laguna Range
- Q. dumosa - extreme coastal southern California (reddish stems and cup scales)
- Q. durata - associated with Q. engelmannii, Pasadena to Claremeont
- Q. turbinella californica - central to northern California

The dominant oak on the Sunshine Canyon site is Quercus agrifolia (California Live Oak). This tree forms extensive oak woodlands in deep canyon bottoms and on major slopes with a northern aspect. At the higher elevations, associated with Pseudotsuga macrocarpa (Big-cone Douglas Fir), Quercus chrysolepis (Canyon Oak) is dominant. This community recently has been named Bigcone Spruce-Canyon Oak Forest (Holland 1986).

Within stands of chaparral on protected slopes, scrub oak occurs infrequently. In previous reports, this oak has been designated Quercus dumosa (Scrub Oak), but according to the new classification is Quercus berberidifolia (Barberry-leaved Oak). Another shrub form of oak is found in the eastern Santa Susana Mts., Quercus dunnii (Dunn's Oak). Repeated and extensive field investigations of the Sunshine Canyon site by Dole & Fisler (1978) and Hanes (1985-86) have not revealed this prickly-leaved oak. A recent oak tree survey performed for the landfill extension site did not reveal any Dunn's Oak on the site (see Oak Tree Survey Report, Appendix II, Volume IIB).

Fauna

Primary information regarding the Fauna on the site was obtained from an on-site survey, a laboratory analysis of scat from top predictors in the area, and The Natural Diversity Data Base Report for the area produced by the California Department of Fish and Game. Secondary information about Fauna in the area came from the Placerita Canyon State Park Nature Checklist, the Christmas Bird Counts of the San Fernando Valley Chapter of the National Audubon Society (1982-1985), and other printed materials.

In November, 1986 the City of Los Angeles was contacted specifically for any species lists from O'Melveny Park. The inquiry yielded negative results.

Appendix C of Volume II A contains a list of the vertebrate species which may be present on the site. The list contains eight amphibian, 25 reptile, approximately 170 bird and 48 mammal species. Many of the animal species which may be on the site are found on various classification listings by Federal, State, private groups and professional societies. These various listings are summarized in Table 8 and described in the following text.

TABLE 8

SUMMARY OF TERMS
FOR LOW POPULATION SPECIES

Term	Legally Defined?	Organization
endangered	yes	United States/California
rare	yes	California
fully protected	yes	California
category 2	no	U.S. Fish and Wildlife
sensitive species	no	U.S. Forest Service, B.L.M.
special concern	no	California Fish and Game
special animals	no	California National Div. Data Base
blue list	no	National Audubon Society
special concerns	no	National Audubon Society
"threatened"	no	Soc. Study Amphibs. Reptiles

Both California and the Federal government have legally protected certain low population species. Endangered species are in such low numbers throughout their range that they may become extinct in the near future if present trends continue. Rare (state of California; federal equivalent is "threatened species") species now are found only in a small part of their original range; if present unfavorable conditions persist, they may soon find themselves in the position of endangered species. A list of California's rare and endangered species can be found in Wertz (1984). The state of California also regulates the take by the public of certain native species not endangered or rare; some species of vertebrates may not be taken or possessed at any time in the state (California Administrative Code, 1986) and are called fully protected.

In addition, a number of species can be considered for other classifications:

"of special concern in (California). Those species which may become listed as rare, threatened, endangered, or protected in the near future due to habitat modification or destruction, excessive collecting, disease, or impact of exotic species" (Jennings, 1983).

or

"sensitive species .... are under study for classification as threatened, endangered or rare, or have low population densities, or a highly restricted range" (Laudenslayer and Grenfell, 1983).

A checklist of the amphibians and reptiles of California listed as protected or special concern animals can be found in Jennings (1983). A list of the vertebrates in the state which are protected or sensitive (as listed by the Forest Service or the Bureau of Land Management) can be found in Laudenslayer and Grenfell (1983). The California Natural Diversity Data Base uses the term "element" to describe low population species or unusual habitats. One of their elements are special animals and these appear in the computer printouts for an area.

Another source of low population species names can be found in the U.S. Fish and Wildlife Service (1985) listing of vertebrate wildlife under review. A number of species which appear on the site fall within their category 2 which is defined as:

"comprises taxa for which information now in possession of the Service indicates that proposing to list as endangered or threatened is possibly appropriate, but for which conclusive data on biological vulnerability and threat are not currently available to support proposed rules. The Service emphasizes that these taxa are not being proposed for listing but this notice will encourage investigation of the status and vulnerability of these taxa, and consideration of them in the course of environmental planning."

Private groups and professional societies also issue lists of problem species. One of the best known of this type is the Blue List from the National Audubon Society (Tate, 1986) which names bird species. The Blue List is an "early warning" list for the United States. In fact, some species on the list are common in California. Dole and Fisler (1978) listed 14 bird species which might occur on the Sunshine site as being blue-listed. The current list (Tate, 1986) would show 9 birds listed and 8 species in a new category called special concerns. An example of a list from a professional group is from the Society for the Study of Amphibians and Reptiles (Edwards and Pisani, 1976) which use the term "threatened" for one of their low population category listings.

Paulik (1976) provides information on the flora and fauna of O'Melveny Park. Garrett and Dunn (1981) provide information about the abundance of bird species in the southern California area while the Jennings (1983) article describes the abundance of reptile and amphibian populations. Mollally (1987) provides additional data on the potential species to be found in the Santa Susana Mountains. Using all these sources, the list of species potentially possible or actually observed on the site can be reduced to the following species which are protected by law or are of concern.

Table 9 lists species of concern potentially or actually found on the Sunshine Canyon Site (see Appendix C, Volume IIA for a more detailed discussion of each species). There are presently no legally defined rare species on the Sunshine Canyon site. Two species (ensatina and California legless lizard) are listed although the subspecies that have low populations are found elsewhere in the state. A third may be in the same situation (see horned lizard discussion in Volume II A, Appendix C).

TABLE 9

SPECIES OF CONCERN POTENTIALLY OR ACTUALLY
FOUND ON SUNSHINE CANYON SITE
(SOURCE: WEINTRAUB, 1986)

Scientific Name	Common Name	Listing	Status on Site
(Ensatina eschscholtzi)+	Ensatina	Special Concern	Common in Canyon
(Scaphiopus hammondi)	Western Spadefoot	Special Concern	Low Probability
(Bufo microscaphus)	Southwestern Toad	Special Concern	Unknown
(Hyla cadaverina)	California Treefrog	Special Concern	Unknown
(Phrynosoma coronatum)*	Coast Horned Lizard	Special Concern	Good Population
(Anniella pulchra)	California Legless Lizard	Special Concern	Low Probability
(Lichanura trivirgata)	Rosy Boa	Special Concern	Low Chance
(Lampropeltis zonata)	California Mountain Kingsnake	Special Concern	Low Probability
(Gymnogyps californianus)	California Condor	Endangered	Not Expected On Site
(Elanua caeruleus)	Black-shouldered Kite	Fully Protected	Not Breeding Area
(Circus cyaneus)	Northern Harrier	Blue List	No Breeding Pairs
(Buteo swainsoni)	Swainson's Hawk	Rare	Low Probability of being seen, lower Breeding potential

* Species actually seen in 1978 by Dole and Fisler.
\+ Species actually seen in 1986 by Weintraub.

TABLE 9 - Continued

Scientific Name	Common Name	Listing	Status on Site
(Aquila chrysaetos)	Golden Eagle	Fully Protected	Not Breeding Area
(Falco peregrinus)	Peregrine Falcon	Endangered	Unlikely Breeder in Area
(Falco mexicanus)+	Prairie Falcon	Blue List	Transient in Area
(Athene cunicularia)	Burrowing Owl	Special Concern	Status on Site Unknown
(Progne subis)	Purple Martin	Special Concern	Transient
(Polioptila melanura)	Black-tailed Gnatcatcher	Local Concern	Unlikely on Site
(Vireo bellii)	Bell's Vireo	Endangered	Low Probability of Breeding
(Plecotus townsendii)	Townsend's Big-eared Bat	Category 2	Low Probability of Occurrence
(Eumops perotis)	Western Mastiff Bat	Category 2	Unknown
(Bassariscus astutus)	Ringtail	Fully Protected	Low Probability of Occurrence

\+ Species actually seen in 1986 by Weintraub.

There are potentially three endangered species in the area: California Condor (non-existent at the present time since the last known bird was captured), Peregrine Falcon (low probability as transient), and Bell's Vireo (low probability of breeding on site due to habitat requirements). There is potentially one rare species: Swainson's Hawk which might be a transient to the area. Fully protected species include Southwestern Toad (status unknown on site), Horned Lizard (only if subspecies is blainvillei), California Mountain Kingsnake (low probability in area), Black-shouldered Kite (possible in area), and Golden Eagle (canyon potentially part of feeding territory). Category 2 species not already mentioned include Townsend's Big-eared Bat (unlikely in area) and Western Mastiff Bat (status unknown in area). Special concern species not already mentioned include the Western Spadefoot Toad (low probability of being on site), California Treefrog (status unknown), and Rosy Boa (low probability on site). Sensitive species include the Prairie Falcon, a transient in the area. Listed species from the Audubon Society not already mentioned include Northern Harrier (winter visitor), Burrowing Owl (low probability), Purple Martin (transient), and Black-tailed Gnatcatcher (unlikely in area). Ensatina and the California Legless Lizard have subspecies in other parts of the state with low population problems. The California Natural Diversity Data Base shows no record of any special animals or special plants on the site.

Potential Impacts

The proposed extension of the sanitary landfill would result in the filling of the entire Sunshine Canyon interior and cutting of the interior ridges within Sunshine Canyon for fill material.

Existing vegetation and wildlife in the extension area would be destroyed or displaced. However, the tops of exterior ridges and interiors of other canyons within the landfill ownership's boundaries will be left in their present conditions.

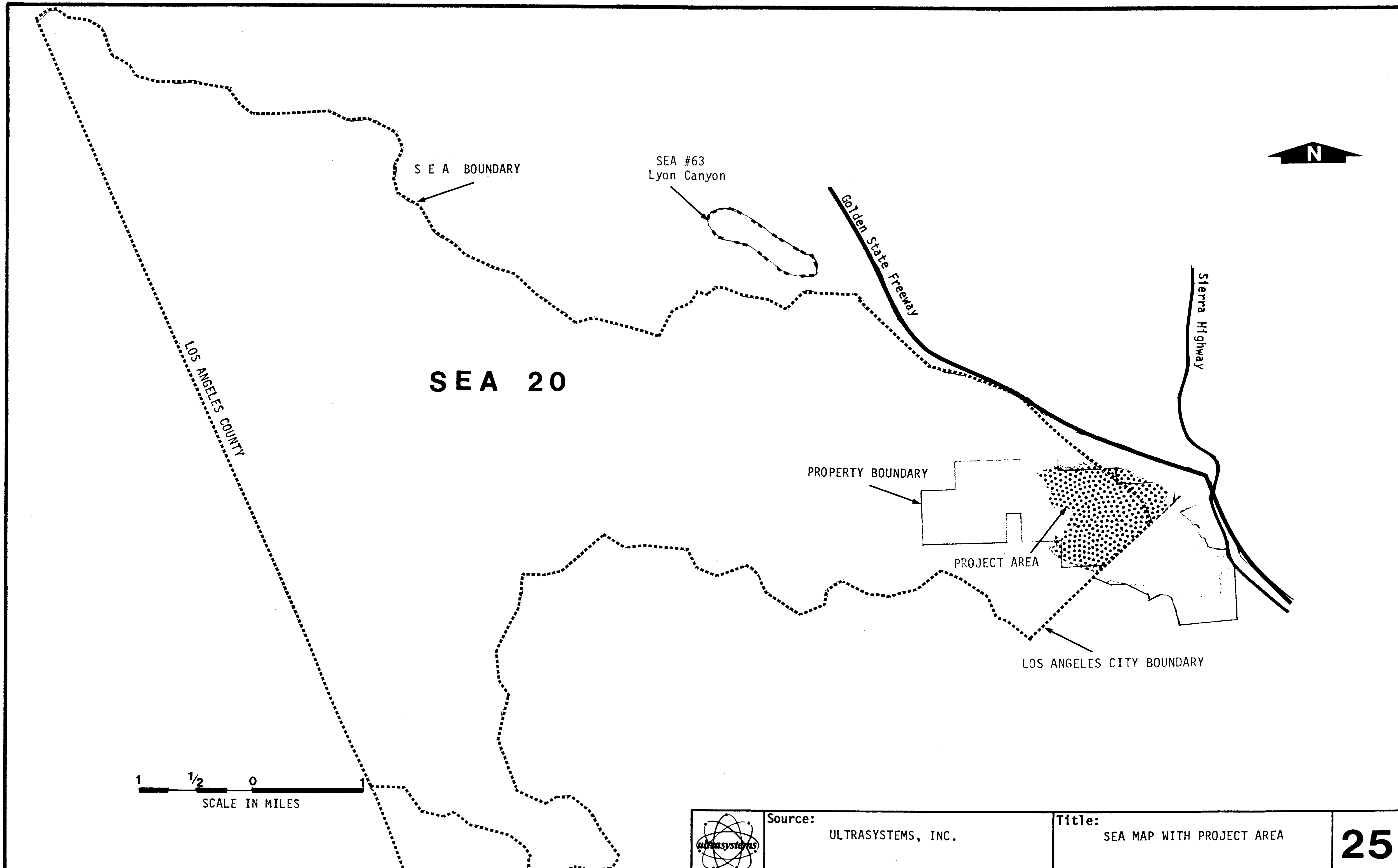
Repeated walk-over surveys and an extensive oak tree survey conducted for the landfill site (Appendix II, Volume IIB) have not revealed Dunn's Oak. The oak tree survey consisted of a scientific sampling program designed to calculate the number of oaks within the proposed landfill extension area that would be removed due to the operation. The survey results indicate that a statistical mean of 8,331 trees are located within the project area. Assuming a 10 percent standard margin of error, the lower statistical limit is 7,538 trees and the upper limit is 9,124 trees. Mitigation measures proposed for an oak tree replacement program will be based on this number of trees.

The project applicant owns approximately 5% or 1,066 acres of the area within the County's SEA No. 20 in the Santa Susana Mountains (see Figure 25). The proposed extension of the sanitary landfill in Sunshine Canyon would remove approximately 2-1/2% or 542 acres of SEA No. 20. This removal would reduce the populations of flora and fauna in the SEA and the extent of impact would vary with each species. The remaining 2-1/2%, or 524 acres, which includes a portion of East Canyon, will remain undisturbed under the application.

The loss of vegetation in the project area will represent a significant unavoidable adverse impact.

Sunshine Canyon is a separate watershed from the numerous other canyons found in SEA 20. Removal of its habitat would therefore have no direct negative impact on the biota or habitat of these other watersheds.

There are other possible impacts of the proposed project on species in surrounding areas including interference in the gene pool flow of species in the Santa Susana Mountains. The close proximity of the eastern Santa Susana Mountains to the foothills of the San Gabriels would have made them important (historical) dispersal corridors for organisms. Presently, several man-made barriers such as freeways east of the Sunshine Canyon site can act as a barrier to



Source: ULTRASYSTEMS, INC.

Title: SEA MAP WITH PROJECT AREA

25

such gene flow. The current major dispersal corridor between the Santa Susana Mountains and the areas to the east occurs to the northwest of the Sunshine Canyon site. The impact of the proposed project on gene flow could be very severe if the project was in the center of the Santa Susana Mountains; however, the project is on the very eastern edge of the range. In addition, if placed in the context of the earth's natural biological evolutionary timeframe, the life span of a landfill is short. When the capacity of the landfill is exhausted, it will be completely covered over with soils, and will eventually revert back to a natural state.

The project could provide a barrier for gene flow between the foothills of the San Gabriel Mountains to the east and the Santa Susana Mountains (one of the reasons given for the formation of SEA No. 20). This barrier effect, however, is already in place for many species. Using an aerial photograph of the site from 1985 (scale 1" - 1,800') and an ocular micrometer, the width of the transportation corridor east of the entrance to the present landfill is about 514 feet (157m). This includes a frontage road, buildings, parking areas, and Interstate 5 (with about 14 lanes of traffic). This barrier widens to about 1,337 feet (408m) to the north when the Antelope Valley Freeway merges with I-5. On the northern parts of the site, distances across I-5 range from about 309 to 411 feet (94 to 125m).

Highways having widths similar to that of the existing route can act as effective barriers for movement of most mammals. Variables affecting movement of mammals includes their preferred habitat (grassland forms are more likely to cross open spaces), the habitat on the other side of the road and the median strip (if vegetation is present), and the width of the roadway. Van der Zande et al. (1980) cites studies where roadways acted as a barrier even to butterflies and birds. These authors indicate it may be partially due to the lack of vegetation on the right-of-way and to the extreme microclimate above the road. Road surface temperatures may create their own microclimates above the road surface which act as a physical barrier. Oxley et al. (1974) pointed out that: "movement across a barrier does not, in itself, insure gene flow between the populations on either side of the barrier. The presence of local demes...agonistic behaviour...or the timing of arrival with respect to the breeding season...could prevent assimilation of an immigrant into a gene pool." Any crossings by large animals would occur more often to the northwest of the Sunshine Canyon site as opposed to across the freeway corridor east of the site.

Not only is there an immediate effect of the roadway on animal populations, but there may be a long-distance effect as well. Van der Zande et al. (1980) found that birds inhabiting an open field habitat on either side of a busy road showed depressions of their numbers as far as 500-600 m (1,640 to 1,969 feet) away from the road itself. These authors suggested that the roadway may have polluted the surrounding land, changed the runoff patterns (hydrology) of the area, and increased the noise, vibration and visual stimuli along the road. One could therefore predict a larger impact zone on animals than the area the project itself occupies, but the actual impact area around the proposed landfill cannot be accurately estimated.

Birds of the San Gabriel Mountains which are migratory species with good dispersal abilities and which have been observed in O'Melveny Park will probably not find the landfill to be a barrier to movement.

Montgomery Slatkin, in "Gene Flow and the Geographic Structure of Natural Populations" (Science, 05-15-87), argues that gene flow plays a conservative role in a species such as most vertebrates whose local populations persist for long terms. High rates of gene flow in such populations would prevent genetic differentiation to local conditions and might even be selected against. Gene flow becomes very important in species with unstable population structure, either because of frequent extinction and recolonization of local population or because of occasional large-scale changes in geographic range. Many kinds of species, especially parasites and "weedy species," are known to have unstable local populations.

Moving the SEA No. 20 boundary to the head of Sunshine Canyon would increase the gene dispersal distance about one-half mile. The significance of this increased distance between the two mountain gene pools is variable as well as difficult to assess due to species differences. For plants and animals with low dispersability, the additional half-mile distance would further restrict gene flow between the two complimentary populations. This restriction would be added to the existing barrier created by Interstate 5 and Highway 14 North, northeast of the site. For plant and animal species with high dispersability, such as most pollen and birds, the added distance would probably not cause a significant negative impact on gene flow.

Those species with high dispersability would be able to maintain a high degree of genetic diversity in both mountain populations. This genetic variability would enable populations to keep pace with future shifts in the environment due to climatic changes and even man-made changes such as air pollution. Alternatively, those species with low dispersability would tend toward lower genetic diversity through time due to inbreeding within the populations of each mountain range. This would be the case especially in the Santa Susana populations due to the smaller size of the mountain range as compared to the much larger San Gabriel Mountain range. Such a reduction in genetic variability can be viewed as potentially good or bad. Plant and animal populations with diminished genetic variability would be less able to cope with future environmental changes. Consequently, they could become weakened and die off. On the other hand, inbreeding may lead to the development of gene combinations that are uniquely suited to local conditions. That is, isolation of small inbreeding populations may result in the creation of new species suited to restricted local conditions.

Therefore, to assess the gene flow impact resulting from the extension of the Sunshine Canyon Landfill to the west (contraction of the SEA No. 20 boundary), to the head of Sunshine Canyon, is impossible to predict with any degree of certainty. A genetic computer model for Mule Deer in SEA No. 20 and the Santa Susana

Mountains shows that the project would not lower deer populations to below the minimum viable populations for the short-term. The model predicts that the deer population on the Santa Susana Mountains (estimated at 2,040) might be susceptible to extinction because of genetic inbreeding in 1,000 years. Details of this model can be found in Volume II A, Appendix C, Fauna of Sunshine Canyon. The gene flow alterations that might result from the project would be so subtle as to not be measurable.

Probably the most important process maintaining species in the area involves habitat cohesiveness. The Santa Monica Mountains have a higher relictual species list of plants ("monotypic or ditypic genera confined to California or to a part of California and a neighboring region, as well as all species or pairs of species that are the only representatives of their genera in California and are separated from other species of their genera by a considerable distance") than the surrounding areas (from Peter Raven's article on "The California Flora" published in Terrestrial Vegetation of California, 1977, Barbour and Major, editors). Recent biogeographical interpretations (see James Brown, 1986) and two decades of interaction between the MacArthur-Wilson model and the complexities of mammalian distributions (Biol. J. Linn. Society 28:231-251) would predict that, as habitat fragmentation occurs in the Santa Monica Mountains, such relictual species and other assemblages of species which have historical links to the area may be susceptible to extinction. Still other species will be lost if minimum area requirements are not met (as more islands are created from the original habitat). In these cases gene flow will not help maintain these organisms. Other groups of animals (good dispersers such as insects) might have species numbers in the area which are in equilibrium between the extinction rates in an area and the likelihood of immigration of new species. A potential land bridge between the San Gabriels, Santa Susanas, Simi Hills, and into the Santa Monicas might restore such species numbers (but not necessarily a specific species) which has experienced local extinction.

The extension of the landfill will require the relocation/ realignment of the Southern California Edison (SCE) transmission line which presently crosses the canyon near the City/County boundary, within the Significant Ecological Area (SEA). This line will be relocated by SCE at BFI's expense. Although the exact route for relocation has not been finalized, it is expected to remain on the operator's property. The line end points on either side of the landfill will be maintained. The actual reroute will be jointly defined by the applicant and the utility company.

The relocated transmission line route is anticipated to span the largest portion of the canyon to minimize vegetation and terrain disturbances. Access roads may need to be constructed to build and service the line. These construction activities could create some potential effects on native vegetation depending on the ultimate location of the line and the service roads. Part of the line will be visible. Once the route is determined, if potential impacts are identified, then supplemental environmental analysis must be performed for the line relocation and the results must be included in an addendum to this EIR. However, the relocation of the line is not expected to create a significant impact.

Another potential impact normally associated with landfills is the introduction of vectors or non-native fauna. Rodents are commonly considered as a potential nuisance and health problem as are flies; whereas, birds, primarily seagulls, are not normally considered to be concerns of disease or to create health problems. The seagulls, however, if left uncontrolled can create problems for residential areas by conveying and occasionally dropping bits of refuse during overflights. Unfortunately, the use of poisons or string deflectors for vector control creates the potential for secondary poisoning or injury to carnivores.

Because of the vector control measures which have been and are currently being employed at the existing landfill, vectors have not been a problem.

Mitigation Measures

These mitigation measures will be implemented in the project's design and operation.

- A 100+ acre area of the project site, located southeast of the existing City landfill, will be set aside by the applicant for a nature preserve. This is part of the 120 acres that were originally designated as a buffer zone. Approximately 20 of the 120 acres are used for energy-related activities. The area will be left in its natural state and serve as a buffer between the landfill operation and other properties.

- The project plan will obtain all cover material within the canyon to retain soil composition compatible with native flora, and leave the surrounding topography undisturbed.

- The proposed project (current plan) was developed to minimize the total area to be physically altered (2-1/2% or 542 acres of the 22,000± acres SEA 20). This reduction results from the project's cover material area consolidation. In addition, there were no Dunn's Oaks found in the project area or on surrounding areas of the site. Therefore, none of the most noteworthy plants (Dunn's Oak) in SEA 20 will be destroyed by the project.

- Clearing of existing on-site vegetation for operations will be done only when necessary to provide for new cut and fill areas of the project site.

- Revegetation of slopes and fill areas with appropriate native flora will be accomplished to support local fauna. The proposed Revegetation Program is included in Appendix H, Volume IIA.

- Periodic monitoring of the site and the general area for vector activity will be performed by the landfill operator. Corrective measures will be taken should a problem be detected. In addition to the daily refuse cover effort, which has been very effective, other specific measures will be introduced. Rodent-related problems will be controlled in accordance with recommendations from the County Department of Health Services and the California State Department of Health. Flies would be controlled by a trap-and-destroy program. The use of sprays would be avoided to the fullest extent possible. Gull activity can be effectively eliminated by stringing wire or monofilament fishing line above the landfill working areas, at intervals of one hundred to one hundred fifty feet. This disrupts the gulls' circling and landing patterns to the extent that they do not attempt to land or congregate to feed on the refuse.

- The transmission line relocation should span the largest portion of the canyon and utilize existing on-site service roads to the extent possible in order to minimize vegetation and terrain disturbances. Environmental analysis will be conducted for identified potential impacts once the relocation route is determined.

- The loss of trees, including oaks, will be mitigated by the following specific measures:

  - Cooperate with the Los Angeles Fire and Forestry Department, as requested, to upgrade their existing nursery facility. Provide seed collected from local Sunshine Canyon sources to be grown at this facility for planting in Sunshine Canyon area not to be disturbed by project and throughout the County.

  - Replace lost oak trees with seedlings at a rate of 2:1. This replacement would be done in cooperation with Los Angeles County Fire and Forestry to include revegetation throughout the County.

- Provide protection measures for those trees not disturbed by the project, on the construction fringe, that can be saved.

- Implement streambank stabilization and revegetation on lower Sunshine Creek.

- Implement research efforts with the County's Forestry Department to determine the cause of unsuccessful oak regeneration throughout the County.

° The external slopes and peaks of the ridgelines surrounding the Sunshine Canyon Landfill extension shall remain undisturbed. The upper portions of the internal slopes will also be left undisturbed when possible. Grading of portions of these internal slopes will only be performed when required to control erosion and run-off. Leaving these areas of the ridgelines in an undisturbed state will provide cover for fauna migration and foraging.

° Property northerly of the project fill area under the landfill operator's ownership on the Sunshine Canyon side of Interstate 5 shall be retained in its natural state to provide shelter for migrating or foraging fauna using the freeway overpass (Weldon Canyon Road) for movement across Interstate 5.

° Future landfill operations will be restricted from extension into East Canyon which is adjacent to the proposed project area and is currently under BFI ownership. The specific future disposition of this land shall be determined by the decision-makers based on consideration of recommendations provided by SEATAC, other responsible public agencies, concerned citizens groups, and the applicant.

3.2.5 Archaeological, Historical and Paleontological Resources

Environmental Setting

A surface walk-over survey was conducted over the Sunshine Canyon area to ascertain the nature and extent of archaeological and historical resources. No archaeological and/or historical sites were found on the property during the survey, nor was a previously identified and recorded archaeological site (LAn-816), located near the bottom of the Canyon, relocated.* The area did not appear to be well-suited to aboriginal habitation and thus the probability of locating any sites was low, as expected.

On April 13, 1987, a paleontology walk-over survey and literature search was conducted. The survey concentrated on the area of the project site which is to be utilized for the proposed landfill.

The literature search indicated that the project site is in an area underlain by the late Miocene-early Pliocene Towsley Formation consisting of coarse sandstone and conglomerate, shale, and siltstone. This unit is marine and is known to contain localized bone beds and vertebrate remains of Miocene age.**

During the site walk-over survey sparse fossil remains were encountered. These included Pelecypods (clams) and Gastropods (snails) in the northeastern portion of the canyon and carbonized plant remains in several other areas.

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* See Appendix D, Volume IIA, Archaelogical and Paleontological Reports.

** Ibid.

The fossils encountered on the site were not significant in themselves; however, there is a high degree of probability that significant fossil resources may be recovered from the existing areas underlain by fossiliferous marine sedimentary rocks of late Miocene age. The Towsley Formation in Sunshine Canyon is known to contain fossils in areas adjacent to the site. The fossils contained in these units elsewhere in the Soledad Embayment have proven to be of high scientific value. It has yielded three very significant localities in the Sylmar area. These localities have produced important representatives of Otarioid seals, Sirenian Sea Cows, and a Mysticete whale.

In excavating the present landfill site, no fossils have been discovered nor recovered.

Potential Impacts

The archaeological survey team did not locate any archaeological or historical sites on the property; however, any sites which may not have been detected and exist on the property would be disturbed by the cut-and-fill activity of the project.

There is a possibility that the Sunshine Canyon site contains as yet undiscovered paleontological resources. These resources have the potential of being scientifically valuable; however, the site can be developed and still protect the paleontological resources of the area if mitigation measures are employed.

Mitigation Measures

- Prior to the initiation of initial earth excavation, specific sections of the project area will be resurveyed as a precautionary measure to minimize potential loss of undiscovered archaeological or paleontological resources.

- The landfill equipment operators will also be instructed to watch for archaeological and paleontological resources and immediately report any findings to their supervisor. If any evidence of aboriginal habitation or fossils are discovered during earth-moving activities, landfill operations will cease in that particular area until an archaeological expert or qualified paleontologist has made a determination as to the significance of the site or findings. Any significant archaeological or paleontological resources could then be recovered prior to resuming activities in that area of the landfill.

- Periodic in-grading monitoring by a paleontologist will occur when grading takes place in the Miocene-early Pliocene Towsley Formation.

- An archaeologist and paleontologist will be on-site during major infrastructure work requiring excavation.

3.2.6 Air Quality

Environmental Setting

The climate in Southern California is classified as mediterranean with warm, dry summers and mild, wet winters. The annual average rainfall is 12 to 14 inches for the City of Los Angeles but monthly and annual totals can vary widely. Mountainous foothills, such as the project site, generally receive more rainfall than the surrounding areas.

The prevailing daytime winds are from the southwest (sea breezes) during the spring, summer, and autumn. At night, and during the winter months, the circulation is reversed and a northerly land breeze predominates. The sea breezes are usually stronger than the land breezes. In mountain valleys a secondary wind pattern occurs when air in contact with steep sunlit slopes rises up and out of the valleys. At night, drainage occurs as the cooler air moves downslope.

The Sunshine Canyon Landfill is located in the western portion of the South Coast Air Basin (SCAB). The basin is bounded on the north, east and south by the San Gabriel, San Bernardino and Santa Ana mountains which range from 6,000 to 11,500 feet. The Pacific Ocean borders the west. During the daytime, prevailing coastal winds blow inland and the air mass becomes blocked by the mountains. The restricted air flow makes the whole SCAB highly susceptible to pollutant build-up.

In addition to having restricted horizontal air flow out of the basin, vertical mixing is also restricted by inversion layers. Inversion layers are formed when a mass of warm dry air sets over cooler air on the ground. This layer is important in the study of air quality since it acts as a lid and prevents dispersion of pollutants from the air mass below. Pollutant concentrations will increase throughout the inversion episode due to the constant addition of pollutants from routine, daily activities in the basin.

In the coastal region, daytime temperature inversions typically start out at 1,200 to 1,500 feet and increase throughout the day as the sun warms the ground, which in turn warms the surface layer air. As heating continues, the surface layer temperatures can become equal to the temperature of the inversion base and the inversion layer can lift. In the winter, inversions frequently erode by mid-morning, thereby preventing contaminant build-up. Although inversion layers occur throughout all seasons of the year, summer inversions are the most critical with regard to air quality as it is the prime photochemical smog season.

There are two major distinctions made in the identification of air pollutants. This is between primary and secondary air pollutants. Primary pollutants are those pollutants that are emitted directly from sources. Carbon monoxide, reactive organic gases, nitric oxide, sulfur dioxide, and most particulate matter are primary pollutants. Secondary pollutants are those pollutants formed by chemical and photochemical reactions in the atmosphere. Photochemical oxidants (smog) and nitrogen dioxide are the principal secondary pollutants. The primary pollution source in the area is automobile and truck traffic.

The California Air Resources Board (CARB) monitors and/or records air pollution data at more than 200 locations throughout the State and publishes this data on a regular basis. There are more than twenty monitoring stations located in Los Angeles County. The two closest monitoring stations to the landfill are located in Reseda and Burbank. The Burbank Station (#7000069), where gaseous emissions are monitored, was used because there is no intervening terrain between the station and the landfill site. The Reseda Station (#7000074) is the nearest monitoring station to the site and has gaseous and particulate emission monitoring capabilities. Because of their proximity to the site, these stations generally collect the most representative data for the proposed project area. Air quality data from the period 1985-1987* is presented in Tables 10 and 11.

* Latest published data.

TABLE 10

AMBIENT AIR QUALITY STANDARDS
AND
ANNUAL AIR QUALITY STATISTICS FOR RESEDA MONITORING STATION

Pollutant	Averaging Time	Federal 1° Standard	State Standard	Maximum Recorded Concentration*			Days Exceeding Federal Standard		
				1985	1986	1987	1985	1986	1987
Ozone (O_3):	1 hour	0.12	-	0.25	0.22	0.22	75	72	60
Carbon Monoxide (CO):	1 hour	35.0	20.0	16.0	19.0	15.0	0	0	0
	8 hour	9.0	9.0	14.1	11.0	12.1	9	9	1
Nitrogen Dioxide (NO_2):	1 hour	-	0.25	0.21	0.22	0.15	0	0	0
	Annual	0.05	-	0.04	0.03	0.03	-	-	-
Sulfur Dioxide (SO_2):	1 hour	-	0.25	0.02	0.02	0.02	0	0	0
	24 hour	0.14	0.05	0.016	0.014	0.014	0	0	0
	Annual	0.03	-	0.002	0.003	0.002	0	0	0
Particulates (TSP)** :	24 hour	260	100	392	143	NM	14%	5%	-
	Annual	75	60	68.2	56.8	NM	-	-	-
Sulfates:	24 hour	-	25	19.0		NM	0	0	-
Lead:	30 day	-	1.5	0.32	0.21	NM	0	0	-
	120 day	1.5	-	0.27	0.16	NM	0	0	-

* Source: California Air Quality Data, Volumes XVII (1985), XVIII (1986) and XIX (1987), California Air Resources Board. Concentrations in parts per million for O_3, CO, NO_2, SO_2, and ug/m^3 for TSP, sulfates and lead.

** Although it is recognized that the California State Standard for TSP has been recently modified to include only PM-10, air quality data is not yet available. Thus, the original TSP standard is included for comparison.

NM = Not Measured

NOTE: Particulates, lead and sulfates are not monitored on a daily basis, therefore the number of days exceeded would not apply as it does not account for days during which measurements were not taken. However, in 1985, 1986 and 1987 measurements were observed 59, 60 and 59 days, respectively. The percentage of those days exceeding Federal or State standards relative to the number of observation days is indicated.

TABLE 11

AMBIENT AIR QUALITY STANDARDS
AND
ANNUAL AIR QUALITY STATISTICS FOR BURBANK MONITORING STATION

Pollutant	Averaging Time	Federal 1° Standard	State Standard	Maximum Recorded Concentration*			Days Exceeding Federal Standard		
				1985	1986	1987	1985	1986	1987
Ozone (O_3):	1 hour	0.12	-	0.30	0.28	0.23	87	93	76
Carbon Monoxide (CO):	1 hour	35.0	20.0	21.0	19.0	15.0	1	0	0
	8 hour	9.0	9.0	16.1	16.0	12.5	16	21	11
Nitrogen Dioxide (NO_2):	1 hour	-	0.25	0.31	0.28	0.26	5	0	1
	Annual	0.05	-	0.057	0.057	0.052	0	0	0
Sulfur Dioxide (SO_2):	1 hour	-	0.25	0.04	0.02	0.02	0	0	0
	24 hour	0.14	0.05	0.018	0.016	0.013	0	0	0
	Annual	0.03	-	0.005	0.003	0.002	0	0	0

* Source: California Air Quality Data, Volumes XV (1985), XVI (1986) and XVII (1987), California Air Resources Board. Concentrations in parts per million.

Air Quality Standards

Federal and State regulatory agencies have determined the maximum levels of air pollution allowed to avoid adverse health or welfare effects. The Federal Clean Air Act established National Ambient Air Quality Standards (NAAQS) and the California Air Resources Board developed California State ambient air quality standards. The Federal and State standards are also presented in Tables 10 and 11. The tables show the number of days these levels were exceeded at both monitoring stations near the project site.

As shown, State and/or National air quality standards for ozone, carbon monoxide and particulates were exceeded during the three-year period at the Reseda Station. Measured concentrations of ozone, carbon monoxide, and nitrogen dioxide were above the State or National standards at the Burbank Station. The maximum hourly ozone concentration measured during this period at both stations was more than double the Federal standard. This is consistent with air quality levels monitored in most areas of the South Coast Air Basin (SCAB).

Applicable Plans

In 1982 the South Coast Air Quality Management District (SCAQMD) and the Southern California Association of Governments (SCAG) revised the Air Quality Management Plan (AQMP)/State Implementation Plan (SIP) for the South Coast Air Basin (SCAB). The plan was required by the Federal Clean Air Act. Its revised goal was to attain Federal and State Ambient Air Quality Standards in the basin as expeditiously as practical. However, modeling showed that even with the implementation of all reasonable measures which could be realistically implemented, the region cannot demonstrate attainment of this goal in the very near future. SCAQMD and SCAG are currently in the process of revising the AQMP. The draft AQMP which was issued in September 1988 is scheduled for public hearing in the spring of

1989 and calls for attainment of the state and federal standards by the dates set forth below:

NOx	December 31, 1996
CO	December 31, 1997
O_3 and PM_{10}	December 31, 2007

The Environmental Protection Agency (EPA), in litigation challenging the sufficiency of the 1982 AQMP, has been directed to develop a Federal Implementation Plan for the Basin.

Existing On-Site Sources

Currently, more than 6,800 tons of waste material is brought to the landfill daily. This activity results in the potential on-site generation of vehicle emissions, fugitive dust, reactive and non-reactive gaseous emissions from the surface of the landfill, and landfill gas control system emissions. In addition, vehicular emissions are generated by traffic traveling to and from the site.

On-Site Vehicle Emissions: Diesel-powered, earth-moving vehicles are currently used during cut-and-fill operations at the landfill. A list of the equipment used and their associated pollutant emission factors are presented in Table 12. The average number of heavy duty vehicles presently used daily at the landfill is presented in Table 13. The daily and annual exhaust emissions generated on-site from these vehicles, as presented in Table 14, assumes an operating schedule of 12 hours per day, 6 days per week. A water truck is also used randomly on Sundays when the potential for surface dust to become airborne exists.

TABLE 12

EMISSION FACTORS FOR OPERATIONAL EQUIPMENT

Type of Equipment	Pollutant (gm/hr)* Carbon Monoxide	Hydro-Carbons	Nitrogen Oxides	Sulfur Dioxide	Particulates
Dozer Tractor	157	55	571	62	51
Scraper	568	128	1741	210	184
Road Grader	68	18	24	39	28
Water Truck	817	87	1889	206	116
Compactor	306	69	767	65	63

* Emission Factors for Heavy-Duty, Diesel-Powered Construction Equipment. "Draft Air Quality Handbook for Environmental Impact Reports", South Coast Air Quality Management District, Appendix K, revised April, 1987.

TABLE 13

EXISTING DAILY HEAVY-DUTY OPERATIONAL EQUIPMENT UTILIZATION

Type of Equipment	Number of Vehicles
Dozer Tractor	8
Scraper	5
Road Grader	1
Water Truck	4*

* Three (3) trucks are running, one (1) is on standby.

TABLE 14

EXISTING EXHAUST EMISSIONS FROM HEAVY DUTY OPERATIONAL EQUIPMENT

	Estimated Daily Emissions (lbs)*	Estimated Annual Emissions (Tons)*
Carbon Monoxide	177	28
Reactive Hydrocarbons	36	5
Nitrogen Oxides	500	79
Sulfur Oxides	59	9
Particulates	46	8

* Assumes equipment is operating 12 hours per day, 6 days per week, 312 days per year.

Fugitive Dust: Fugitive dust emissions can occur from cut-and-fill operations, waste disposal, and from traffic over those on-site distribution roads which have not been paved. Based on EPA estimates, fugitive dust emissions from heavy equipment activity at the landfill is 110 lbs/day per acre graded*. Currently, refuse is brought to the landfill and compressed into cells 15 feet deep with a surface area of approximately 22,200 square feet. The daily cover placed on top of the cell is approximately nine inches deep. Therefore, approximately 16,650 cubic feet of material nine inches deep is spread on top of the cells each day. Using the emission factor of 100 lbs/day per acre equivalent graded to a nine-inch depth, approximately one-half acre is graded daily. This results in a worst case projected fugitive emission rate of 55 lbs/day to cover the fill material brought to the landfill daily if appropriate dust preventative measures are not taken. However, BFI employs extensive dust control measures which significantly reduce airborne dust from these grading operations.

* Source: EPA, AP-42, 4th Edition, 1985, page 11.2.4-1 (12/75). Emissions factor assumes that no mitigation measures are employed.

Travel on unpaved portions of the landfill by trucks unloading refuse material also results in fugitive dust emissions. Approximately 1,200 trips are made by trucks daily to the landfill. The trucks travel an average of one mile on unpaved roads on the site. Based on EPA emissions factors*, approximately 1,140 lbs/day of fugitive dust could be generated daily from vehicular activity on roads within the landfill. On windy days, a greater amount of dust can be expected from grading and on-site vehicles if landscaping and dust suppressants are not utilized.

Dust complaints regarding the existing landfill operation are on file with the SCAQMD and/or City of Los Angeles Bureau of Sanitation. Both agencies inspect the landfill at least once a week. To date, there has been only one notice of violation issued by the SCAQMD. This occurred on a non-operating day with extreme climatic conditions.

Landfill Gas: Landfill gas is produced by the decomposition of organic refuse. The gas can migrate to the surface of the landfill and be released to the atmosphere if not collected. Landfill gas emissions can be controlled in two ways. Operational practices including use of sufficient cover and repair of cracks, fissures and settling can greatly minimize surface emissions. Gas emissions can also be controlled by the installation of a landfill gas extraction system. Collected gas is a renewable resource and when recovered by a gas extraction system the gas can either be sold for energy use or flared for disposal.

An extraction system is in place to collect the gas as it is produced at the landfill. The gas is then transferred to a local industrial firm for processing or it is flared. A system of monitoring stations is in place to assure that the amount of reactive organic gases produced are controlled. A more comprehensive collection system and state-of-the-art flare to meet the requirements of SCAQMD Rule 1150.1 has been in the permitting process since Fall

* Source: EPA, AP-42, 4th Edition, 1985, page 11.2.4-1 (12/75).

1986. Installation is expected to start in Winter 1988/89. This system will insure that surface emissions at the landfill will be below the 50 ppm standard and other requirements set forth by the South Coast Air Quality Management District (SCAQMD).

In the event that the recovered landfill gas cannot be used as an alternative fuel for natural gas, it is flared, which produces emissions. Table 15 lists emission factors used by SCAQMD for natural gas flares and the amount of emissions expected from the flaring activities at the facility. These flare emissions are controlled to meet the Best Available Control Technology ("BACT") requirements of the SCAQMD.

TABLE 15

ESTIMATED DAILY EMISSIONS FROM
FLARING ACTIVITIES - EXISTING LANDFILL

Pollutant	Emission Factor*	Flaring Emissions** (lbs/day)
Carbon Monoxide	0.50 lb/MMBtu	275
Nitrogen Oxides	0.06 lb/MMBtu	33
Particulates	60-80 lb/MMft^3	60-80

* Source: Fred Lettice, Supervising Air Quality Engineer, SCAQMD, personal communication 3/12/87.

** Assuming continuous flaring day of 1 million cubic feet per day of landfill gas with a Btu value of 550 Btu/cu. ft.

Incineration of the landfill gas also provides the potential for the generation of toxic emissions. This potential has been evaluated and a health risk assessment has been conducted. The assessment results from flaring of landfill gas at Sunshine Canyon indicate that the cumulative carcinogenic risk is well below 1:1,000,000, which conforms to SCAQMD Rules 1401 and 223. The results are shown in Table 16.

TABLE 16
HEALTH RISK ASSESSMENT RESULTS -
EXISTING LANDFILL

Toxic Air Contaminant	Emission Rate	Unit Risk Value	Excess Health Risk
Benzene	1.0200E-04	5.3000E-05	3.4598E-09
Carbon Tetrachloride	8.4300E-06	4.2000E-05	2.2560E-10
Chloroform	1.9500E-06	2.3000E-05	2.8704E-11
Perchloroethylene	5.9700E-03	5.8000E-07	2.2161E-09
Trichloroethylene	9.5700E-04	1.3000E-06	8.0454E-10
Vinyl Chloride	3.1700E-04	2.7000E-06	5.4778E-10

Total Project risk = 7.2835E-09

Existing Off-Site Sources

In addition to the potential emission sources within the landfill boundaries, landfill-related activity can also cause impacts to air quality in the surrounding area. Light- and heavy-duty vehicles hauling waste to the landfill generate emissions along the access roadways. Emissions from these sources, which are attributable to the landfill in this analysis, will occur regardless of the landfill operation because the waste material must be disposed of somewhere.

The total motor vehicle emissions currently generated by traffic associated with the existing landfill is estimated to be 4,540 lbs/day as presented in Table 17. Emissions from idling trucks queueing up to enter the landfill were assumed to be a percentage of the trip emissions.

TABLE 17

ESTIMATED EXISTING PROJECT-RELATED WASTE HAULING VEHICLE EMISSIONS

POLLUTANT	EMISSION FACTOR* (GRAMS/MILE)	ESTIMATED EMISSIONS** (LBS/DAY)
Carbon Monoxide	26.3	2,764
Reactive Hydrocarbons	1.8	190
Nitrogen Oxides	13.4	1,408
Sulfur Oxides	0.2	20
Particulates	1.5	158
TOTAL		4,540

* California State Composite Moving Exhaust Emission Rates, 1988: "Draft Air Quality Handbook for Environmental Impact Reports," South Coast Air Quality Management District, Revised April 1987, based on an average speed of 55 mph and a vehicle mix of 20% light duty vehicles, 25% heavy duty gas vehicles and 55% heavy duty diesel vehicles.

** Assumes 47,680 vehicle miles traveled based on 2,384 trip ends per day and an average trip length of 20 miles (see Section 3.2.8). This trip length was felt to be reasonable based on the location of the waste shed being served by the Sunshine Canyon landfill.

The existing total project-related emissions from the landfill operation were assessed by comparing the existing emissions to emissions being generated in the general area. The SCAQMD has broken the SCAB down into 39 Source-Receptor Areas (SRAs). The SRAs allow project emissions to be compared meaningfully to their local area. For most projects, emissions are only significant at the local level, rather than the regional level. Therefore, relevant conclusions can be developed by comparing the project-generated emissions to the total emissions levels of the local SRA.

The project site is located near the boundary of four SRAs. However, the local wind patterns in the area cause the majority of the landfill emissions to impact SRA 6 which extends west of the San Diego Freeway (Interstate 405) and north of the Ventura Freeway (Highway 101) to the edge of the Santa Susana Mountains. This is a highly urbanized area with a large percentage of residential and commercial development and considerable stationary-source emissions as well as mobile-source emissions.

Based on the estimated total existing on-site project emissions, the landfill is contributing no more than 0.74 percent of any pollutant to the total daily SRA 6 emissions; when combined with the waste-hauling emissions (which would occur independent of the landfill), the total project contributes no more than 2.69 percent of the SRA 6 emissions (see Table 18). However, the emissions associated with the existing landfill's overall operation are contributing incrementally to the total emissions within the local area and are resulting in an incremental air quality deterioration as are the emissions from other land uses within the SRA.

Potential Impacts

Extension of the landfill is expected to increase the amount of emissions over those currently experienced at the site. An increase in the amount of fill material delivered to the site from the current 6,800 tons to a maximum of 17,500 tons per day will increase emissions from heavy-duty vehicles, fugitive dust, landfill gas and landfill-related traffic.

On-Site Vehicle Emissions: Based on the emission factors presented in Table 12, the landfill extension will have a net increase in emissions from the landfill's operation vehicles. Table 19 lists the total number of vehicles required at the landfill during operation of the proposed extension. The total emissions from these vehicles is presented in Table 20. As shown, vehicle emissions from heavy-duty vehicles operating on-site would approximately double during operation of the landfill extension at its peak waste stream

TABLE 18

TOTAL ESTIMATED EXISTING LANDFILL RELATED EMISSIONS (LBS/DAY)

Pollutant	On-Site Emissions: Heavy-Duty Equipment	On-Site Emissions: Flaring Activities	On-Site Emissions: Total Emissions	Motor Vehicles	Total On-Site Plus Motor Vehicles	1987 Source-Receptor Area 6 Emissions* (lbs/day)	Percent of SRA 6 On-Site Emissions	Percent of SRA 6 Total Emissions
Carbon Monoxide	177	275	452	2,764	3,216	552,420	0.08	0.58
Reactive Hydrocarbons	36	-	36	190	226	80,620	0.04	0.28
Nitrogen Oxides	500	33	533	1,408	1,941	72,180	0.74	2.69
Sulfur Oxides	59	-	79	20	79	-	-	-
Particulates	1,241	80	1,321**	158	1,479	-	-	-

* Source-Receptor Area Emissions Inventory, "Air Quality Handbook for Environmental Impact Reports," South Coast Air Quality Management District, December 1983.
** Includes fugitive dust
(-) Emissions not available.

level of 17,500 tons/day. An economy of scale occurs with the operation of heavy equipment when the waste flow increases. Therefore, the increase in emissions would not be expected to be directly proportional to the increase in the waste stream.

TABLE 19

PROJECTED DAILY HEAVY-DUTY
OPERATIONAL EQUIPMENT UTILIZATION

Type of Equipment	Number of* Vehicles
Dozer Tractor	16
Scraper	10
Water Truck	4
Road Grader	1
Compactor	1

* An additional dozer tractor is referenced in the project applicant's 5-year plan. It is used intermittently and as such, was not evaluated in this analysis.

TABLE 20

PROJECTED EXHAUST EMISSIONS
FROM HEAVY-DUTY OPERATIONAL EQUIPMENT

	Estimated Daily Emissions (lbs)*	Estimated Annual Emissions (tons)*
Carbon Monoxide	313	49
Reactive Hydrocarbons	69	11
Nitrogen Oxides	924	144
Sulfur Oxides	106	17
Particulates	85	13

* Assumes equipment is operating 12 hours per day, 6 days per week, 312 days per year.

Fugitive Dust: The proposed landfill extension will increase dust emissions from cut-and-fill operations and from travel on unpaved on-site roads. With the proposed extension operating at the upper limit of 17,500 tons of refuse per day (25,000 cubic yards after compaction), with a cell depth of 18 feet and an individual surface area of 2,200 square feet per cell, approximately 4,000 square yards of surface area will require cover each day. Therefore, to cover the daily fill to a depth of approximately nine inches, 1,050 cubic yards of dirt a day will be required. Using the EPA unmitigated factor of 110 pounds of fugitive dust per acre graded, approximately 71 pounds of fugitive dust per day could be generated during cut-and-fill operations, if the proposed extension takes place with the maximum waste stream of 17,500 tons/day.

The landfill extension will also increase travel on dirt roads in the landfill area. With a total of 5,566 trips, approximately 8,250 pounds per day of fugitive dust could occur without dust inhibitors, assuming 1,500 feet of unpaved roads are travelled per trip and a dust-generation factor of 5.22 lbs/VMT (EPA, AP-42, Revised).

Landfill Gas: The proposed extension is expected to increase landfill gas production to 40 million cubic feet per day toward the end of its useful life as a landfill. A gas extraction system similar to the existing one will be designed to remove the gas to comply with SCAQMD's 1150.1 regulation of surface emissions of 50 ppm. The gas will initially be flared, and when economically viable it will be used for energy production. Assuming a worst-case of 40 million cubic feet per day and assuming that landfill gas is flared, the emissions for the proposed extension is presented in Table 21. This assumption is very conservative because gas recovery for energy will become a viable option far before the flaring of 40 million cubic feet of gas is reached.

TABLE 21
ESTIMATED DAILY EMISSIONS FROM FLARING ACTIVITIES

Pollutant	Emission Factor*	Flaring Emissions** (lbs/day)
Carbon Monoxide	0.34 lb/MMBtu	5,440
Nitrogen Oxides	0.06 lb/MMBtu	960
Particulates	60-80 lb/MMft^3	120-160***

* Source: Fred Lettice, Supervising Air Quality Engineer, SCAQMD, personal communication 3/12/87.

** Assuming continuous flaring day of 40 million cubic feet per day of 400 Btu/cu. ft. value landfill gas.

*** Assumes that 95% of the particulate material will be removed from the landfill gas prior to combustion.

When landfill gas generation and recovery exceeds 40 mmcfd it is expected that the gas will be processed for beneficial uses. The gas would be sold directly to local industrial or commercial businesses to offset their current consumption of utility-provided natural gas. The impact to the area's air quality would, therefore, be insignificant because air emissions from usage of the landfill gas would be equivalent to the existing natural gas emissions.

Incineration of the landfill gas also provides the potential for the generation of toxic emissions. This potential has been evaluated and SCAQMD Solid Waste Assessment Test (SWAT) testing results have shown that land gas from the project site poses no health hazards to nearby residents. In addition, according to a public health assessment prepared by Dames and Moore in August 1988 on the emissions resulting from the flaring of landfill gas at Sunshine Canyon, the cumulative carcinogenic risk is below 1:1,000,000, which conforms to SCAQMD rules 1401 and 223. The results are shown in Table 22.

TABLE 22

CUMULATIVE HEALTH RISK

Compound	Emission Rate (g/sec)	Unit Risk $(ug/m^3)^{-1}$	Excess Health Risk
Benzene	1.04E-04	5.30E-05	4.41E-09
Carbon Tetrachloride	8.57E-06	4.20E-05	2.88E-10
Chloroform	1.99E-06	2.30E-05	3.66E-11
Perchloro-ethylene	6.07E-03	5.80E-07	2.82E-09
Trichloro-ethylene	9.84E-04	1.30E-06	1.02E-09
Vinyl Chloride	3.22E-04	2.70E-06	6.96E-10
			9.27E-09

Note: The maximum excess health risk was based on the maximum cumulative flare impact of 0.80 ug/m^3. The annual average concentration for each compound is calculated as the product of the emission rate in g/sec and the maximum flare impact in ug/m^3.

Source: Browning-Ferris Industries Sunshine Canyon Landfill Flare Quality and Public Health Analyses, Dame & Moore, August 1988.

No public health impacts are projected to occur as a result of the proposed project.

Off-Site Vehicle Emissions: The proposed extension will increase the number of waste-hauling vehicle trips by 3,176 trips per day during the peak waste stream period of 17,500 tons per day (see Section 3.2.8). This increase will result in total project-related vehicle emissions as presented in Table 23. As stated earlier, these vehicle emissions from the waste haulers would occur independent of the proposed landfill because the waste material must be disposed of somewhere.

TABLE 23

ESTIMATED TOTAL PROJECT RELATED
WASTE HAULING VEHICLE EMISSIONS

POLLUTANT	EMISSION FACTOR* (GRAMS/MILE)	ESTIMATED EMISSIONS** (LBS/DAY)
Carbon Monoxide	26.3	6,449
Reactive Hydrocarbons	1.8	441
Nitrogen Oxides	13.4	3,286
Sulfur Oxides	0.2	49
Particulates	1.5	368

* California State Moving Exhaust Emission Rates, 1988: "Air Quality Handbook for Environmental Impact Reports," South Coast Air Quality Management District, December 1983, based on an average speed of 35 mph and a vehicle mix of 20% light duty vehicles, 25% heavy duty gas vehicles and 55% heavy duty diesel vehicles.

** Assumes 111,320 vehicle miles traveled based on 5,566 trips per day and an average trip length of 20 miles.

The impact of vehicular traffic will be most noticeable in the immediate project area. The vehicle pollutant emission of greatest concern is carbon monoxide (CO). To assess the CO concentrations at key locations near the project, the computer model CALINE 4 developed by the California Department of Transportation was used. The program calculates emission of CO from traffic traveling along roadways based on California Air Resources Board emission factors.

The analysis was made using the maximum peak-hour traffic and worst-case site and meteorological conditions. The assumptions used are as follows:

- 0.5 meter/second wind speed
- Stability class G (very stable)
- Maximum one-hour ambient CO concentrations for 1990 (15 ppm at Reseda monitoring station)
- Average vehicle speed of 45 mph

Localized air quality impacts were estimated at two (2) locations listed in Table 24 where the project is expected to increase traffic.

At each location CO levels from the project-related increase in traffic were calculated and added to the 1987* background air quality levels CARB monitoring data for Reseda.

The results of the CALINE 4 mobile emission modeling is presented in Table 24. As shown, the maximum ambient CO emission increase from project-related traffic is less than 0.1 ppm at receptors located at the edge of the roadway north of the landfill entrance. The increase in emissions from project traffic on San Fernando Road, south of the project entrance, would be 0.1 ppm. This increase is a small percentage of the existing 15.00 ppm background CO level.

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* Most recent data that has been reduced by CARB.

TABLE 24

CO VEHICLE EMISSIONS CONCENTRATIONS
FROM PROJECT RELATED TRAFFIC

Location	CO Concentrations At Edge of Roadways (ppm) Project	Project Plus Background*	Project Plus Cumulative Projects Plus Background**
San Fernando Road North of Site Entrance	0.1	15.0	15.2
San Fernando Road North of Balboa Blvd & South of Site Entrance	0.1	15.1	15.3

* Background data from California Air Resources Board Air Quality Data, 1987 for Reseda Monitoring Station (#7000074).
** Cumulative project traffic data obtained from Section 3.2.8.

Total project-related emissions estimated to be generated by the landfill extension operating at its peak waste stream capacity of 17,500 tons per day, and assuming a worst-case scenario when all landfill gas is flared, are shown in Table 25. The landfill at peak capacity will contribute as much as 2.65 percent of Nitrogen Oxides (NOx) and 1.04 percent of Carbon Monoxide (CO) to the total SRA 6 emissions from on-site related activities, and as much as 7.26 percent of NOx and 2.21 percent of CO to the total SRA 6 emissions when waste-hauling vehicle emissions are included.

TABLE 25

TOTAL ESTIMATED LANDFILL EXTENSION RELATED
EMISSIONS AT ULTIMATE BUILDOUT (lbs/day)

Pollutant	On-Site Emissions: Heavy-Duty Equipment	On-Site Emissions: Flaring Activities	On-Site Emissions: Total Emissions	Motor Vehicles*	Total On-Site Plus Motor Vehicles	1987 Source-Receptor Area 6 Emissions** (lbs/day)	Percent of SRA 6 On-Site Emissions	Percent of SRA 6 Total Emissions
Carbon Monoxide	313	5,440	5,753	6,449	12,202	552,420	1.04	2.21
Reactive Hydrocarbons	69	-	69	441	510	80,620	0.08	0.63
Nitrogen Oxides	924	960	1,884	3,286	5,170	71,180	2.65	7.26
Sulfur Oxides	106	-	106	49	155	-	-	-
Particulates	8,406	160	8,566***	368	8,934	-	-	-

* Waste hauling vehicle emissions.
** Source-Receptor Area Emissions Inventory, "Air Quality Handbook for Environmental Impact Reports," South Coast Air Quality Management District, December 1983. SRA 6 is the area which surrounds the project site.
*** Includes fugitive dust
(-) Emission not available.

Cumulative air emissions from the operation of this proposed landfill extension and the other projects which may be developed in the general area (see Table 33 in Section 3.2.8 for list of projects) are presented in Table 26. The emissions noted assume full operation of the proposed extension at the maximum waste stream flow of 17,500 tons per day and include potential air emissions from grading vehicles, fugitive dust, landfill gas flaring and waste material transportation vehicles. Emissions from the other area project activities include stationary sources, energy generation, and project vehicles.

TABLE 26
CUMULATIVE AIR EMISSIONS
(project plus other projects)

Pollutant	Project Related Emissions (lbs/day)	Other Area Projects (lbs/day)	Total (lbs/day)
Carbon Monoxide	12,202	823	13,025
Reactive Hydrocarbons	510	79	589
Nitrogen Oxides	5,170	296	5,466
Sulfur Oxides	155	3	158
Particulates	613**	48	661

* See Appendix I, Volume IIA, for assumptions and background data.
** Fugitive dust not included.

Other than for site-specific carbon monoxide (CO) and particulate emission concentrations, most of the project-related emissions presented in Table 26 would occur whether or not the project were developed because a high percentage of the emissions identified with the project are related to the trash-hauling vehicles. These vehicles will continue to operate independent of the proposed project.

Consistency With Applicable Plans

For a project to be considered consistent with the SCAQMD's Air Quality Management Plan (AQMP), it must conform to the local agency's general plan and SCAG guidelines.* The SCAG guidelines basically address wastewater facilities, transportation systems, and residential/office developments which increase population or employment in a specific area, i.e., growth-oriented developments. Under present conditions, city and county agencies project waste disposal shortfalls by the early 1990s if no major extensions are permitted. Landfills must be extended to maintain service for the on-going waste stream from the existing general population. Since the proposed landfill extension is not considered a growth-inducing development in the same category as other infrastructure improvements because it satisfies the existing waste disposal needs of the general area as well as future urban developments, the proposed landfill extension is consistent with the AQMP. The proposed landfill extension will comply with SCAQMD rules and regulations regarding pollutant emissions.

Project Significance

The proposed extension of the Sunshine Canyon Landfill is expected to be able to accept a maximum refuse disposal of 17,500 tons per day. The increase in capability is expected to increase traffic volumes up to approximately 3,180 vehicle trips per day (1,590 inbound/1,590 outbound). This increase of 3,180 vehicle trips per day exceeds the 2,000 vehicle trips per day threshold level for land use significance.** The exceedance of the vehicular trip per day threshold level would normally be considered potentially significant. However, the landfill will not increase vehicle trips in the Los Angeles Basin area, since these trips would exist with or without the project; i.e., solid waste is not generated by the landfill, it is generated by the land uses in the area and would be

* Source: "Air Quality Handbook for Preparing Environmental Impact Reports," South Coast Air Quality Management District, Revised April 1987.

** Ibid.

hauled to other areas further away for disposal if the project were not available. The trips associated with the disposal process would therefore not change whether or not the landfill was developed. Even if the emissions associated with the proposed project are considered to be specifically project-related, when compared on a total emission basis, they will have a negligible impact on the SRA 6. (See Table 25.)

The extended landfill will require permits for the landfill gas control system and ancillary equipment from the SCAQMD. If the landfill creates a nuisance, the permits will be revoked. There will therefore be no significant adverse impacts. A Permit to Construct Application has been filed with the SCAQMD.

Mitigation Measures

- Various dust suppression systems are currently employed for controlling dust emissions from access roads, cut areas, working faces and unpaved roads. These dust suppression methods, as well as other measures that become available, will be used to control dust emissions from the proposed project. Normal dust suppression methods include the use of watering trucks to reduce the potential fugitive dust emissions from roadways, waste disposal operations and excavating and grading activities, the application of 9 inches of daily cover over the active working face, and landscaping. State-of-the-art dust suppression methods are also in use at the landfill and will continue to be used. Extensive use of a recently developed soil sealant will be made on all inactive faces, cut areas, and on the active working face at the conclusion of each week. The soil sealant, which is applied using watering trucks, acts as a thin latex cover over the soil and prevents loose dust from being picked up.

- The main access roadways will be paved up to the edge of the active fill to minimize fugitive dust emissions. Paved roadways will progress up the canyon to new active areas as the fill level increases.

- The disturbed faces of the landfill will be revegetated with an interim ground cover as specified in the proposed Revegetation Program in Appendix H, Volume IIA. The landfill operation plan will proceed in a manner so that there will be a minimum amount of exposed landfill and graded surfaces at any given time.

- Material cut from one portion of the site will be used as cover material in an adjacent area to reduce the distance cover material is transported and reduce the amount of disturbed material.

- A methane gas collection system, similar to the existing system, will be employed to accommodate the additional landfill gas generated by the proposed project extension. Once gas recovery for energy production becomes economically viable through the expansion of the collection and processing system, the flaring of collected gas will be significantly reduced. (See also Section 3.2.7, Odor/Landfill Gas, for details of the planned gas collection system extension.)

- Project implementation may reduce overall vehicle emissions by reducing the travel distances from waste material sources to new landfills which may be located farther from these sources. The county's Solid Waste Management Plan has not identified any future waste disposal sites close to the waste source that could serve the communities currently served by the Sunshine Canyon Landfill.

- The landfill will be operated in accordance with South Coast Air Quality Management District Rule 1150.1 and other applicable SCAQMD regulations.

3.2.7 Odor/Landfill Gas

Environmental Setting

There are two potential sources of odor generally associated with most landfilling operations. The first source of odor is directly from specific types of refuse as they are brought into the landfill and prior to being covered with earth. The second source of odor is from the methane-related gases produced from the anaerobic decomposition of the covered refuse.

The first potential source of odor is produced from decomposition of refuse in a landfill and is primarily based on factors which include the types of materials comprising the waste, the age of the refuse, the acidic content of the waste (pH level), the moisture content in the refuse, the degree to which the refuse is compacted in the landfill, and the temperature of the landfill.

Additionally, certain types of household wastes including cooked and uncooked foodstuffs and meats, garden waste, and wet wood shavings may begin decomposition before being delivered to the landfill. These types of waste release low levels of distinct scents that contribute to the odor level.

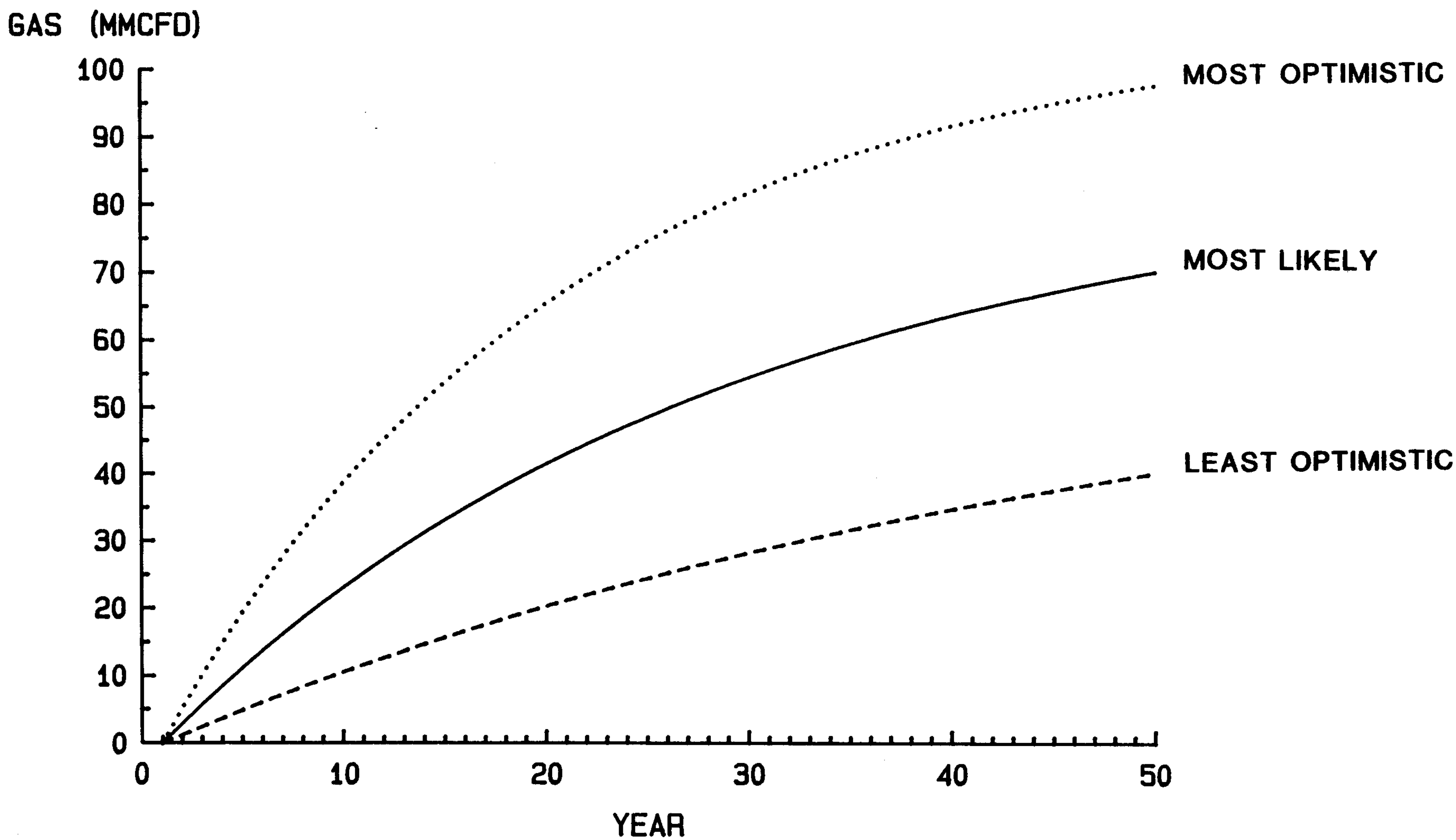
At the existing landfill this source of odor has been prevented by operating the landfill in a proper manner. By receiving the refuse, compacting it, and covering it with clean dirt at the end of each day, the potential for these odors has been significantly reduced. The odors that may be released directly from the refuse prior to being covered with dirt are usually at low levels and are dispersed in the atmosphere at levels of concentration below which they do not create a nuisance to local receptors. There may have been infrequent instances when the combination of wind conditions and the odors from specific refuse materials allowed these odors to be detected. However, in general the fill operations at the existing landfill have been at sufficient distances, in excess of 1,600 feet, from the potential receptors (primarily adjacent residences) that no odor nuisance from the refuse material has been experienced.

The second source of odor is produced by the anaerobic microbial decomposition of organic matter in refuse which produces natural landfill gases. Carbon dioxide (38 to 46%) and methane (53 to 60%) are the two main constituents of the natural gases produced, neither of which has a perceptible odor to humans. However, trace amounts of other gases, which are malodorous, are also produced during anaerobic decomposition. As the natural gases are generated within the landfill cells, internal landfill cell pressures move the gases away from the landfill along paths of least resistance.

The amount of gas that is produced by a landfill can be generally predicted by computer simulation modeling. However, because a gas extraction plant has been in operation at the Sunshine Canyon Landfill since 1981, the information obtained for this operation concerning the amount of gas generated at the landfill has been used to develop the projected gas generation for the landfill extension which is presented in Figure 26.

The majority of the potential odor problems at the existing sanitary landfill occur when the fill surface, due to differential settlement or subsidence, cracks and allows the landfill gases to escape into the atmosphere. In the current landfill operation, cracks found in the surface of the existing landfill are filled daily as part of a continuous earth cover maintenance program.

The existing landfill gas extraction system consists of gas extraction wells and piping installed as shown in Figures 27 and 28. The system is constructed out of PE plastic pipe. PE pipe flexes as the landfill settles. Gas, as it is generated, is drawn into the wells by a vacuum which is exerted on the piping system by a vacuum pump. To avoid drawing air into the system, the gas is extracted at the same rate it is being produced by controlling the vacuum level in



ultrasystems

Source: GETTY SYNTHETIC FUELS, INC.

Title: PROJECTED LANDFILL GAS PRODUCTION

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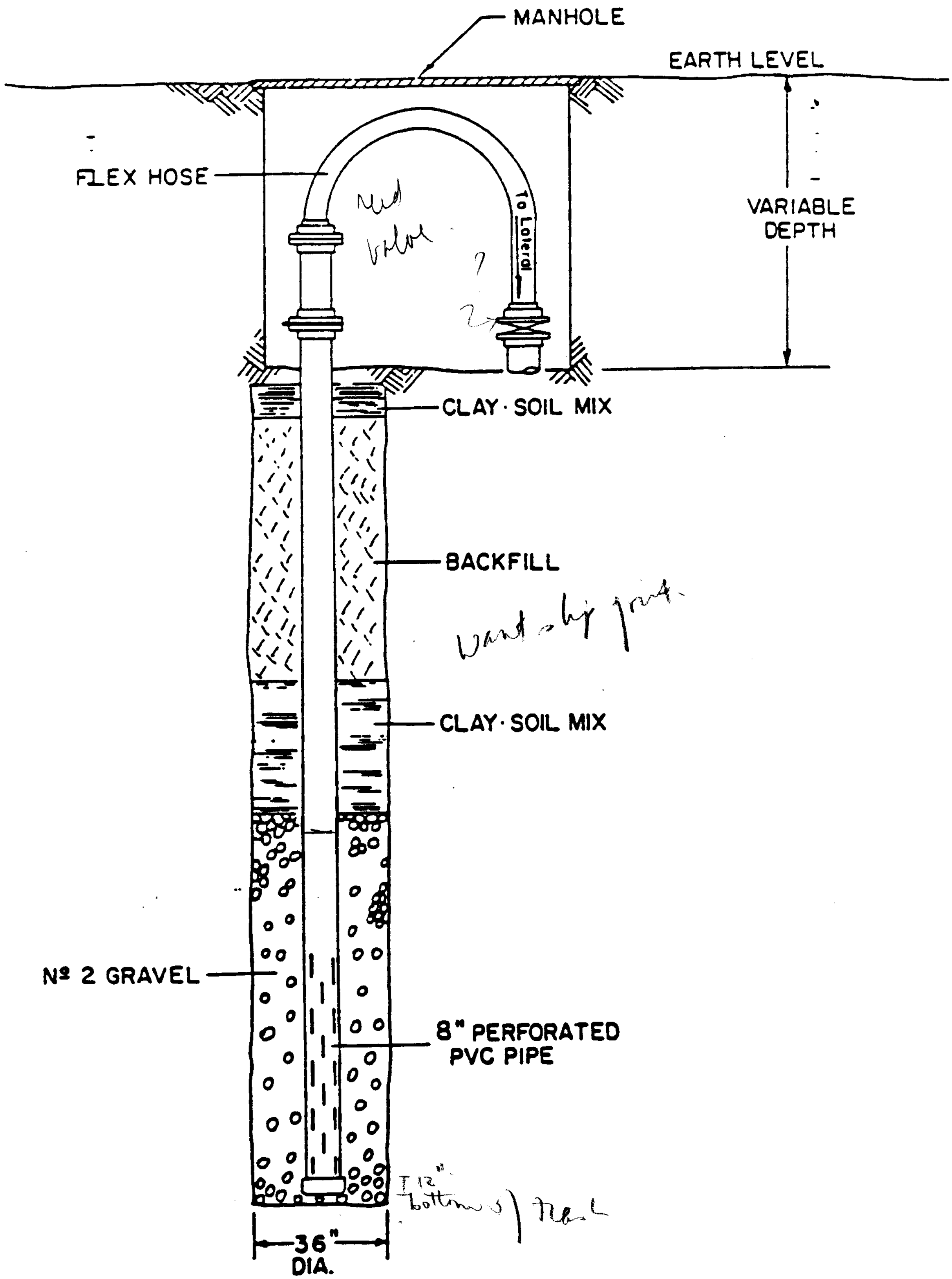

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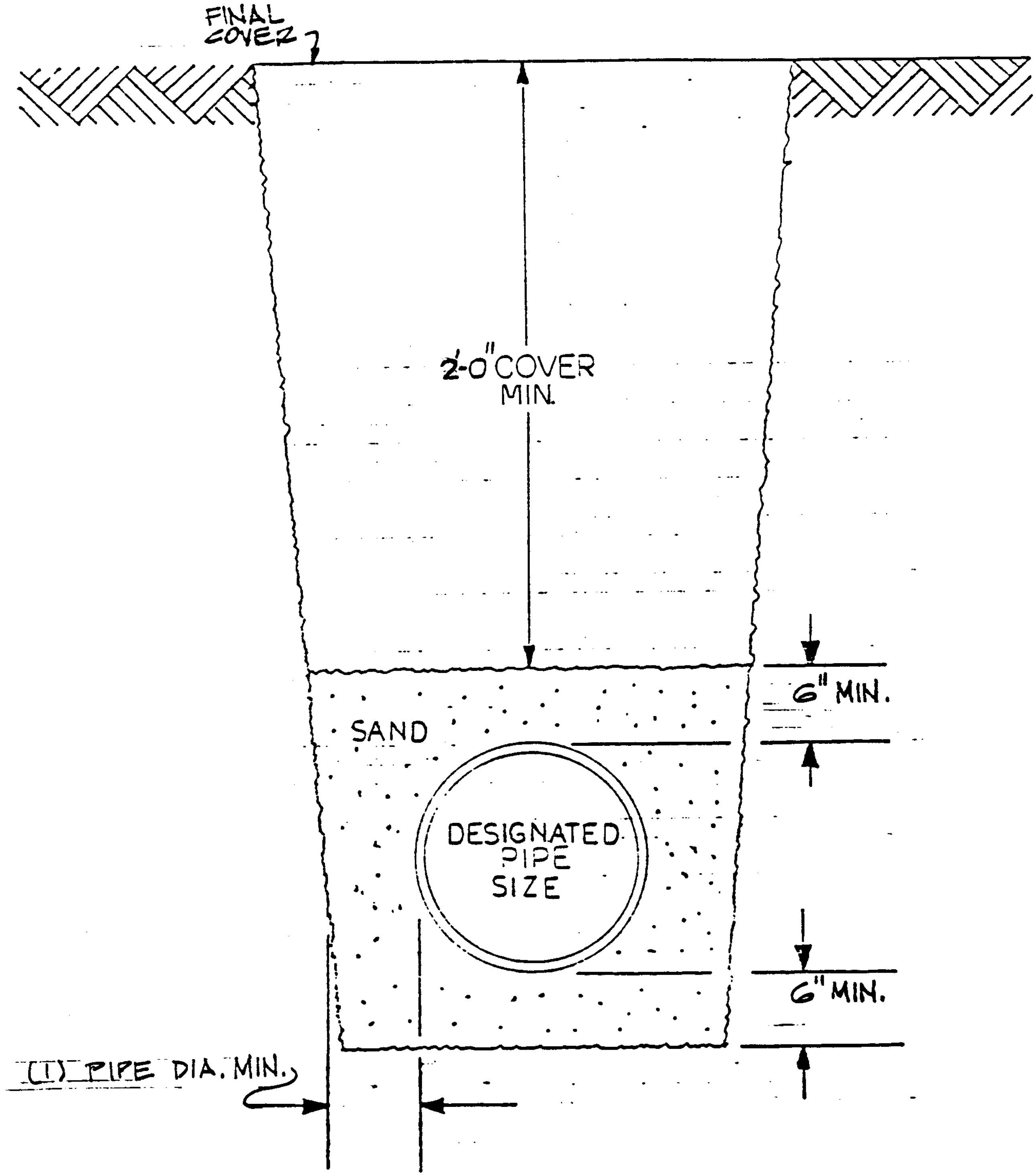
GETTY SYNTHETIC FUELS, INC.	TYPICAL WELL DESIGN FOR LANDFILL GAS RECOVERY SYSTEM	**27**



ultrasystems	Source: GETTY SYNTHETIC FUELS, INC.	Title: TYPICAL SECTION OF PIPELINE FOR GAS RECOVERY SYSTEM	28

the piping system. The extraction wells are spaced such that the volume of refuse influenced by the wells is sufficiently balanced to capture the maximum amount of gas being generated by the landfill. The wells are located so that the volume of well influence will slightly overlap that of the adjoining wells. Also, the collection system piping is sized so that sufficient vacuum is available to all the wells in the system.

This gas extraction system, including the gas flare system, will be expanded as the extension is developed and will continue to serve the new development in a similar manner. The gas extraction system for the proposed extension will require approval by the County of Los Angeles Department of Public Works, the SCAQMD, and the California Waste Management Board.

The SCAQMD has not verified any odor complaints related to the landfill or its operation over the last five years. Over a period of a year or so during 1986, the SCAQMD received complaints from residents in the vicinity of the current landfill. These complaints referenced the landfill as the source of odor and the SCAQMD investigated each complaint. At a public hearing held on January 21, 1987 by SCAQMD, during which the District and the landfill operator were discussing the compliance schedule for SCAQMD Rule 1150.1 (Control of Gaseous Emissions from Active Landfills), the landfill odor issue was raised; however, SCAQMD Inspector Terry Wilkinson testified that the existing landfill was <u>not</u> the source of the odor complaints. The results of this formal investigation indicate that the current odor control procedures being conducted by the landfill operator are effective in controlling direct refuse odors.

The primary odor referenced in these complaints was that of sulfur, which can produce a smell similar to rotten eggs. The local watershed area is a natural petrochemical-producing area which has a high content of sulfur compounds. The odors associated with these sulfur compounds are released into the air when groundwater reaches the surface through natural seeps and springs. Many of these sulfur springs can be found throughout areas near Bee Canyon and O'Melveny Park, south of the landfill site and adjacent to major residential areas. Additionally, oil well and gas injection storage operations in the area, not related to the landfill, have created new escape routes in the ground surface for these underlying sulfur odors to migrate into the open air. A final potential odor source in the general area is from local refinery operations, again unrelated to the landfill project.

Potential Impacts

The landfill is now and will continue to be operated in a manner which will preclude surface odor nuisances generated from the incoming refuse. The filling operation effectively confines and seals in odors associated with recently placed refuse within the landfill. The disposal operation of the proposed landfill extension into the northwesterly portions of the canyon will be substantially removed from the nearest adjacent residence. The nearest residence will be nearly one and a half miles from the proposed County landfill area and over three-quarters of a mile from the nearest portion of the proposed landfill extension area in the City. The large distances separating the landfill operations and adjoining neighbors should eliminate the potential for odor nuisance problems from the incoming refuse after it is deposited in the landfill and before it is covered. Based on anticipated fill rates, it will be several decades before the extension of fill areas at Sunshine Canyon will be adjacent to the northerly portion of the existing City landfill.

The proposed landfill extension will increase the rate and volume of waste which can be deposited in the canyon. This will also increase the rate and amount of landfill gases being generated. The potential for odor emissions from decomposing refuse exists at all landfills. However, the expanded collection system which is planned for the proposed landfill extension is expected to effectively remove the additional gases produced and prevent any significant odor problem from developing.

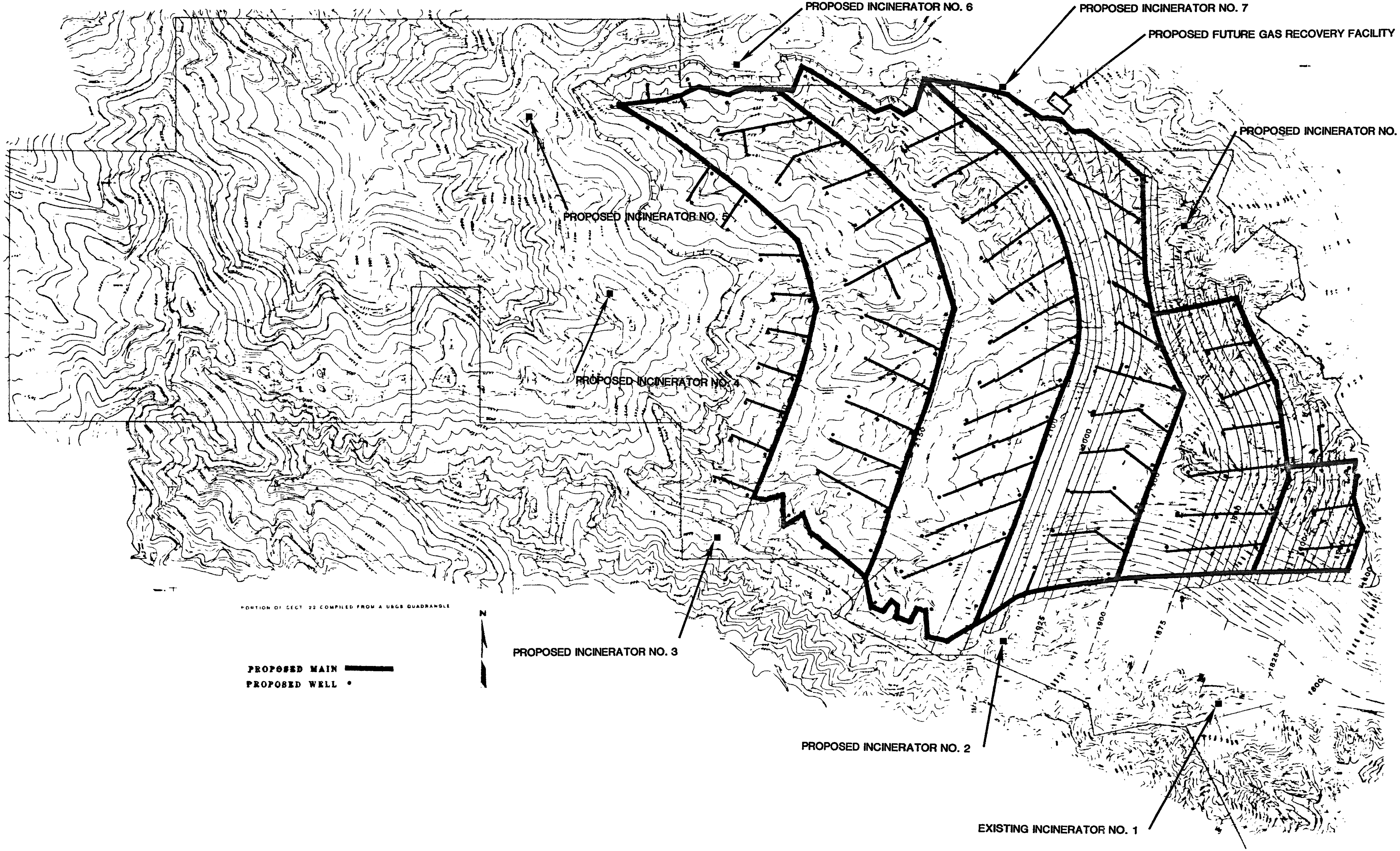
Wind conditions in the vicinity of the Santa Susana Mountains and Sunshine Canyon will continue to reduce the potential impact of any temporary odorous emissions. The prevailing 24-hour wind direction was south to southwest, away from sensitive receptors, with a mean wind speed of four miles per hour during June and July of 1987.* Complete monthly wind data is presented in Appendix GG of Volume IIB. This impact will also be minimized by the relatively small concentrations of odorous gases, the large volumes of air masses associated with existing open spaces, wind turbulence, and intervening topography in the Sunshine Canyon area.

Mitigation Measures

- The natural biological processes that generate odors in a sanitary landfill through anaerobic decomposition cannot be prevented or avoided. However, the gases will be prevented from escaping to the atmosphere through the use of two (2) very effective odor control measures. The two odor control methods currently used at the existing landfill are covering the working face and any surface cracks in the cover material with clean dirt on a daily basis and extracting landfill gases through the use of a landfill gas extraction system.

- Figure 29 shows the proposed layout for the gas collection system to be installed for the landfill extension area. The system will be installed in phases, as each portion of the site is filled. The final system will contain a network of gas extraction wells, collection system piping, and flaring facilities. Because landfill gas generation begins at lower levels of volume and increases with time, the gas will be flared initially until sufficient quantities are available for processing.

* Meteorological Survey, GSF Energy Inc., Sunshine Canyon, July 15, 1987.



Source: BROWNING-FERRIS INDUSTRIES

Title: PRELIMINARY DESIGN FOR LANDFILL GAS COLLECTION SYSTEM

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- If an odor nuisance problem or hazard condition should develop, appropriate control measures will be employed such as applying additional cover material or more frequent application of the cover material to seal the surface, or adjustments to the wells, equipment, and operation of the gas extraction system.

- To ensure that odors are kept to a minimum, the following odor monitoring program will be installed for the extended landfill. The monitoring program complies with the requirements of the South Coast Air Quality Management District Rule 1150.1. This program will include:

  1. Probe installation

  One probe per 1,000 feet of landfill perimeter will be installed in the locations of greatest concern. These probes will be monitored to ensure that large quantities of gas are not venting off-site through the subsurface soils.

  2. Integrated landfill surface sampling

  The landfill surface will be periodically monitored to ensure that the average concentration of total organic compounds [Reactive Organics (ROG) measured as methane] over the landfill surface does not exceed the SCAQMD's standard of 50 ppm.

  3. Ambient air samples at the landfill perimeter.

  Periodically, 24-hour integrated gas samples and required meteorological data will be taken to assess any impact the landfill is having on the air at the landfill perimeter.

4. Instantaneous landfill surface monitoring

Spot checks on the landfill surface will be made to determine that the maximum concentration of ROGs measured as methane measured at any one point on the landfill's surface does not exceed the SCAQMD's standard of 500 ppm.

3.2.8 Traffic/Circulation*

Environmental Setting

Introduction

The Traffic Impact Analysis was prepared to determine the traffic impact on the local roadway system from traffic generated by existing and future operations at the Sunshine Canyon Landfill located in the San Fernando Valley. The majority of vehicle trips related to the landfill operation are from commercial hauling trucks; however, some vehicle traffic also results from private citizen use of the landfill, especially on Saturdays. For purposes of the traffic analysis and to provide a worst-case scenario, all vehicle trips to the landfill other than employee trips were assumed to be truck trips. The trips estimated to be generated by anticipated increased use (extension) of the landfill have been added to the existing on-street traffic volumes and their impact analyzed at five key intersections in the general vicinity of the Sunshine Canyon Landfill. Future traffic volumes, based on other known projects and an additional 6% annual growth, were also evaluated for the year 1998.

The analysis provides: existing on-street traffic volumes; estimated trip generation; distribution of traffic; and analyses at five key intersections. This has been done for existing conditions, and for conditions with increased usage up to the proposed landfill buildout capacity.

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* This section summarizes the "Traffic Impact Analysis, Sunshine Canyon Landfill, Sylmar, California" and amendments, prepared by Associated Traffic Consultants. The original report in its entirety is included as Appendix E, Volume IIA; the updated Traffic Impact Analysis is provided in Appendix N, Volume IIB.

Site Description/Access

The existing Sunshine Canyon Landfill is located on the southwest side of San Fernando Road in the Knollwood/Granada Hills area of the City of Los Angeles. Immediate access to the site is via San Fernando Road. The 48-foot wide paved access road on the project site has been designed to provide for queueing of incoming trucks prior to entering the landfill. This queueing area allows up to 130 inbound trucks to wait for the landfill morning opening without requiring on-street parking.

Major north-south access is via the Golden State Freeway (Interstate 5), Balboa Boulevard, and Sepulveda Boulevard. The major east-west access is via Foothill Boulevard and San Fernando Road.

Existing Street and Freeway System

San Fernando Road is a major 57-foot wide highway in the vicinity of the Sunshine Canyon Landfill. The roadway is striped with two through travel lanes in each direction plus north-bound, left-turn lanes at the main entrance to the site and at Balboa Boulevard with the latter intersection being signalized. No parking restrictions are noted in the area adjacent to the site's main entrance.

Balboa Boulevard is a variable-width, major north/south roadway. Balboa Boulevard intersects San Fernando Road from the south and forms a "T" intersection (signalized). Balboa Boulevard has a 40-foot roadway width in the vicinity of San Fernando Road and is striped with one through lane in each direction. At San Fernando Road, Balboa Boulevard is striped with a southbound travel lane, a left-turn-only lane and a combination left/right-turn lane. On-street parking is prohibited along the east and west curb lines. Balboa Boulevard is posted with signs prohibiting trucks in excess of 6,000 pounds.

Sepulveda Boulevard in the vicinity of the site is a variable-width major roadway and is striped with one through travel lane in each direction. Sepulveda Boulevard provides full access to Interstate 5 at Roxford Street. At its northern terminus, Sepulveda Boulevard intersects San Fernando Road forming a "Y" intersection and is striped with a through lane and a combination through and right-turn lane. The intersection is controlled by a stop sign on Sepulveda Boulevard.

Existing Traffic Volumes and Intersection Utilization

The traffic volumes on San Fernando Road and other major roadways in the general vicinity of the Sunshine Canyon Landfill show the typical peak-periods associated with other key roadways in the Granada Hills/Knollwood community. The volumes show a peak during the morning commuter period, another peak during the noon hour and a third peak during the evening commuter period. The evening peak hour usually has the highest peak of the three peak periods. Table 27 summarizes 24-hour traffic counts taken in the project area. The counts, unless otherwise indicated, were taken by Associated Traffic Consultants.*

Manual counts of turning movements, taken by Associated Traffic Consultants, were conducted at five key intersections.** Existing AM and PM peak hour traffic volumes were utilized to calculate existing Intersection Capacity Utilization (ICU) volumes for intersections in the area. ICU values are in turn used for determining the Level of Service (LOS). The existing ICU and LOS for the project area are summarized in Table 28. As indicated, all analyzed intersections currently operate at Level of Service D or better.

* Data for the 24-hour counts is provided in Appendix A of the original traffic report which is provided in its entirety as Appendix E, Volume IIA.

** Data for manual counts is presented in Appendix B of the original traffic report which is provided in its entirety as Appendix E, Volume IIA.

The segment of Sierra Highway near the site, which traverses unincorporated territory, accounts for roughly only six percent of the existing traffic levels. Therefore, it was not considered in this analysis.

TABLE 27
EXISTING TRAFFIC VOLUMES

STREET LOCATION	DATE	DIR	24-HR. VOLUME
San Fernando Rd W/O Balboa Bl. Overpass	10-31-87*	EB	8,086
		WB	5,849
		TOTAL	13,935
Foothill Bl. W/O Yarnell St.	01-27-88	EB	3,550
		WB	2,145
		TOTAL	5,695
Sepulveda Bl. S/O San Fernando Rd.	01-27-88	NB	2,051
		SB	2,173
		TOTAL	4,224
Balboa Bl. S/O San Fernando Rd.	03-31-88	NB	7,612
		SB	8,648
		TOTAL	16,260
San Fernando Rd. W/O Balboa Bl.	03-31-88	EB	14,038
		WB	9,354
		TOTAL	23,392

* Data provided by Los Angeles City Traffic Department. Most current traffic count was dated 10-31-83. However, according to Tessie San Pedro of the Los Angeles City Traffic Department, a 2% annual adjustment may be applied to extrapolate a more current count. The counts for the intersections of San Fernando Road without Balboa Boulevard overpass have therefore been projected based on the 1983 data. All other data from counts taken by Associated Traffic Consultants.

Source:
"Traffic Impact Study, Sunshine Canyon/North Valley Landfill, Sylmar, California," prepared by Associated Traffic Consultants. The original report in its entirety is provided as Appendix E, Volume IIA; the updated Traffic Impact Study is provided in Appendix N, Volume IIB.

TABLE 28
EXISTING ICU AND LOS*

Intersection	AM ICU	AM LOS	PM ICU	PM LOS
I-5 Off Ramp @ San Fernando Rd.	0.59	A	0.58	A
San Fernando Rd. @ Main Entrance	0.88	D	0.61	B
San Fernando Rd. @ Balboa Blvd.	0.66	B	0.97	D
San Fernando Rd. @ Sepulveda Blvd.	0.32	A	0.29	A
San Fernando Rd. @ Roxford St.	0.54	A	0.52	A
Foothill BLvd. @ Yarnell St.	0.48	A	0.54	A

* Existing ICU and LOS values based on 1988 traffic data.

Source:
"Traffic Impact Analysis, Sunshine Canyon/North Valley Landfill, Sylmar, California," prepared by Associated Traffic Consultants. The original report in its entirety is provided as Appendix E; the updated report is in Appendix N.

Potential Impacts

The project proposal will involve the extension of landfill facilities to accommodate up to a maximum of 70,000 cubic yards (17,500 tons) of fill per day (almost 2.5 times the current daily intake). This maximum design capacity was used in this EIR analysis, based on estimations of existing roadway capacities. The increased volume of fill will be transported to the site by a commensurate increase in the number of trucks. The inflow to the landfill is estimated to increase from the existing rate of approximately 6,400 tons per day (tpd) to between 12,000 and 14,000 tpd as capacity at the existing facilities in the Los Angeles area is exhausted. It is anticipated that use of the facility will not immediately increase to these levels. Rather, the change is expected to be gradual and dependent upon a number of other variables such as: the availability of other landfills within the operational geographic area, future alternate techniques of solid waste reduction and/or disposal, and regional growth trends.

Truck Traffic Generation - The proposed extension of the Sunshine Canyon Landfill will increase traffic volumes in the project vicinity. Trip generation rates for the extended landfill operations are based on existing trends at the current facility. Based on detailed landfill truck counts taken in 1985* and recent (1988) spot check confirmation truck counts taken at the landfill and an average daily fill of 30,000 cubic yards, approximately 0.0795 trips per cubic yard** are generated daily. Based on this trip rate, Sunshine Canyon site presently generates about 2,385 trips per day (1192.5 inbound and 1192.5 outbound). If the landfill operation is increased to handle up to a maximum of 17,500 tons (70,000 cubic yards) of fill material per day, the site could generate approximately 5,565 trips

* Actual count data taken during February 1988 by Browning- Ferris Industries. Daily log summaries for that period are provided in Appendix C of the traffic study which is included in its entirety as Appendix N, Volume IIB.

** Based on an average daily incoming truck level of 1,192.5 and an average daily intake of 30,000 cubic yards.

per day (2,782.5 inbound/2,782.5 outbound) on a worst-case basis. This is an increase of about 3,180 vehicles per day. Table 29 shows the daily peak-hour generation factors and resulting trip ends for the existing use plus the proposed expansion. The highest estimated peak hour volumes were used for analysis purposes.

TABLE 29
TRAFFIC GENERATION*

USE	CUBIC YARDS	DAILY TRIP ENDS FACTOR	DAILY TRIP ENDS VOLUME	AM PEAK HOUR FACTOR IN	AM PEAK HOUR FACTOR OUT	AM PEAK HOUR VOLUME IN	AM PEAK HOUR VOLUME OUT	PM PEAK HOUR FACTOR IN	PM PEAK HOUR FACTOR OUT	PM PEAK HOUR VOLUME IN	PM PEAK HOUR VOLUME OUT
Future Facility											
Truck Traffic	70,000	0.0795	5,565	0.0047	0.0038	330	265	0.0045	0.0055	315	385
Existing Facility											
Truck Traffic	30,000	0.0795	2,385	0.0047	0.0038	140	115	0.0045	0.0055	135	165
	NET CHANGE		3,180			190	150			180	220

*Source: Trip Generation based on existing average loads per vehicle calculated from counts taken by Browning-Ferris Industries during February 1988. Trip ends are one-way traffic movements, entering or leaving.

All numbers are rounded to nearest 5.

Employee Vehicle Trip Generation

In addition to the truck trip generation, employee vehicle trip generation at the landfill was evaluated. Current landfill operations employ 50 persons. The applicant anticipates that a total of 75 employees will be required to accommodate the landfill extension. The increase in employees resulting from the proposed extension would not be expected to be directly proportional to the anticipated increase in waste volume. There will be an increase in on-site operations personnel for the direct operations of unloading, covering, and inspection of waste. However, there will be no needed increase in management and associated administrative personnel. Employee trip generation factors as shown in Table 30 were utilized from the ITE "Trip Generation and Informational Report" (1982). As factors for landfills were not available, employee trip generation factors for Light Industrial Use were applied.

TABLE 30
EMPLOYEE GENERATION FACTORS
(daily trips/employee)

Daily	AM Peak Hour In	AM Peak Hour Out	PM Peak Hour In	PM Peak Hour Out
3.20	0.71	0.13	0.27	0.53

However, actual peak hours experienced at the landfill were not found to coincide with typical daily peak hours, mainly because the landfill operates from 6 AM to 6 PM. Thus it was determined, based on arrival and departure schedule characteristics of the existing landfill employees, that only 20% of the landfill peak hour trips would coincide with the general area-wide conditions, resulting in the peak volumes shown in Table 31.

TABLE 31
ESTIMATED EMPLOYEE TRIP GENERATION
(trips/day)

	Daily	AM Peak Hour*	PM Peak Hour**
Existing	160	10	5
Future	240	5	5

* Calculated as 20% of the in-bound AM peak hour trips.
** Calculated as 20% of the out-bound PM peak hour trips.

Because of the relatively small number of landfill-related employee peak hour trips, the impact of such trips on the surrounding street system will be insignificant.

Trip Distribution and Assignment

The expected landfill traffic volumes were distributed on the adjacent street system based on manual counts, observations of peak-hour traffic movements, the characteristics of the nearby street system, and the distribution of the population across the region. The expected percentage distribution of the vehicle trips in the area is shown in Figure 30. Figures 31 and 32 show the expected extended landfill traffic volumes as distributed to the local street system during the AM and PM peak hours, respectively.

Intersection ICU and LOS

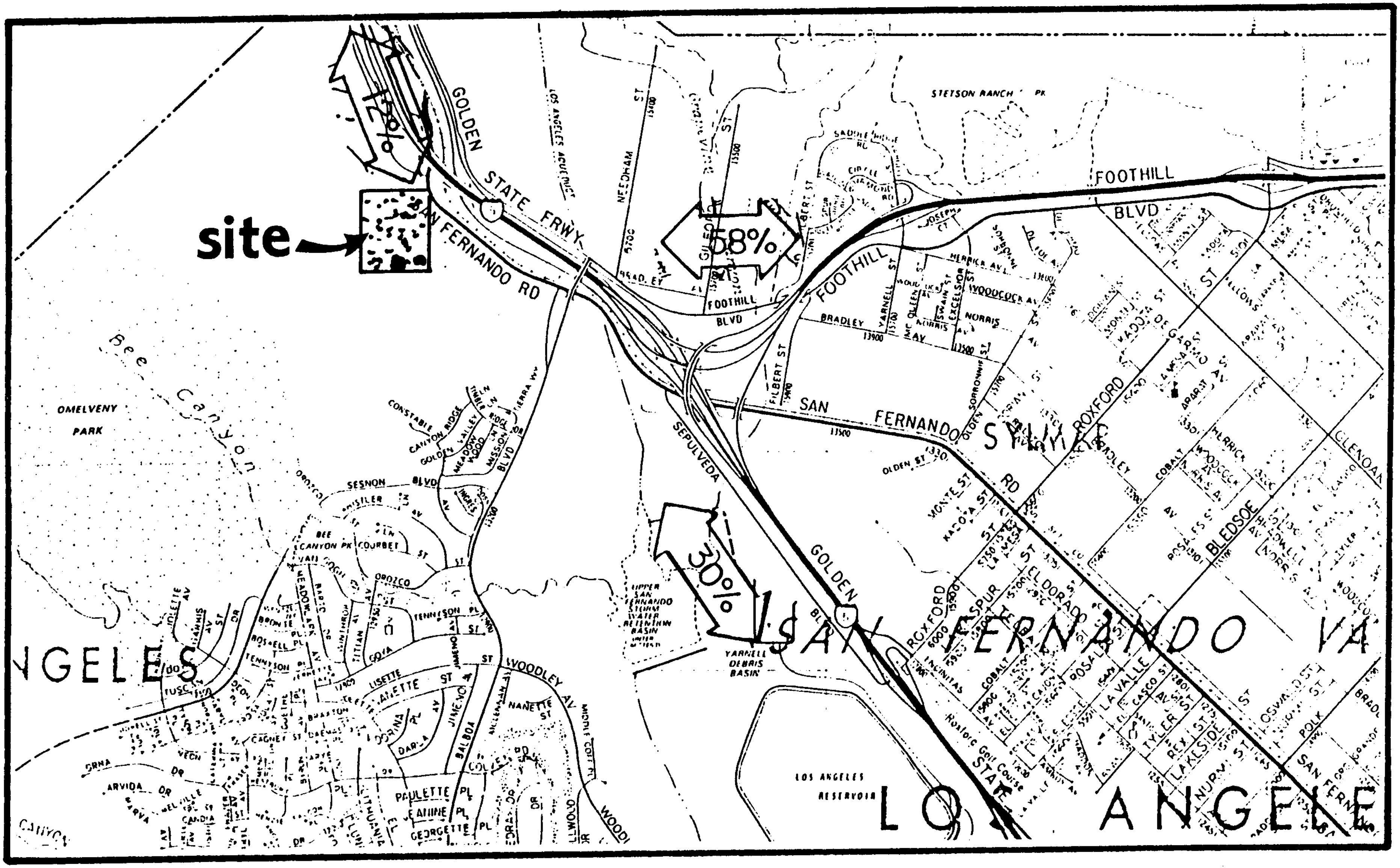
Based on a review of the existing traffic volumes in the area and of the truck-traffic volumes expected to be generated by this proposed landfill extension, five key intersections* were analyzed for capacity impacts:

1. The I-5 Freeway Off-ramps and San Fernando Road
2. San Fernando Road and The Main Entrance
3. San Fernando Road and Balboa Boulevard
4. San Fernando Road and Sepulveda Boulevard
5. San Fernando Road and Roxford Street

These intersections were analyzed for the following conditions:

1) existing conditions (see Table 28)
2) baseline (1998) conditions
3) baseline (1998) conditions plus other-related projects
4) baseline (1998) conditions plus other-related projects and worst-case landfill extension scenario

* Intersection selection based on consultation with the City of Los Angeles Department of Transportation.



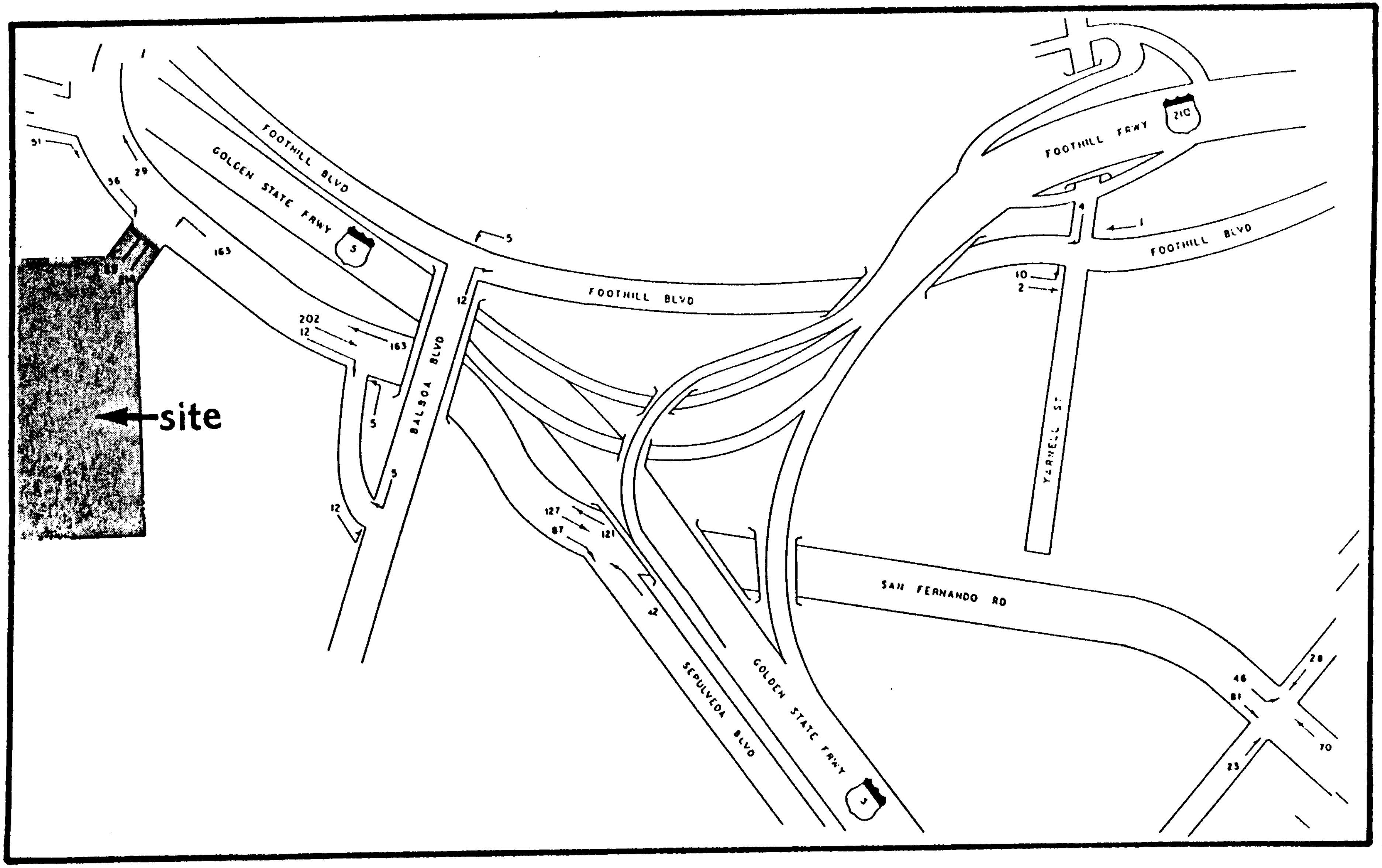
Source:

ASSOCIATED TRAFFIC CONSULTANTS

Title:

PROJECT RELATED TRAFFIC DISTRIBUTION

30



ultrasystems

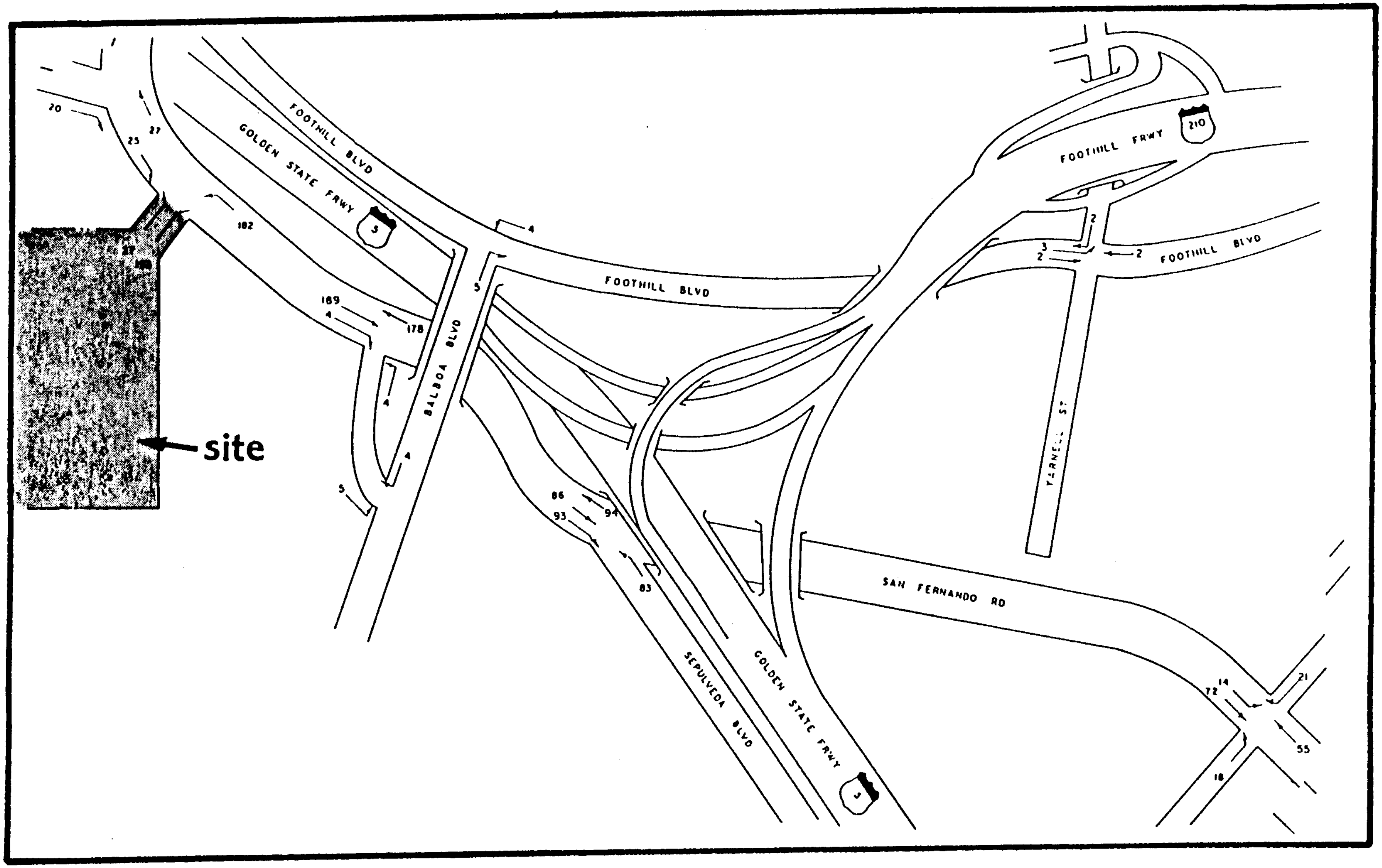
Source:

ASSOCIATED TRAFFIC CONSULTANTS

Title:

PROJECT RELATED A.M. PEAK HOUR TRAFFIC

31



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ASSOCIATED TRAFFIC CONSULTANTS

Title:

PROJECT RELATED P.M. PEAK HOUR TRAFFIC

32

Ambient on-street traffic volumes were anticipated to increase by about six percent (6%) per year above the last available counts (1988) to establish the 1998 baseline level. This percentage is expected to account for other minor developments which are not specifically included among the other-related (cumulative) projects.

The intersection analysis utilized the following assumptions:

1. The Sunshine Canyon Landfill extension will be operating at its assumed capacity by 1998. The same traffic patterns established for this study are assumed.
2. An ambient on-street growth factor of six percent (6%) per year was assumed.
3. Immediate access to and from the site will be from the main entrance located on San Fernando Road.
4. The main entrance will have a paved roadway at least 48 feet wide, permitting two travel lanes in each direction.
5. That the Sunshine Canyon Landfill will continue to provide three pay stations for inbound vehicles.
6. That the entry gates will remain at their present location, which is approximately 2,200 feet south of San Fernando Road.
7. A third inbound/outbound lane will be provided on the site. The three inbound lanes will provide on-site queueing for approximately 130 trucks. The third outbound lane will provide truck drivers with an area to clean and secure their trucks before exiting the site.
8. Traffic from other projects as noted in Table 33 is included in analysis.

The majority of the traffic generated by the Sunshine Canyon Landfill is expected to be from trucks.* The intersection analysis used for this study assumes most of the traffic volumes will be from passenger vehicles. Therefore, the truck volumes expected to

* A small percentage of project-related traffic (i.e. less than 3%) will be from employee related vehicles. These are not anticipated to contribute significantly to the overall traffic scenario.

be generated by the project have been changed to the equivalency of a passenger vehicle. This has been accomplished by assuming that one truck is equal to two passenger cars. This method is described in more detail in the "Highway Capacity Manual," Special Report No. 209, published in 1985 by the Transportation Research Board.

The Level of Service (LOS) for each key intersection has been determined by use of the Intersection Capacity Utilization (ICU) method. This method compares the traffic volumes of each movement at the intersection with the capacity available to each movement respectively. The sum of the highest conflicting volume to capacity (V/C) ratio yields a decimal fraction (ICU) where 0.000 represents no traffic and 1.000 indicates the point where the traffic volumes equal the assumed capacity of the intersection. The LOS is defined by the ICU and ranges from A (free flow) to F (congested forced flow).

Table 32 shows a summary of the results of the ICU calculation and the associated LOS for each intersection under the existing conditions, 1998 with ambient growth, 1998 with ambient growth plus the project extension, and future conditions combining ambient growth, other projects, and the proposed extension with mitigation measures. As shown in Table 32, with implementation of these mitigation measures all key intersections will be at a Level of Service D or better. Additionally, as shown by the respective increases in ICU rates in Table 32, the proposed project's traffic contributes to less than 1% of the intersection capacity problems at the intersection of San Fernando Road and Balboa Boulevard and at the intersection of San Fernando Road and the project entrance. The primary contributor to the capacity problems at these intersections is the traffic from the ambient growth that is projected for the area.

The maximum capacity of the proposed project for a worst-case daily waste stream of 17,500 tons, which would generate an estimated 5,565 daily trips, would not result in a significant impact on the local circulation system assuming implementation of the identified mitigation measures. This 17,500 tpd waste stream is thus used as the maximum design capacity for the proposed landfill extension.

TABLE 32
SUMMARY OF INTERSECTION UTILIZATION
AND LEVELS OF SERVICE

INTERSECTION		1988 EXISTING		1998 BASELINE WITH AMBIENT GROWTH		1998 BASELINE WITH AMBIENT GROWTH PLUS PROPOSED EXTENSION		1998 BASELINE WITH AMBIENT, OTHER PROJECTS & PROPOSED EXTENSION	
		ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS
I-5 Off Ramp @	AM	0.59	A	0.63	B	0.63	B	0.67	B
San Fernando Rd.	PM	0.58	A	0.61	B	0.61	B	0.62	B
San Fernando Rd. @	AM	0.88	D	0.93	E	0.94	E	0.87	D*
Main Entrance	PM	0.61	B	0.63	B	0.63	B	0.69	B
San Fernando Rd. @	AM	0.66	B	0.69	B	0.70	C	0.70	C
Balboa Blvd.	PM	0.97	D	1.02	F	1.02	F	0.84	D*
San Fernando Rd. @	AM	0.32	A	0.34	A	0.34	A	0.44	A
Sepulveda Blvd.	PM	0.29	A	0.30	A	0.30	A	0.48	A
San Fernando Rd. @	AM	0.54	A	0.58	A	0.59	A	0.67	B
Roxford St.	PM	0.52	A	0.54	A	0.55	A	0.59	A
Foothill Blvd. @	AM	0.48	A	0.50	A	0.53	A	0.54	A
Yarnell St.	PM	0.54	A	0.50	A	0.50	A	0.50	A

*With mitigation measures as outlined in the mitigation section of this report.

Cumulative Impacts

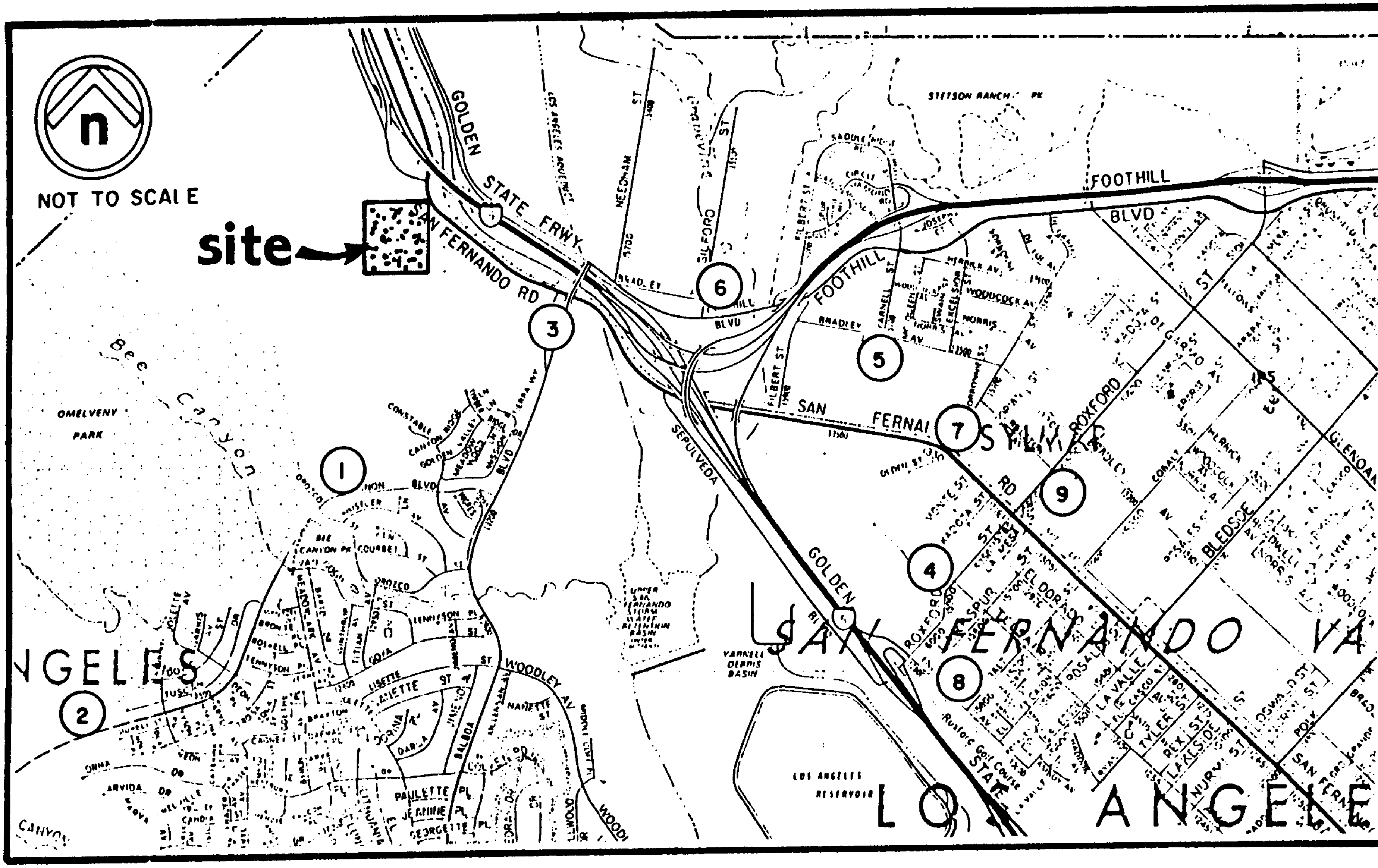
As required by CEQA, the traffic analysis must evaluate other known related projects to be developed in the area. The other related projects (as of February 2, 1988) in the general vicinity of the landfill site that are expected to generate future traffic are shown in Figure 33.

Per instructions by the Los Angeles County Road Department, the generation factors for condominium and town house projects have been increased from the standard generation rates used by the Institute of Traffic Engineers Trip Generation Manual. Therefore, the rate used in this study for condominium and townhouse projects is approximately eighty percent (80%) of the single-family trip generation rate.

The other known projects identified in Table 33 are expected to generate approximately 5,555 new trip ends daily to the existing roadway system. It was assumed these projects, located in the City of Los Angeles, would be completed before the Sunshine Canyon extension operates at its full 17,500 ton/day capacity. In addition, it was assumed that the ambient on-street traffic volumes would increase by about six percent (6%) per year to include all of the smaller developments which are planned or can be expected to occur during the next three years.

Safety Analysis

An analysis was conducted to determine if any circulation safety problems exist in connection with trucks travelling westbound on San Fernando Road turning left into the landfill driveway. Field observations were made at the site to determine the topography and geometry of the intersection and a computerized retrieval of traffic accident records was secured from the City of Los Angeles for the period from July 1, 1982 to July 31, 1987, both inclusive. The search included the following intersections:



Source:

ULTRASYSTEMS, INC./
ASSOCIATED TRAFFIC CONSULTANTS

Title:

OTHER AREA RELATED PROJECTS (FEBRUARY 1988)

33

TABLE 33

TRAFFIC GENERATION
OTHER RELATED PROJECTS

REFERENCE NUMBER	USE	UNITS	DAILY TRIP ENDS FACTOR	DAILY TRIP ENDS VOLUME	AM PEAK HOUR FACTOR[1] IN	AM PEAK HOUR FACTOR[1] OUT	AM PEAK HOUR VOLUME[2] IN	AM PEAK HOUR VOLUME[2] OUT	PM PEAK HOUR FACTOR[1] IN	PM PEAK HOUR FACTOR[1] OUT	PM PEAK HOUR VOLUME[2] IN	PM PEAK HOUR VOLUME[2] OUT
1.	Single-family	62	10.0	620	0.21	0.55	15	24	0.63	0.37	40	25
2.	Single-family	51	10.0	510	0.21	0.55	10	30	0.63	0.37	30	20
3.	General Office	16,000 SF	14.3	230	1.87	0.22	30	5	0.44	1.76	5	30
4.	Single-family	13	10.0	130	0.21	0.55	5	5	0.63	0.37	10	5
5.	Single-family	22	10.0	220	0.21	0.55	5	10	0.63	0.37	15	10
6.	Light industrial	189,500 SF	5.46	135	0.85	0.15	15	5	0.32	0.63	5	10
	General office	105,000 SF	14.3	1,500	1.87	0.22	195	25	0.44	1.76	45	185
	Single-family	34	10.0	340	0.21	0.55	5	20	0.63	0.37	20	15
7.	Light industrial	46,600 SF	5.46	255	0.85	0.15	40	5	0.32	0.63	15	30
8.	Single-family	39	10.0	390	0.21	0.55	10	20	0.63	0.37	25	15
9.	Industrial	60,000 SF	5.46	325	0.85	0.15	50	10	0.32	0.63	20	40
	TOTAL			5,555			380	170			230	385

Source: A - City of Los Angeles Planning Department.
B - Los Angeles County Regional Planning Department.
Generation Factors from ITE "Trip Generation, An Informational Report," 1979, with 1982 revisions.

1. Factor is a trip end per unit.
2. Trip ends are one-way traffic movements entering or leaving.

Note: All numbers are rounded to nearest 5.

1. Golden State Freeway Southbound off and San Fernando Road

2. San Fernando Road and Sepulveda Boulevard

3. Roxford Street and San Fernando Road

4. Balboa Boulevard and San Fernando Road

At the intersection of Golden State Freeway southbound off and San Fernando Road, there were two reported accidents in 1984, one of which involved a truck. In 1985, four accidents were recorded, one of which involved a truck. There were no reported accidents at this intersection in either 1986 or 1987.

At the intersection of San Fernando Road and Sepulveda Boulevard, there were no accidents reported in the five-year period.

At the intersection of Roxford Street and San Fernando Road, only one traffic accident was reported in the search period and it did not involve a truck.

At the intersection of Balboa Boulevard and San Fernando Road, a total of 53 accidents were reported in the five-year period, of which 25 involved trucks. Only 3 of those accidents involving trucks could be identified as occurring at or near the driveway to the landfill. Approximately 50% of the accidents involved left turns. The current accident rate for this intersection is 0.29 per million vehicles travelling along this road, based on an average daily volume of 23,000 vehicles.

The accident records do not indicate that any unusual safety problem exists at or near the landfill driveway or at adjacent intersections. The field observations disclosed that, due to the topography, narrow roadway, and adverse curvilinear alignment of San Fernando Road, the impression is perceived of a less than desirable section of roadway, but the accident record statistics do not support this impression.

Signal Warrants

An analysis was conducted to determine if the existing or projected 1998 traffic volumes at the intersection of San Fernando Road and the landfill driveway would satisfy any of the traffic signal warrants, as established by the State of California Department of Transportation (Caltrans). The analysis disclosed that none of the signal warrants are satisfied, nor will they be in the foreseeable future.

Summary of Potential Impacts

The overall traffic associated with the Sunshine Canyon Landfill is not expected to significantly affect operating conditions at any of the key intersections. This is due, in part, to the fact that peak hours of operation at the landfill site are between 12:00 noon and 3:00 PM. The on-street traffic peak period in the area occurs between 7:00 AM and 8:00 AM and 4:15 PM and 5:15 PM. Lower levels of the traffic volumes at the Sunshine Canyon Landfill are generated during the 3:30 PM to 6:00 PM period.

The truck traffic traveling along Balboa Boulevard and entering the intersection of Balboa Boulevard and San Fernando Road will increase the existing traffic volume by approximately 3,200 vehicles per day by 1998. This in turn will increase the accident rate of .29 per million by 0.07 per million vehicles to 0.36 accidents per million vehicles or 36 accidents per 100,000,000 vehicles passing through the intersection. The national average is 0.22 accidents per million vehicles.

Mitigation Measures

- The landfill operator will post a notice at the entrance to the site, provide handouts, and maintain regular monitoring to discourage parking of commercial trucks along San Fernando Road (especially during the AM and PM peak hours). Regulatory agencies will be notified by the landfill operator if parking enforcement is necessary.

- Queueing space for up to 130 trucks will be provided to preclude the necessity for on-street parking prior to the morning opening of the landfill. The existing facility currently opens exterior gates at 5:30 A.M. on weekdays (one-half hour before the landfill opens) to permit trucks to stack in the driveway. If necessity requires it, the gates will be opened at 5:00 AM to increase the number of vehicles that can stack in the driveway. On-site road striping and a traffic monitor will also be considered to maximize on-site queueing.

- A speed survey will be conducted prior to operation to determine the advisability of posting advance warning signs on San Fernando Road (such as W-51, "SLOW TRUCKS," or the non-standard "TRUCK CROSSING") in advance of the landfill driveway.

- A ballbank study should be conducted prior to operation to determine the advisability of posting reduced speed signs in advance of the driveway.

- To improve the intersection capacity of Balboa Boulevard and San Fernando Road from a Level of Service F to D, the southbound lanes on San Fernando Road should be restriped to include one through lane, one combination through/right turn option lane and one dedicated right turn lane.

- A second northbound left-turn lane should be provided on Balboa Boulevard at the intersection of Balboa Boulevard and San Fernando Road in order to reduce the number of left-turn accidents. It should be noted that the City of Los Angeles Traffic Engineering Department does not have any plans in the next 5-year Capital Improvement Program to improve the accident situation at this intersection. The introduction of the second left turn lane is expected to reduce the accident rate at this intersection to below the national average of 0.22 accidents per million vehicles.

- To improve the intersection capacity of San Fernando Road and the project entrance from a Level of Service E to D, construct a second northbound left-turn lane and a southbound right-turn only lane on San Fernando Road at the landfill entrance.

- All mitigation measures shall be implemented at the applicant's expense upon approval and with the authority of the appropriate agencies.

- Composting or resource recovery activities will be encouraged by the applicant to reduce the volume of waste material, thus reducing traffic flows at the landfill.

3.2.9 Noise

Environmental Setting

The project site is located in an isolated canyon in the Santa Susana Mountains bordered on the east by the Golden State Freeway. Undeveloped mountainous terrain borders the site to the north and west. Aliso Canyon is to the southwest, East Canyon is to the west, and a 100-acre buffer area borders the site to the southeast. Directly south of the existing landfill is O'Melveny Regional Park. The project entrance is located on the east side of the property on San Fernando Road and just west of the Golden State Freeway. Near the entrance, the Freeway is elevated approximately 30 feet above grade and is the dominant active noise source in the area.

The noise environment in the project area must be addressed as a function of sources and receptors. The receptors nearest the project site are the commercial, industrial, and trailer court developments located near the Freeway east and north of the site. These developments are heavily affected by the existing freeway noise source. The other nearest noise-sensitive receptors can be identified as the residents of developments located across the Freeway to the north and northeast and to the south across the 100-acre natural buffer and an intervening ridge. The nearest residential units to the north are located approximately 5,000 feet north of the proposed landfill and north of Interstate 5. These homes are part of a housing development and are shielded from the view and any noise impacts from the landfill operation which will be masked by freeway and other non-landfill related urban noise sources; therefore these homes will not be discussed further. The other nearest residential units are located south of the project area at a distance of more than 2,000 feet. These units are also shielded from the project area by an intervening ridge which also shields these units from most of the I-5 Freeway noise (see Figures 44 and 45 in Visual Section).

Commercial property is located north of the project along San Fernando Road. There are several small industrial buildings, a firewood yard and also a small trailer court (not mobile homes) located between San Fernando Road and the railroad, which are very near the freeway.

Noise can be defined as unwanted or unpleasant sound Although a particular sound may be noise to one person, it may be tolerable, or even desirable, to another (e.g. loud music at the beach). Any particular noise source is characterized by the sound pressure level, measured in decibels (dB); the frequency of the sound emitted, measured in Hertz or cycles per second; and the duration of the sound emitted.

The human ear does not respond equally to all frequencies of sound; rather, it is less efficient at low and high frequencies than it is at moderate (speech level) frequencies. Thus, to obtain a value representing the sound perceived by the ear, it is necessary to reduce, or "weight," the effects of the low and high frequencies with respect to the medium frequencies. The resultant sound level is called an A-weighted sound level, expressed in A-weighted decibels (dBA). The dBA is a good noise descriptor since there is a great similarity between A-weighting and the frequency response of the human ear at moderate sound levels.

In general, there are two types of noise sources with respect to duration: short-term and long-term. The short-term noise sources are associated with brief bursts of sound such as an individual aircraft overflight, truck passby, or automobile horn. Long-term noise sources are associated with prolonged noise over hours or days, such as being located near a freeway or industrial processing source.

Noise levels can be obtained by actual field measurements with a noise level monitor, or can be calculated by computer modeling. Field measurements are important in identifying peak noise levels and extraordinary acoustic features (buildings, walls etc.)

that may affect calculated noise levels. Computer models are most useful in predicting highway and airport noise levels.

For purposes of measuring or expressing noise levels, several good descriptors are used, such as percentile sound (L_{50}, L_{90}, etc.); the energy equivalent noise level (L_{eq}); and the Community Noise Equivalent Level (CNEL).

The percentile sound level indicates the particular noise level exceeded during a certain percentage of a specific time period. For instance, L_{50} (average noise level) indicates the noise level exceeded 50% of the time and, likewise, L_{90} (background noise level) indicates the noise level exceeded 90% of the time.

The L_{eq} is a sound energy level averaged over a specified-time (usually one hour). The U.S. Environmental Protection Agency (EPA) has selected L_{eq} as the best environmental noise descriptor due to its reliable evaluation of pervasive long-term noise, simplicity to use, and good correlation with known effects of noise on individuals.

The CNEL is a time-weighted noise level descriptor that corresponds to people's sensitivity to noise. It results from the summation of hourly L_{eq}s over the 24-hour period with increased weighting factors applied to the evening and nighttime periods. The evening period (7:00 PM to 10:00 PM) and nighttime period (10:00 PM to 7:00 AM) are penalized by a 5-dB and 10-dB weighting, respectively. Originally designed to analyze the impact of airport noise, the CNEL is now a predominant criterion in measuring roadway noise affecting residential receptors.

Presently, local noise is generated on-site by landfill earth-moving equipment operating on the existing landfill and by vehicle traffic traveling to and from the landfill. Noise levels generated by trucks and earth moving equipment at the landfill were measured and are shown in Table 34. These noise levels were measured at a distance of 50 feet from the equipment.

TABLE 34
MEASURED NOISE LEVELS OF LANDFILL EQUIPMENT*
(dBA at 50 Feet)

Equipment	Activity Description	Noise Level(dBA)
° Garbage Trucks		
Pull-on dumpster	Climbing incline	80
Front-end dumpster	Climbing incline	86
° Dump Truck (long high sides)	Climbing incline/w demolition waste	87
° Two Ton Truck (landscaping type)	Climbing incline	72
° Dozer Tractor (Caterpillar 627 model)	Full load of dirt (forward)	82
	Backup w/buzzer	84
° Scraper (Caterpillar 627 model)	Dumping load	80
	Loading	81
° Road Grader (Caterpillar C-12 model)	No Load	83
	(at 25 ft., high RPM)	90
° Water Truck		80

* The measurements were collected using Digital Acoustics 607P V.02 Noise Monitoring and Recording Systems. Calibration of each system was performed with a GenRad 1567 Sound level Calibrator.

Figure 34 provides typical noise levels for a variety of other noise sources and references these levels to human response.

Noise level measurements were also taken offsite to determine the ambient noise in the general area surrounding the site. These readings were taken at the residences and commercial buildings nearest to the site which may be impacted by the project operation. Figure 35 shows the six off-site locations where the readings were taken. All of the readings were taken on a weekday during the hours of the day when the landfill will normally be open (6 AM to 6 PM). Although the landfill will also be open on Saturdays, the greatest intensity of the operation occurs during the week. These readings are, therefore, considered representative of noise levels throughout the six-day operating week of the landfill.

The existing daytime noise level measurements were taken over a continuous 15-minute period at the six off-site receptor locations and are listed in Table 35. Generally, the noise levels near the residential areas ranged between 36 dBA and 54 dBA. The noise levels in the commercial areas were influenced by the traffic along the I-5 Freeway and major roadways and averaged between 59 dBA and 69 dBA.

Potential Impacts

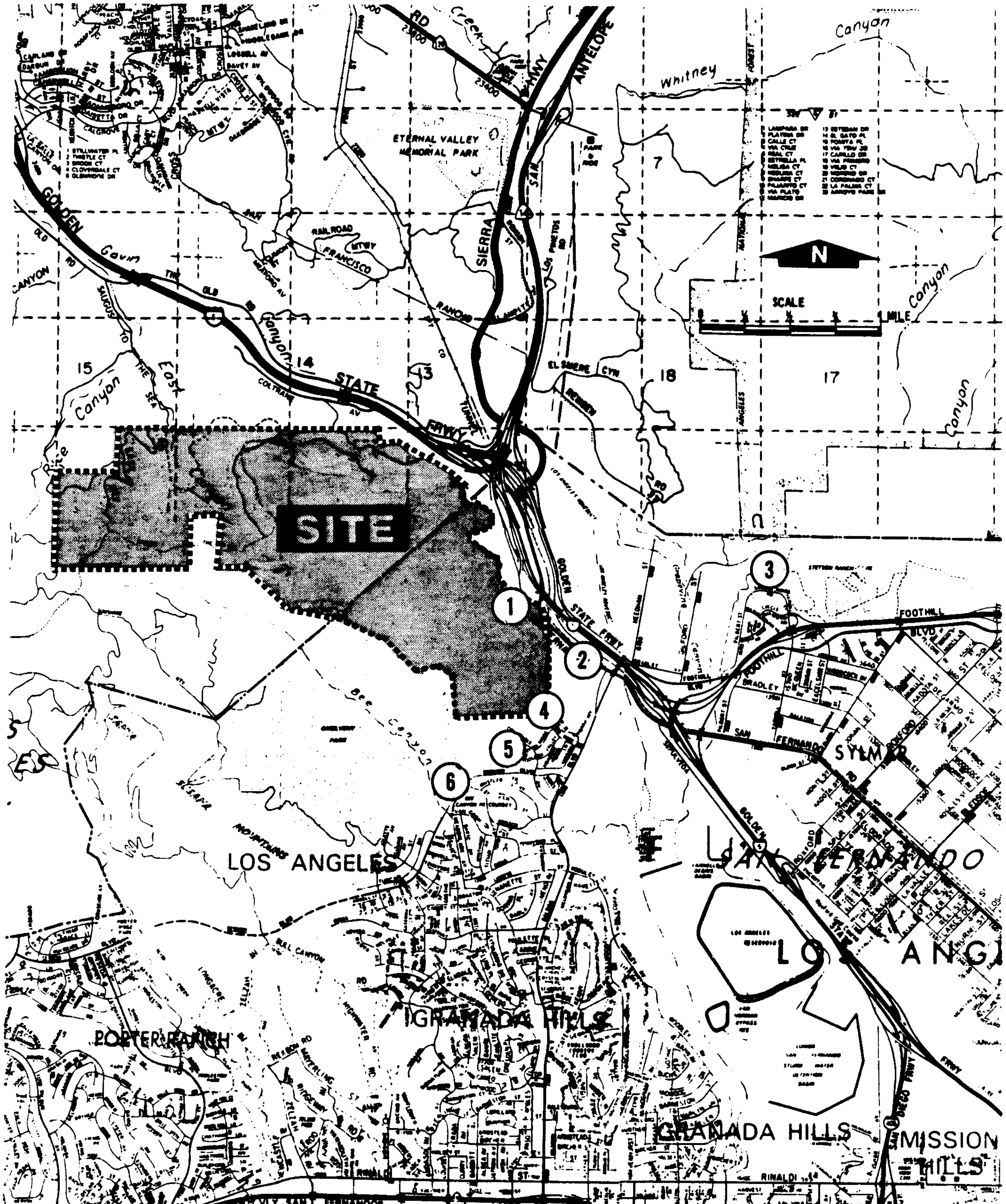
The noise from the present landfill operation is not audible at the housing development south of the landfill unless equipment is operating on the top of the ridge nearest the homes. This area of the landfill is in the City of Los Angeles and is nearing completion. All proposed activity related to the proposed landfill extension will take place within the confines of Sunshine Canyon and well below the ridge line. Therefore, the sound from the operation of the proposed landfill will be blocked from the residential units (Receptors 4, 5 and 6 of Figure 35) by the ridge. The noise will be reduced at Receptor location 3 by the large distance (5,000 ft.) from the project area. Any landfill operation noise that may be audible at Receptor locations 1 and 2 will be masked by freeway noise.

ACOUSTICAL SCALE

		dBA*	
LETHAL		–180–	
		–175–	
		–170–	
		–165–	
		–160–	
		–155–	
		–150–	
		–145–	
	Sonic Boom	–140–	
		–135–	
THRESHOLD OF PAIN		–130–	
	Jet Takeoff at 200′	–125–	
		–120–	
		–115–	Discotheque
PHYSICAL DISCOMFORT	Motorcycle at 20′	–110–	
		–105–	Power Mower
		–100–	
	Freight Train at 50′	–95–	Newspaper Press
	Propeller Plane Fly-over at 1,000′	–90–	Food Blender
		–85–	Electric Mixer
	Freeway Traffic at 50′	–80–	Washing Machine; Alarm Clock; Garbage Disposal; Electric Can Opener
		–75–	Office with Tabulating Machines
	Average Traffic at 100′	–70–	Vacuum Cleaner; Portable Fan
		–65–	Electric Typewriter at 10′
		–60–	Dishwasher Rinse at 10′; Air Conditioning Unit
		–55–	
		–50–	Normal Conversation at 12′
	Light Traffic at 100′	–45–	Refrigerator
		–40–	
		–35–	Library
		–30–	
		–25–	
		–20–	Motion Picture Studio
		–15–	
		–10–	Leaves Rusting
		–5–	
THRESHOLD OF HEARING		–0–	

* The unit of sound is the decibel (dB). The loudness of sound is typically measured using a sound meter, the A-Scale of which corresponds closely to the way the human ear perceives sound.[2] Thus the sound level for noise evaluations is frequently expressed in dBA.

ultrasystems	Source: LOS ANGELES COUNTY GENERAL PLAN NOISE ELEMENT	Title: TYPICAL NOISE LEVELS	34



ultrasystems

Source:	Title:	
ULTRASYSTEMS, INC. BASE MAP: THOMAS BROTHERS	NOISE RECEPTOR LOCATIONS	35

TABLE 35
EXISTING NOISE LEVELS AT SELECTED RECEPTOR LOCATIONS
(July 31, 1986)

Location Number	Description	Noise Level(dB)*	Comments
1	Trailer Park North of project Entrance 15 feet from San Fernando Road at 10:03 AM.	72 (LEQ) 67 (L_{50}) 59 (L_{90})	Dominant Noise was traffic on San Fernando Road with Freeway traffic in the background. Landfill operations only audible when no traffic on roadway.
2	San Fernando Road 200 yards north of Balboa Boulevard at 11:04 AM.	71 (LEQ) 69 (L_{50}) 65 (L_{90})	Dominant noise source was traffic on roadway and I-5 and train pass by.
3	North of 210 Freeway on Saddle Ridge Road at 8:00 AM.	50 (LEQ) 45 (L_{50}) 41 (L_{90})	Air conditioner and Freeway are dominant noise sources. Landfill equipment is visible but not audible.
4	North of Balboa Boulevard on Timber Ridge Drive at 8:20 AM.	52 (LEQ) 48 (L_{50}) 41 (L_{90})	Can hear swimming pool pump from nearby residence. Now view of landfill and no audible landfill noise.
5	North end of Constable Avenue.	49 (LEQ) 42 (L_{50}) 36 (L_{90})	Traffic on Balboa Blvd landfill equipment faintly audible at times.
6	Sesnon Boulevard at Orozco Street.	55 (LEQ) 54 (L_{50}) 39 (L_{90})	Home air conditioner noise. Landfill equipment is visible and faintly audible when very quiet.

* LEQ = Noise energy level averaged over specific increment of time.
L_{50} = Average noise level if the noise is above and below their level 50% of the time.
L_{90} = Background noise level, i.e., noise level exceeded 90% of the time.

NOTE: LEQ is a very good descriptor "to measure average environmental noise levels to which people are exposed" (EPA Office of Noise Abatement and control, EPA 550-19-79-1000, November 1978, Page 4).

Possible noise level increases resulting from landfill extension traffic will primarily affect land uses along San Fernando Road. As indicated in the Traffic and Circulation Section (3.2.8) of this document, almost all project-related traffic accesses the site via a freeway to San Fernando Road and into the site.

Projected noise level increases along San Fernando Road, both north and south of the project entrance, were calculated using the traffic levels in Table 36 and the FHWA Highway Traffic Noise Model (FHWA-RD-77-108 U.S. Department of Transportation). A 45-mile per hour speed was assumed and a vehicle mix (truck and auto) based on current and projected conditions. Work sheets are contained in Appendix Y, Volume IIB.

The projected noise level increases are presented in Table 37 and the change in the CNEL* noise contours along San Fernando Road are presented in Figure 36. The existing noise level at the trailer park on San Fernando Road just north of the project entrance, at 50 feet from the roadway centerline where the nearest unit is located, is 71.45 CNEL. The proposed project is expected to increase this level by approximately 0.59 dB. A total increase of 1.27 dB can be expected in 1998 when other development traffic is included. The existing noise level south of the project entrance is 73.42 CNEL and is estimated to increase by 1.43 dB with the project, and by a total of 3.56 dB with other cumulative development by 1998. The project's increase in noise level is not considered significant because at least a 3 dB increase is the minimum level of increase that is perceptible by the human ear.**

* Community Noise Equivalent Level

** Quieting: A Practical Guide to Noise Control, NBS Handbook 119, U.S. Department of Commerce/National Bureau of Standards.

TABLE 36

EXISTING AND PROJECTED TRAFFIC VOLUME (ADT)
SUNSHINE CANYON LANDFILL

LOCATION	EXISTING ADT W/O EXTENSION	EXISTING ADT WITH EXTENSION	EXISTING ADT WITH PROJECT AND FUTURE GROWTH (1998)	EXTENSION CONTRIBUTION
1. Golden State Fwy (I-5) East of Project Entrance	146,000*	-	-	No significant change
2. San Fernando Rd. NW of Entrance	21,579**	21,961	23,923	382
3. San Fernando Rd. NW of Balboa Blvd. and SE of Entrance	23,392***	26,190	28,261	2,798

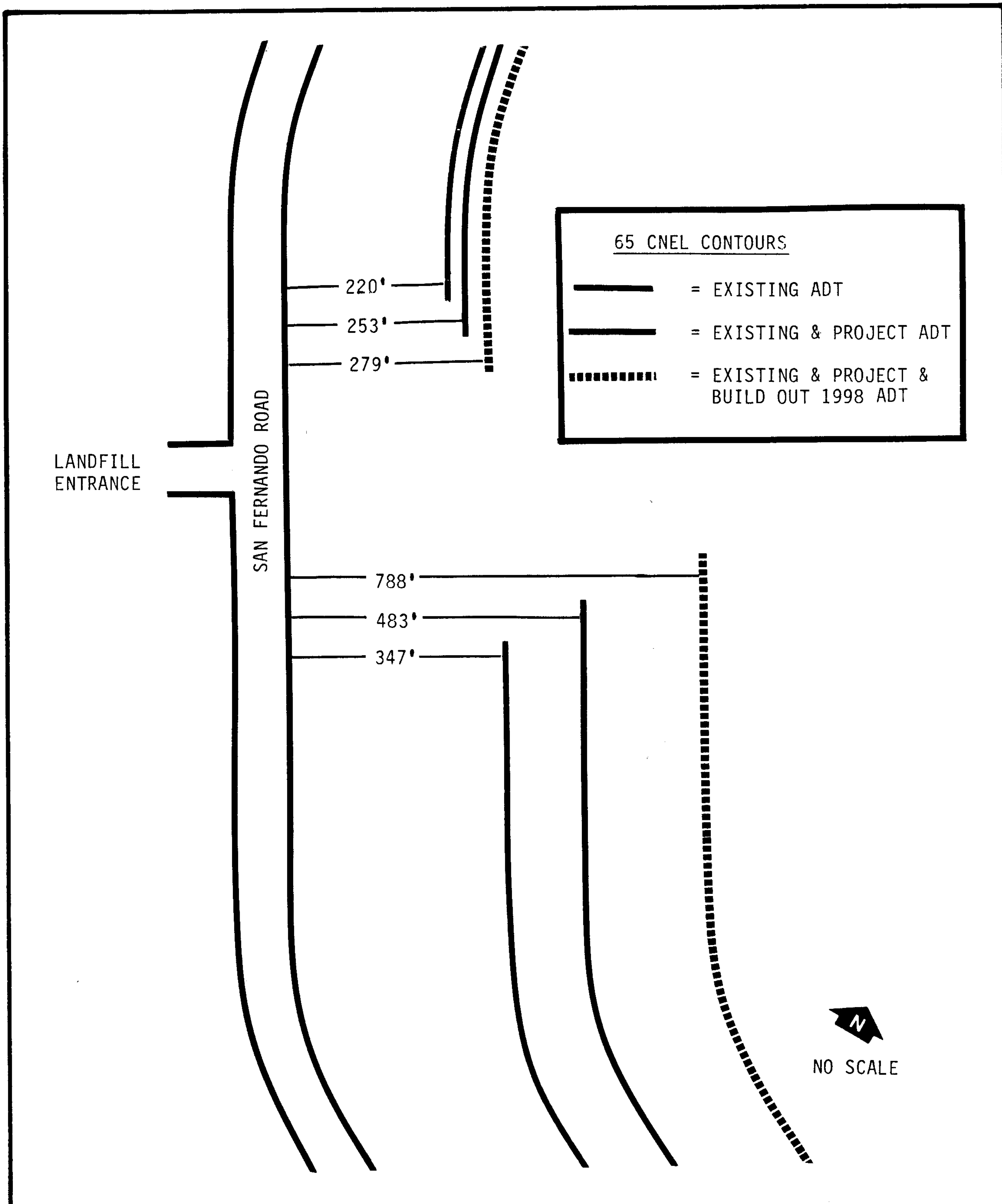
* 1984 Caltrans counts.
** 1988 Traffic Report by Associated Traffic Consultants.
*** Ibid.

TABLE 37

PROJECTED NOISE LEVEL (CNEL) INCREASES
ALONG SAN FERNANDO ROAD

LOCATION	EXISTING NOISE LEVEL AT 50 FEET FROM ROADWAY CENTERLINE (dB)	NOISE LEVEL WITH PROJECT (dB)	NOISE LEVEL WITH PROJECT AND FUTURE GROWTH (1998) (dB)	NOISE LEVEL INCREASE WITH PROJECT (dB)	NOISE LEVEL INCREASE WITH PROJECT AND FUTURE GROWTH (1998) (dB)
Trailer park North of Project Entrance	71.45	72.04	72.72	0.59	1.27
San Fernando Road North of Balboa Blvd. and South of Project Entrance*	73.42	74.85	76.98	1.43	3.56

* There are no residential receptors along this section of San Fernando Road.



Source: ULTRASYSTEMS INC.

Title: UNATTENUATED 65 CNEL CONTOURS

36

Taking into consideration the distance from the noise sources to receptors, number of pieces of equipment operating and intervening topography, the maximum noise level from future landfill operations, projected at the nearest residence, is approximately 40 dBA which is well below the existing standards for daytime residential noise levels established for the County of Los Angeles (50 dBA) and also the City of Los Angeles (50 dBA). The projected noise levels from on-site project operations will not cause any significant effect on the surrounding land uses and the resulting noise levels will be well below ambient levels at the residential receptors.

Project-generated traffic may have indirect environmental impacts. Specifically, some of the residents located near Balboa Boulevard south of the site have expressed concern over potential increased noise levels along Balboa due to the increase of landfill-related truck traffic. The City Ordinance No. 161201 prohibits trucks (other than those trucks that are required to serve the local community) with a gross weight greater than 6,000 lbs from utilizing Balboa Boulevard between San Fernando Road and Rinaldi Street. Therefore, landfill-related truck traffic will not influence ambient noise levels in that area.

Mitigation Measures

- Landfilling operations will be limited to the hours from 6 AM to 6 PM, Monday through Friday and from 7 AM to 4:30 PM on Saturday, thus minimizing the impact of any potential noise impacts on the residences and businesses along the traffic routes. The landfill is closed on Sundays.

- As mentioned in Section 3.2.8, Traffic/Circulation, commercial refuse vehicles, not directly associated with local community services, will be prevented by city ordinance from using Balboa Boulevard as access to the site. In addition, private citizens using the landfill will be encouraged to use alternate routes other than Balboa Boulevard. This action will minimize the landfill-related traffic noise along the roadway and the surrounding residential areas.

- All landfill equipment will be equipped with low-noise mufflers and will be properly maintained.

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3.2.10 Visual

Environmental Setting

Visual Features

The most prominent visual features of the project site include several rocky ridges which surround the perimeter of the landfill canyon. The ridge along the western and southern boundary of the site rises to a maximum elevation of about 2,650 feet. The ridge which forms the north/northeast boundary of the site has a maximum elevation of about 2,080 feet. The canyon descends from its northwestern limit (2,470 feet) easterly to the mouth located near San Fernando Road at 1,325 feet. The southern canyon ridge and northern ridge converge at this point to form a narrow mouth (see Figure 6, Site Aerial Photo).

The area surrounding the site contains terrain which is similar to the steep ridges and rocky canyons found on the site. No other developments are located near the landfill in the eastern Santa Susana Mountains besides a ranch house and oil field equipment. Some commercial development is located along the eastern and northern edges of the mountains. There are also some residential developments located east and south of the site near the base of the mountains.

The Newhall Canyon area east of the project's entrance is one of the major transportation corridors into the San Fernando Valley from the San Joaquin Valley and the Mojave Desert areas. Two major freeway interchanges along with the associated on and off ramps, frontage roads, and truck routes are located in this canyon area. The Golden State Freeway (I-5) connects with the Antelope Valley Freeway (SR 14) north of the project entrance, and with the Foothill Freeway (210), southeast of the project entrance.

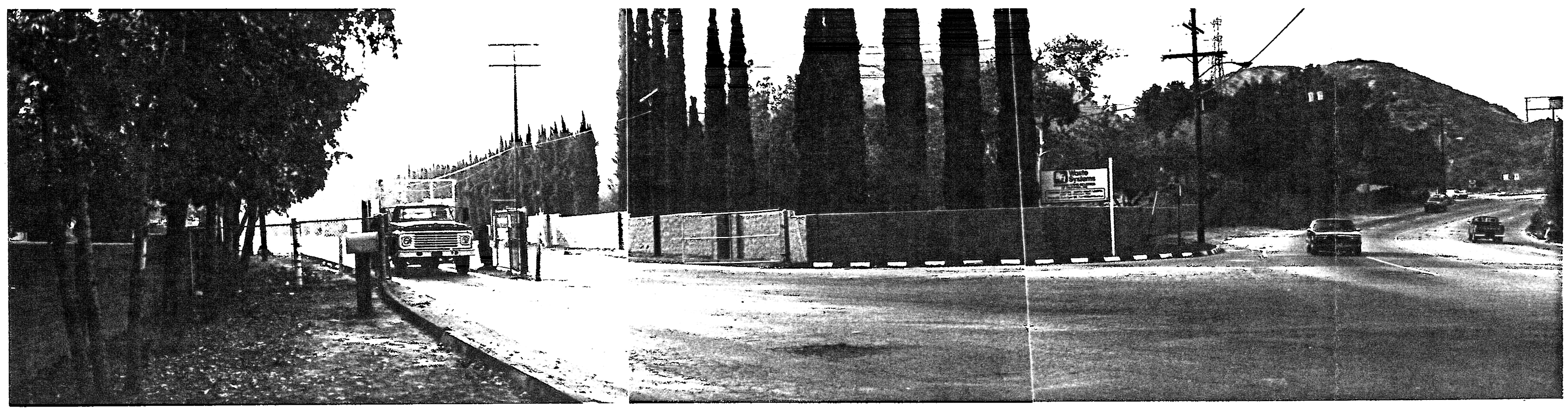
Surrounding properties are generally located at elevations well below the project site ridgelines. North of the site, the topography descends to about 1,000 feet at Interstate 5 in Weldon Canyon. Ridges and canyons occur south and west of the site in O'Melveny Park with a topographic high at Mission Point (2,771 feet) which drops to below 1,500 feet at residential areas south of Bee Canyon. The urbanized areas located southeast of the site are below 1,300 feet elevation.

Viewsheds

The topography of the site, which is dominated by its perimeter ridges, effectively obstructs views of the interior canyon from adjacent properties. Viewshed areas are therefore limited to locations elevated above the site's perimeter ridges, or locations where the mouth of the canyon can be seen. Figure 37 shows a view of the project site from the San Fernando Road entrance to the landfill. Areas more distant from the site provide better viewing opportunities.

A Viewshed Map has been prepared as Figure 38. This figure shows primary areas from which all or a portion of the site's interior slopes and canyon areas may be seen. Viewshed area 'A' is limited to an area of elevated topography near Mission Point. The interior of the site can be seen from this area at elevations above 2,400 feet. Few people view the site from this location because of limited access.

Viewshed 'B' identifies a corridor along the Golden State Freeway (Interstate 5) and the Antelope Freeway (State Route 14). The project is located southwest of the junction of the Golden State Freeway and the Antelope Freeway. The Golden State, Antelope, and Foothill Freeways in the vicinity of the landfill are designated as



ultrasystems

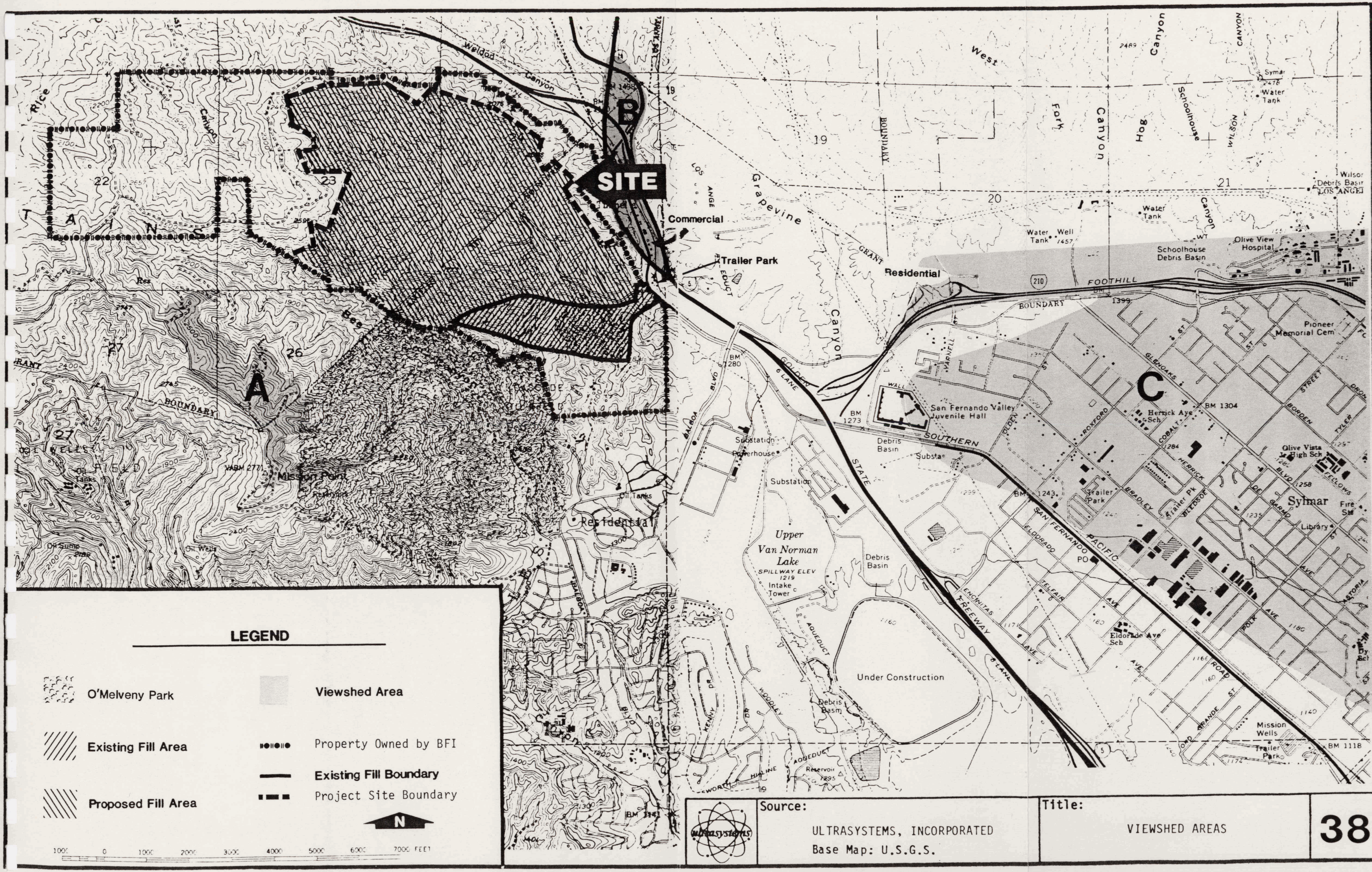
Source:

ULTRASYSTEMS, INC.

Title:

PHOTOGRAPH OF SITE ENTRANCE ON SAN FERNANDO ROAD (Photo location #5, Figure 39)

37



Source: ULTRASYSTEMS, INCORPORATED
Base Map: U.S.G.S.

Title: VIEWSHED AREAS

38

scenic highways in the Los Angeles City and County General Plans*. At the nearest viewing point, portions of the canyon to be developed are located in Los Angeles County approximately 1/3 mile (2,100 feet) from the I-5 freeway and about 1-1/3 miles (7,000 feet) and beyond from the Foothill Freeway. Motorists utilizing these roadways may view the interior portions and mouth of the Sunshine Canyon; however, the primary views of the landfill are of the existing slopes which are being revegetated.

The largest area from which the site may be seen is located in Viewshed Area 'C'. This area, located over one mile southeast from the canyon site, provides viewing locations because it faces the mouth of Sunshine Canyon and is located along the axis of the east-west canyon alignment. The Foothill Freeway is located within this viewshed area. The remainder of this viewshed area is comprised of the urbanized Sylmar area of the San Fernando Valley. The site is not visible from other urbanized areas such as south of Balboa Boulevard, or along Sesnon Boulevard (included in Scenic Highways Plan, City of Los Angeles).

The identification of these viewshed areas does not account for localized intervening topography, existing structures, and vegetation which obstruct views of the existing landfill and canyon from many locations within this viewshed. This is particularly evident from lower elevations in the San Fernando Valley (Viewshed Area 'C').

Litter

During high wind conditions lighter waste materials such as leaves, paper, and some thin plastics bags can migrate from the working face of the landfill. This litter/debris is retained within

* Scenic Highways Plan, Circulation Element of the General Plan of the City of Los Angeles; Department of City Planning, City of Los Angeles, adopted February 1978. Scenic Highways Element, Los Angeles County General Plan, Department of Regional Planning, adopted January 1975.

the landfill properties by litter fences located along the perimeter of the landfill, as well as by portable litter fences adjacent to the daily landfill operations.

In the winter months when heavy winds are predominantly out of the northeast, stray litter can occasionally blow into O'Melveny Park and into nearby surrounding areas. However, recently the landfill operator has set aside an area within the existing landfill that is further from the southern landfill boundary and is protected from these heavy winds. This area is used for waste disposal during times when high winds occur.

The landfill operator currently requires that all waste material contained in "open" bed vehicles be covered with plastic or tarpaulin to minimize the flyaway litter from the haul vehicles. The operator has also been routinely (every Monday or more often if necessary) conducting roadside pick up efforts along approximately five (5) miles of the primary roadways serving the landfill to collect litter that has fallen from trucks enroute to the landfill.

Potential Impacts

The proposed landfill extension will physically alter the on-site topography and therefore change the visual character of the project site within the boundaries of the canyon. Exterior ridges will not be disturbed. The large interior portions of Sunshine Canyon will be filled with refuse and earth cover. The graded fill area will alter some existing elevations in the western portions of the canyon by as much as 550 feet (see Figure 8 for final contours). The final height of fill material will be limited to a minimum of 50 feet below the canyon's perimeter ridges with some areas being as much as 300 feet below the ridges. A minimum lateral buffer of at least 50 feet will be observed on all perimeter ridges.

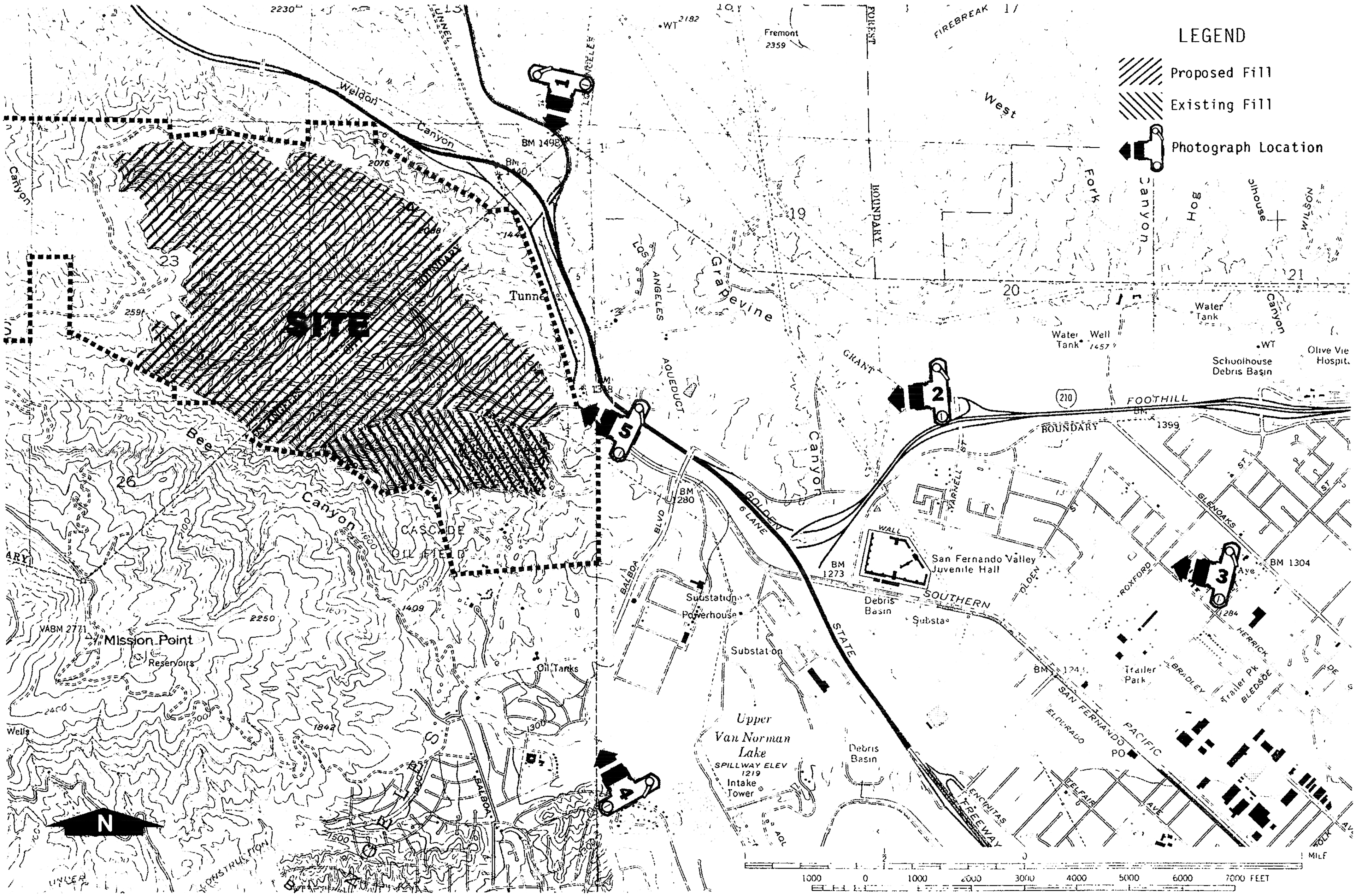
Because the development of the project requires extensive grading and filling within the interior of Sunshine Canyon, clearing of existing vegetation will be done when necessary to provide for new cut-and-fill areas, except for natural vegetation on ridges from the top of the proposed fill height to the top of the ridge. As portions of the site reach their maximum vertical fill depth, the area will be contour graded and revegetated. The top and exterior portions of the ridges surrounding the canyon are the most visible portions of the site. These ridge lines will be left in their present condition to retain the existing vegetation. The skyline which surrounds the site, as viewed by persons located in existing urbanized areas, will therefore not be altered by the project. When completed, the project interior will appear as a sloping surface instead of a canyon, with the exterior appearance of the canyon being unchanged.

Since the landfill operation is limited to daytime hours, any on-site lighting would be limited. In general, the completed project will be visible from the same viewshed locations as presently seen and identified in Figure 38. The landfill operations will be visible from areas of the San Fernando Valley located one mile and beyond southeast of the entrance to Sunshine Canyon, when views are uninterrupted by existing structures, trees, landscaping or haze. On clear days the landfill fill slopes will be visible from greater distances to the southeast, primarily before revegetation occurs, which will reduce surface contrasts. The fill areas will be visible from some of the homes and businesses located east of I-5 as well as from the Foothill Freeway and from other roadways if the view areas are uninterrupted by existing structures and landscaping local to the viewing location. Views of the project area will generally be limited to those along roadways which run in line with the view angles of the site and from second story windows which face toward the project area. In most cases, even within the viewshed areas presented in Figure 38, views of the project area will be restricted by existing structures and landscaping vegetation (i.e. trees).

Portions of the proposed fill area will be visible to southbound travellers on State Route 14, near the junction of I-5. However, views from this vantage point will be primarily of the fill slopes of the existing landfill operation. Actual views of the proposed landfill extension from locations within the viewshed area, except from the equestrian and hiking trails, will be of the filled slopes, trucks maneuvering along the access roads, and periodic earth-moving equipment installing final cover material. The actual dumping of trash, compacting and covering activities will not be distinguishable, one from the other, from the surrounding viewshed areas because of the distances between the viewer and the landfill activity.

Photographs of the site were taken from several different locations as shown in Figure 39. Figure 40 was taken from Location #1 northeast of the site near the junction of I-5 and the Antelope Freeway (SR 14) within Viewshed Area 'B'. Figures 41 and 42 show the proposed fill above the existing landfill from two locations (#2 and #3) within Viewshed Area 'C'. As shown in Figure 43, the only fill area of the site visible from Balboa Boulevard (Location #4) is part of the existing landfill operation; the proposed landfill extension site is not visible. Additionally, a comparison of photographs taken from this location in 1986 and again in 1988 shows that the fill height along this portion of the existing operation has not increased. Figure 44 shows the location of these residences south of the site along Balboa Boulevard relative to the existing landfill operation. These figures also show substantial grading and earth-moving activities being conducted for a new single-family home immediately to the south of the existing landfill site. The proposed landfill extension area, the existing landfill operation, and surrounding existing land uses can be seen on the aerial photograph provided in Figure 45. Figure 38 shows the total area within each viewshed from which the project is visible. Figure 46 provides cross-sections from two areas adjacent to the site.

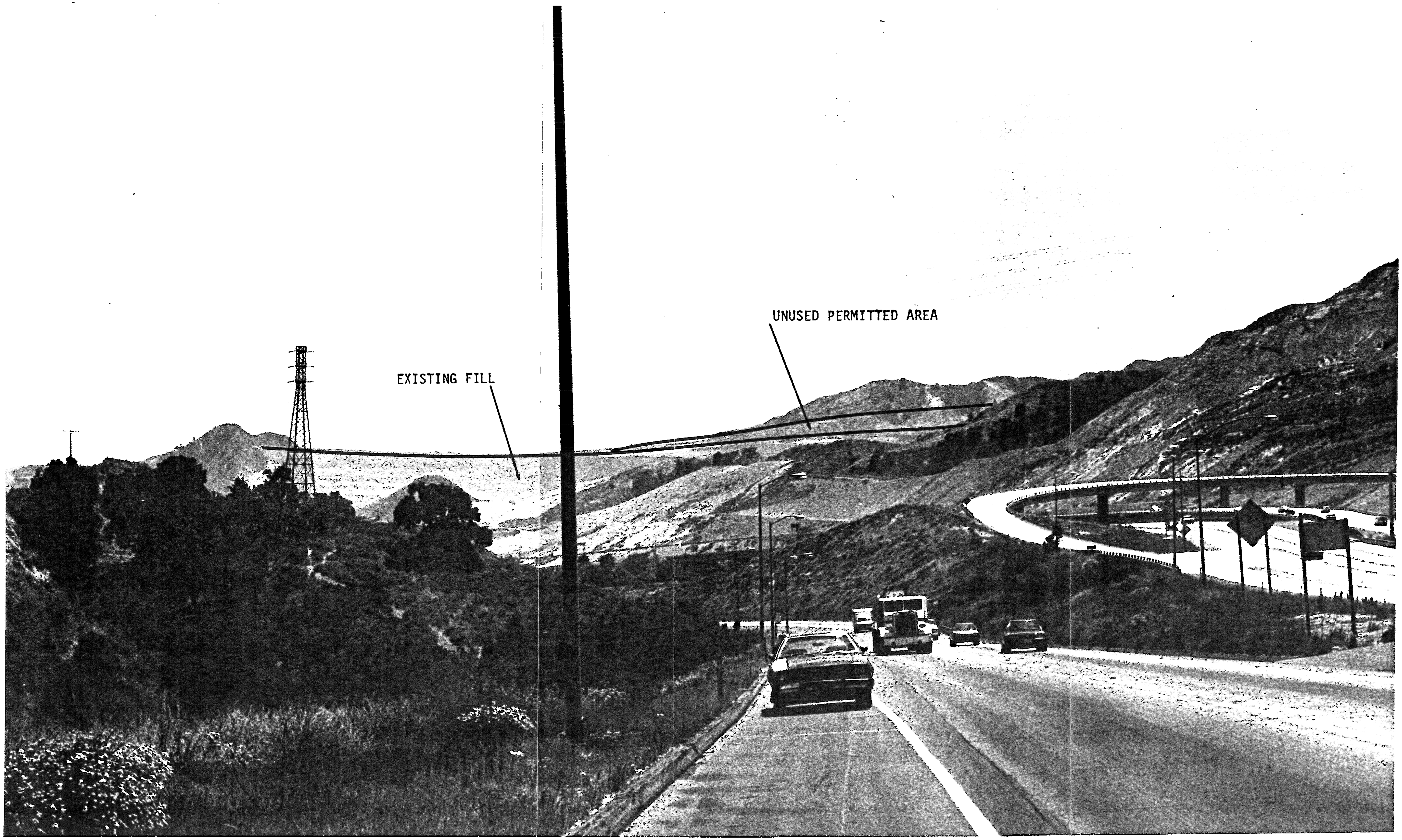
The location, distance, elevation and orientation of individual businesses and residences will determine their degree of



Source: ULTRASYSTEMS, INC.

Title. PHOTOGRAPH LOCATION MAP

39

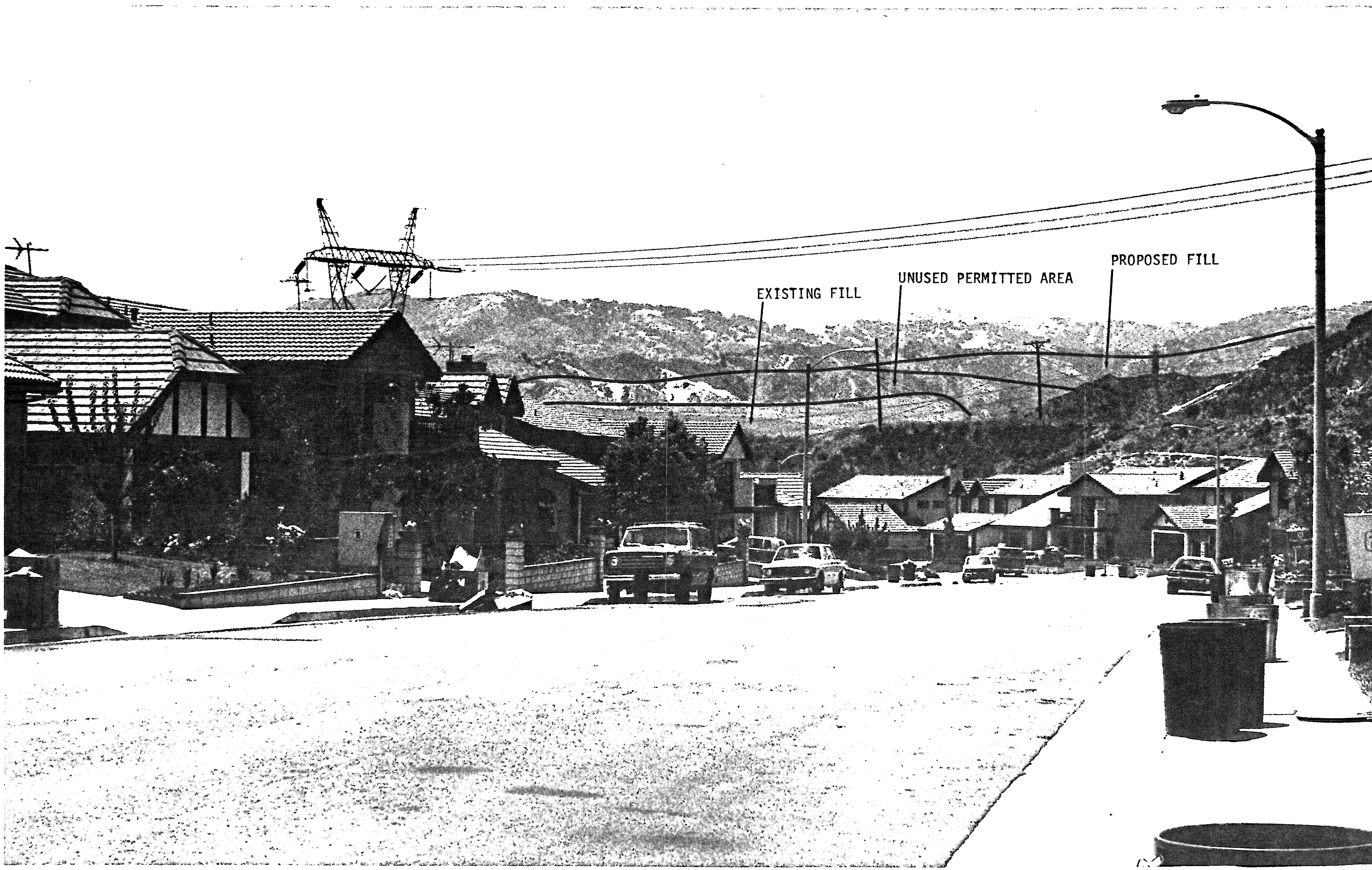


NOTE: PROPOSED LANDFILL PROJECT IN COUNTY WILL NOT BE VISIBLE FROM THIS VANTAGE POINT.

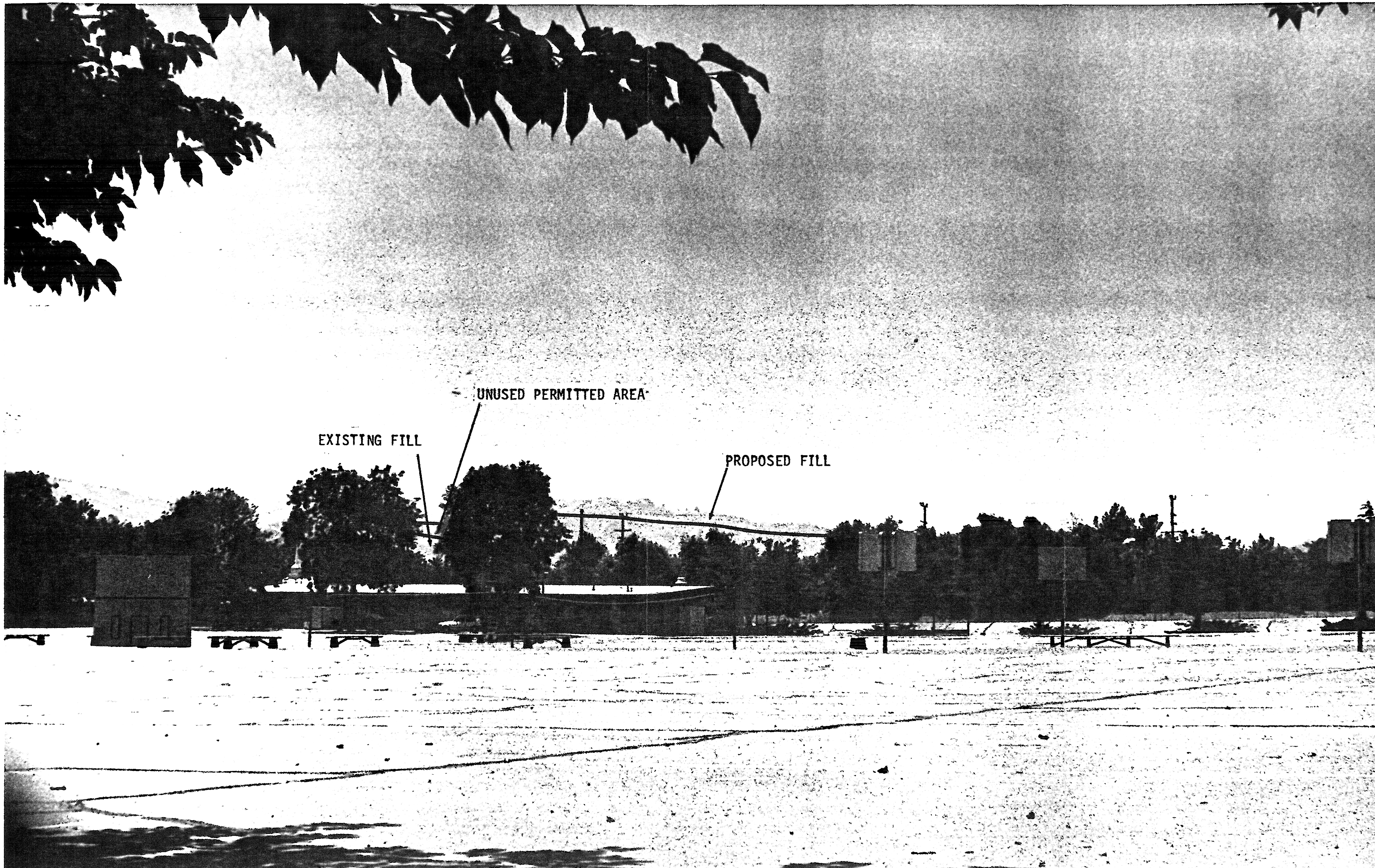
Source: ULTRASYSTEMS, INC.

Title: PHOTOGRAPH OF SITE FROM HIGHWAY 14 EAST OF I-5 (PHOTO LOCATION # 1, FIGURE 39)

40



ultrasystems	Source: ULTRASYSTEMS, INC.	Title: PHOTOGRAPH OF SITE FROM SADDLE RIDGE ROAD (PHOTO LOCATION # 2, FIGURE 39)	41



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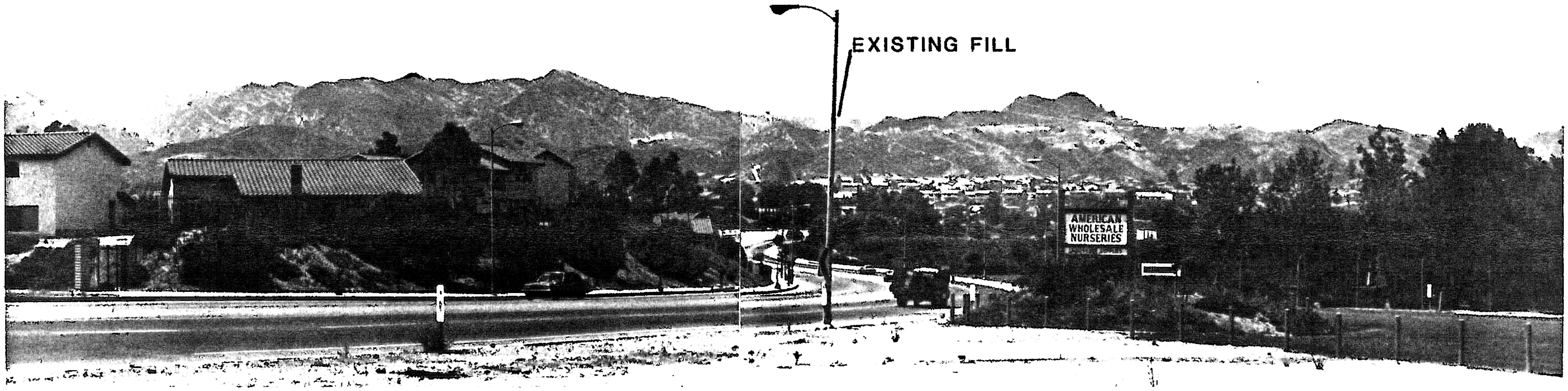
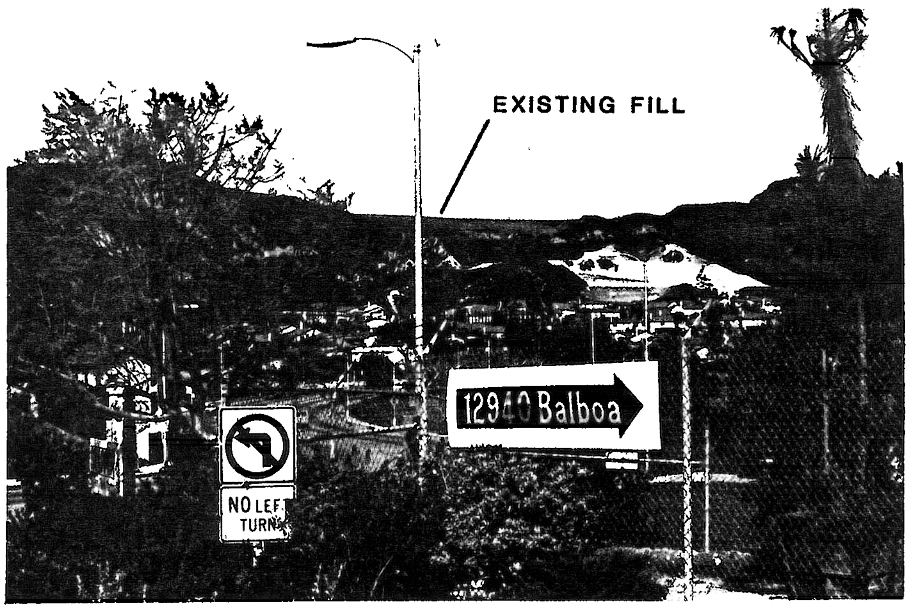
Source: ULTRASYSTEMS, INC.

Title: PHOTOGRAPH OF SITE FROM DE GARMO AVENUE EAST OF I-5 & SOUTH OF 210 (PHOTO LOCATION # 3, FIGURE 39)

42

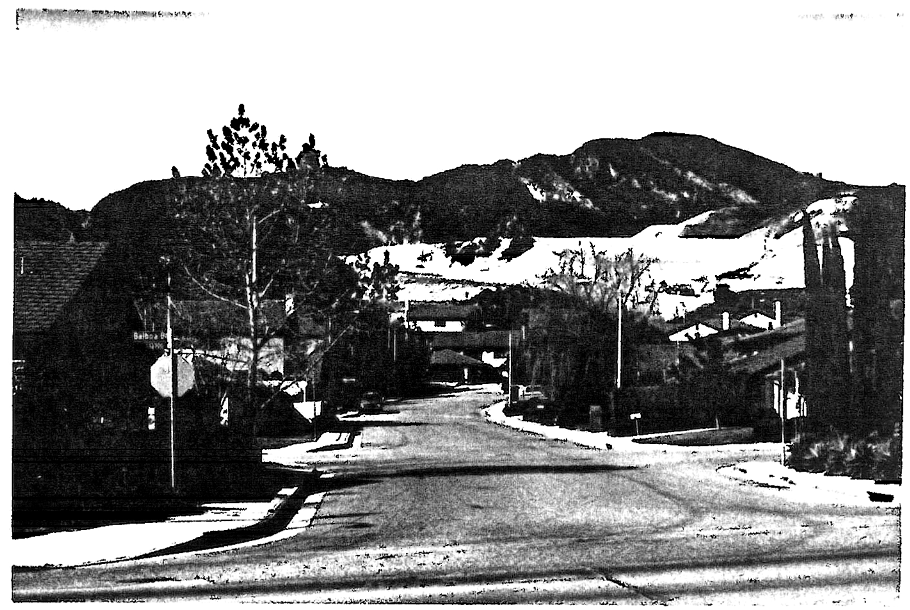


A. Photo from location #4 (1986) with existing fill noted.



B. Photo from Balboa Blvd. location #4 (1988).

Note: Grading activity for single family home in foreground.



C. Photo from intersection of Balboa Blvd..

ultrasystems	Source: ULTRASYSTEMS, INC.	Title: PHOTOGRAPHS OF SITE FROM BALBOA BLVD. (PHOTO LOCATION # 4, FIGURE 39) (Note: proposed project site not visible)	43

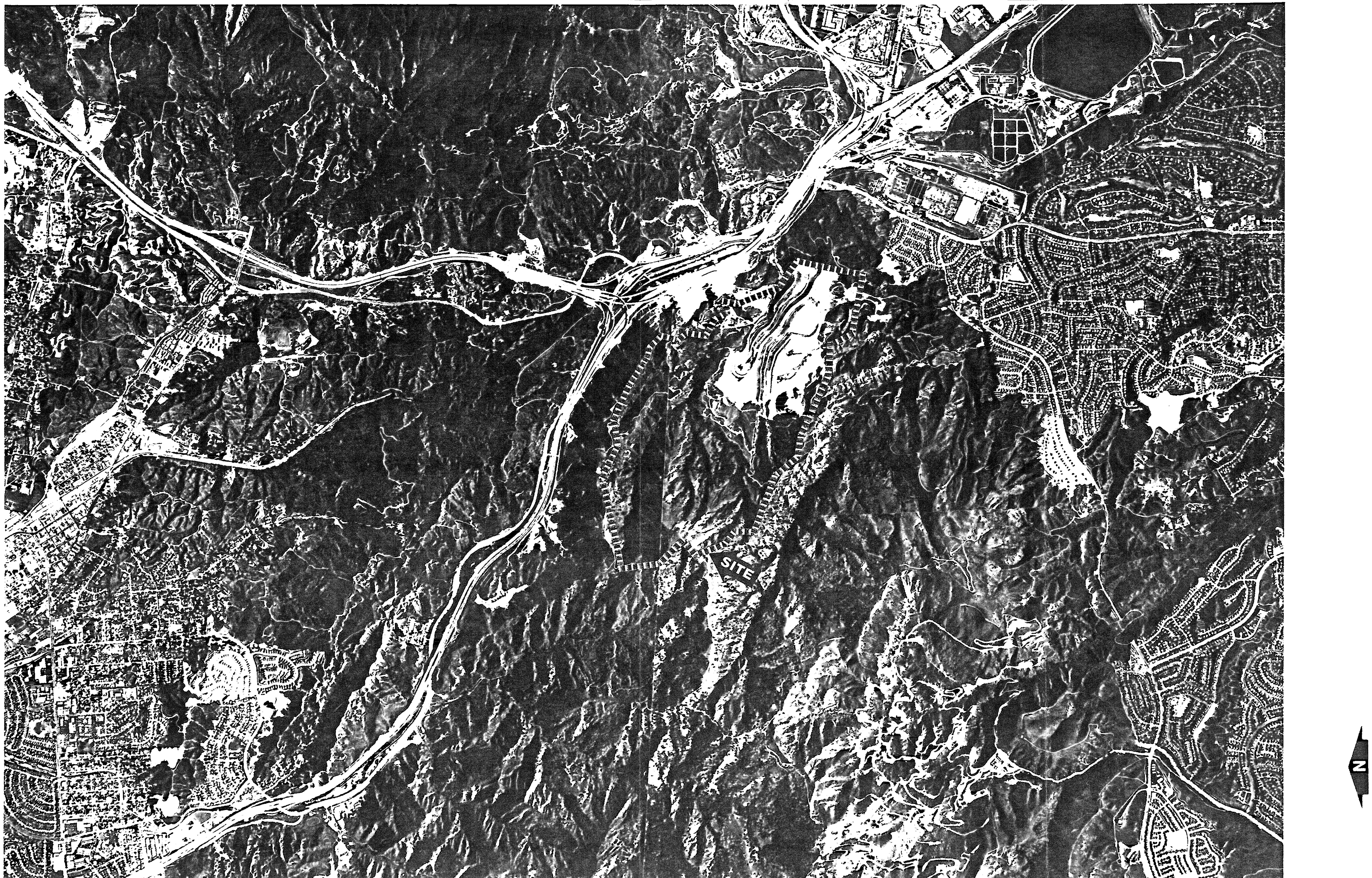
Source

ULTRASYSTEMS, INC.

Title

OBLIQUE AERIAL PHOTOGRAPH OF LANDFILL SITE SHOWING HOMES TO THE SOUTH ALONG BALBOA BLVD.

44



SCALE

1000 0 1000 2000 3000 4000 9000

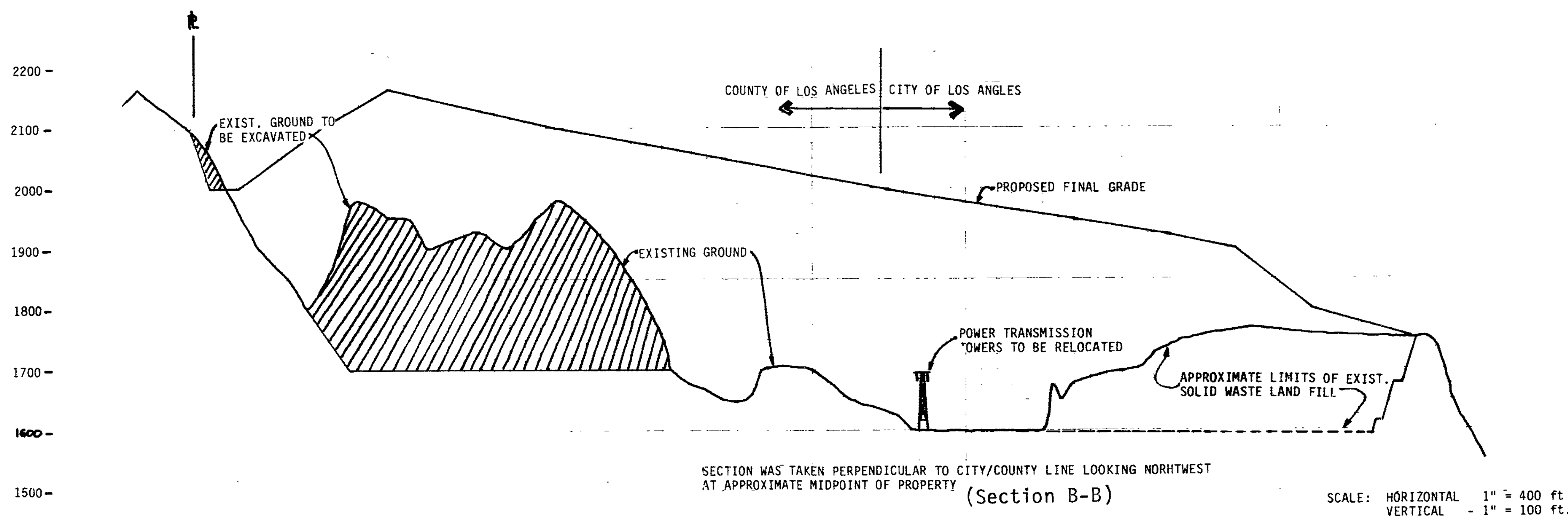
Source:

ULTRASYSTEMS, INC.

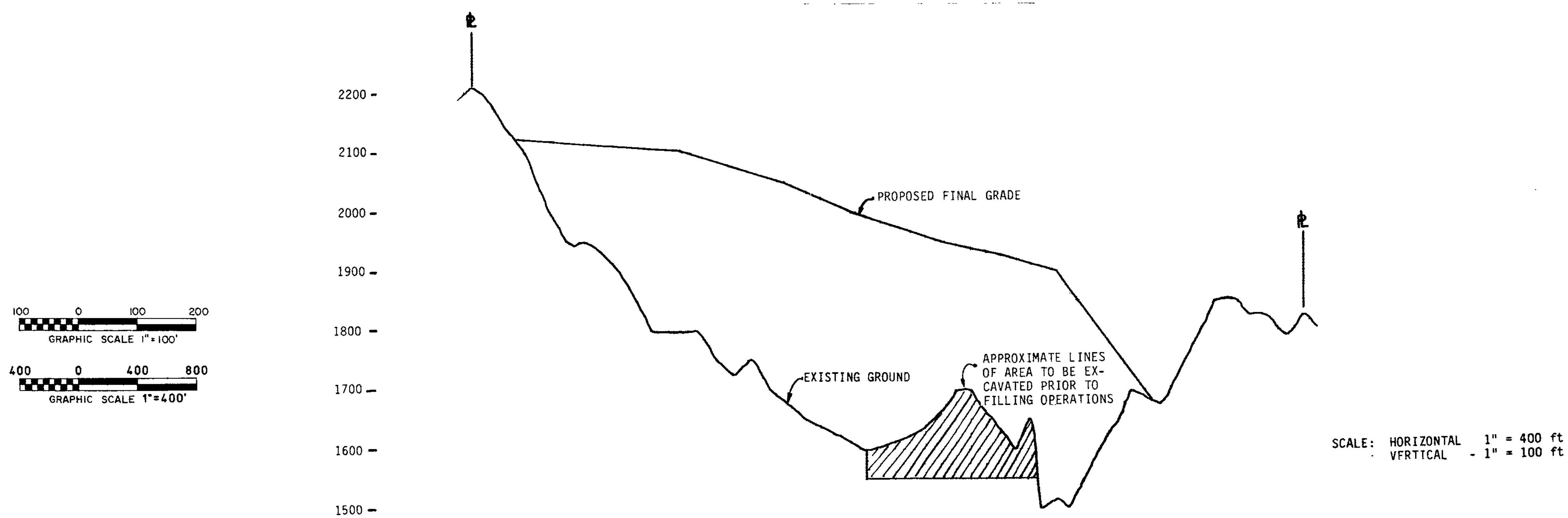
Title:

AERIAL PHOTOGRAPH OF LANDFILL SITE
SHOWING SURROUNDING LAND USES

45



SECTION WAS TAKEN PERPENDICULAR TO CITY/COUNTY LINE LOOKING NORHTWEST AT APPROXIMATE MIDPOINT OF PROPERTY (Section B-B)



SECTION WAS TAKEN ON CITY-COUNTY LINE LOOKING TO THE NORTHWEST (Section A-A)

Source:	Title:	
BRIAN, KANGAS, FOULK AND ASSOCIATES	CROSS SECTIONS OF COMPLETED LANDFILL (Sections Shown on Figure 8)	46

visual access to the project. The views of the project will be blocked by an intervening ridgeline, trees and buildings for many homes and businesses located in the viewshed southeast of the site. Localized conditions in most cases will prohibit a potential view of the landfill. A typical view of the site from the urbanized San Fernando Valley is shown in Figure 42. This view from an open school yard south of the Foothill Freeway is also partially obscured by trees and buildings.

Upper levels of the landfill extension will be visible from some elevated portions of hiking trails in O'Melveny Park (Viewshed Area 'A'). The project will also be visible from portions of elevated ridgeline trail routes proposed by the County and City of Los Angeles.

Views of the landfill from these trails may not be what most people would generally anticipate if they had not recently visited a state-of-the-art landfill. Other than for the cleared areas or areas that are interior fill areas, which could cover several hundred acres during the maximum level of landfill activity, only a small 10- to 20-acre area of the landfill is actively used, with 4 to 5 acres receiving waste material at any one time. Figure 47 presents a photo of the existing landfill operation showing the 4- to 5-acre active area, or approximately 2% of the 170± acre landfill area that is currently in operation. This photo is representative of the landfill activity that would be observed by hikers and horseback riders using the trails that are immediately adjacent to the landfill.

It should be noted that landfill development and filling of the canyon to elevations which would be visible from O'Melveny Park or the proposed trails is a slow process. The lower reaches of the canyon are filled first and only after a period of many years will the surface of the landfill become visible to hiking trail areas outside the canyon itself.

Source: BROWNING-FERRIS, INDUSTRIES

Title: VIEW OF EXISTING SUNSHINE CANYON LANDFILL OPERATIONS

47

Mitigation Measures

- The cover material shall be revegetated as specified in the Revegetation Program, Appendix H, Volume IIA, after the completion of each fill to final or interim contours. Interim vegetation will be planted on areas when an extended period of time (one year or longer) will occur before the next contour element is added (see Appendix H, Volume IIA, for composition of cover material). No landfilling will occur on the exterior ridges of Sunshine Canyon. The planned development of the canyon will be limited to a minimum of 50 feet below and up to 300 feet below the top of the perimeter ridge elevations as shown in the grading/ fill plans (See Figure 8). The proposed fill design and the prompt revegetation of the site will help minimize the visual impacts of the cut-and-fill operations.

- The cover-material excavation areas will be confined as much as possible to areas which will later be filled (within three to four months) to reduce the total area disturbed and to minimize disturbance to existing vegetation. This practice will also reduce the amount of exposed cut areas.

- The final cover material will be landscaped, once temporary irrigation systems are in place, with a ground cover mix and plant species (see Appendix H, Volume IIA) that are compatible with the immediate area and proposed grading plan, and maintained in a park-like setting until the time that it is converted to its final use. The timing will depend on the waste stream volume and policy actions of responsible agencies.

- Airborne litter is being and will continue to be controlled by litter fences, and by selectively locating the operating areas in the wind-shielded areas of the landfill during windy periods. A major portion of the landfill extension will be located in the more remote and lower portions of the canyon than have been the recent operations. In the future, any new methods or technologies for controlling airborne litter will be employed at Sunshine Canyon as appropriate.

- Radio dispatch will be utilized to quickly engage crews to respond to litter complaints and other complaints from surrounding neighborhoods.

- The landfill will be operated in accordance with the Sunshine Canyon Landfill Litter Control Program provided in Appendix HH of Volume IIB. This Program incorporates the above two mitigation measures to minimize stray litter and debris.

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3.2.11 Public Utilities

3.2.11.1 Electrical Power

Environmental Setting

Electricity for the landfill office and entrance gates is supplied by The Department of Water and Power. The existing landfill operation uses electricity for lights, air conditioning, office machines, radios, and the landfill gas extraction system.

Southern California Edison (SCE) has two electrical transmission lines located on the site. One of the lines is a 66 KV transmission line which crosses the proposed extension area in a northeasterly to southwesterly direction adjacent to the City of Los Angeles/County of Los Angeles boundary line.

Environmental Impacts

The proposed extension of Sunshine Canyon will not create a large increase in electrical usage demand on the electrical distribution systems in the area. The extension of the landfill will, however, require the relocation/realignment of the SCE transmission line which presently crosses the canyon near the City/County boundary, within the Significant Ecological Area (SEA). This line will be relocated by SCE at BFI's expense. Although the exact route for relocation has not been finalized, it is expected to remain on the operator's property. The line end points on either side of the landfill will be maintained. The actual reroute will be jointly defined by the applicant and the utility company.

Mitigation Measures

- Relocation of the electrical transmission line will be performed by SCE personnel to minimize interruption in electrical service due to the line relocation.

3.2.11.2 Water Supply

Environmental Setting

All water for the existing Sunshine Canyon Landfill is supplied by the Department of Water and Power (DWP), City of Los Angeles. This water is used for dust control, landscape irrigation, fire prevention, and domestic purposes.

The existing landfill at Sunshine Canyon used approximately 110.7 acre feet of water during a one-year period from November 1987 through October 1988. The monthly consumption average during this period was 3,005,209 gallons, or 9.2 acre feet. This usage rate is expected to continue in the future. The majority of the water was used for landscaping irrigation and dust suppression on the site. Lesser amounts of water were used for sanitary purposes at the landfill offices.

The water supply enters the site through a meter on San Fernando Boulevard. The water is then pumped to a 100,000-gallon water storage tank located on a ridge above the existing landfill. The pump tank and piping are part of the on-site water distribution system owned and maintained by BFI. The water distribution system includes appropriately located water truck filling stations and fire hose connections. Recently the landfill operator has used a dust suppression additive to increase effectiveness of water spray used for dust control.

Environmental Impacts

The amount of water needed by the landfill extension is expected to generally increase over time as the waste stream increases. The water actually required by the landfill as its operation is extended is estimated to reach an average of 0.6 acre/feet per day (200,000 gallon/day or approximately 180 acre feet per year) at its peak and vary with seasonal fluctuations in temperature, wind and rainfall. These projections are influenced by the increase in water demand as lifts are revegetated. Water demand decreases as the irrigation requirements are reduced when the vegetation becomes established.

The amount of water required for dust suppression will increase as the length of dirt roadways and size of the operating surfaces on the site increase. However, less water will be used due to a dust suppression additive now being used to increase effectiveness of the water spray.

Domestic water demands of the proposed extension will increase incrementally because of the addition of more employees.

As the demand for water increases, the supply will be provided by one or more of the following sources: 1) water wells located on properties under the operator's ownership but outside of the Sunshine Canyon's watershed; 2) Newhall County Water District; and 3) Los Angeles City's Department of Water and Power. Studies have been conducted indicating that adequate well water is available to serve the project.* In addition, both of the water supply companies have indicated an interest in serving the landfill extension. The Newhall County Water District is currently reviewing its water distribution facilities in determining the extent to which the system needs to be upgraded to accommodate the extension project. Preliminarily, it appears that this water district will be able to supply water to the landfill; however, a "will-serve" letter will not be provided until the review of system capabilities is complete.

* Letter to Dean Wise of Browning-Ferris Industries from Don Henry of Boston-Henry Company, Inc., Aqua Dulce, CA., October 27, 1987.

Mitigation Measures

- Native and drought-tolerant plants will be used to revegetate the site which will help to reduce the amount of water required for landscape irrigation.

- A dust suppression additive will be used to reduce the amount of water used for dust control.

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3.2.12 Fire Service

Environmental Setting

Hill slopes surrounding the proposed landfill extension are covered with combustible chaparral and coastal sage scrub which can provide a heavy fuel load fire hazard when mature. The critical period of concern is during the Summer and Fall periods when soil moisture is reduced and periods of Santa Ana winds occur.

Fire protection service for the project area is provided by the County of Los Angeles Fire Department. The site is within the area served by Division 3. The Fire Department would respond to a brush fire at the site as a "First Alarm Assignment." This response would include the following equipment and manpower from District 3 stations:

5 Engine Companies	2 Patrols (1 man each)
1 Helicopter	1 Battalion Chief
1 Water tender	1 Superintendent
1 Bulldozer	4 Hand Crews (10-15 men/crew)

Station 73, located at 24875 San Fernando Road in Newhall, is the closest facility to the landfill and would be the first station to respond. Average response time to the site from Station 73 is 5 to 8 minutes. Available equipment from this station which would respond to a fire includes: 2 Engine Companies; 1 Water tender; 1 Battalion Chief; 1 Patrol.

The existing landfill operation at Sunshine Canyon includes procedures to both reduce the potential of fire occurrence, and to rapidly respond and extinguish any fires which may result from the operations. As part of the existing City zoning variance for the landfill, the operation is required to install fire hydrants every 1,000 feet, clear all brush within 100 feet of operations, and maintain fire extinguishers in all heavy equipment and other on-site work vehicles. On-site water trucks also have water pumping capabilities for use in fire suppression.

The primary fire concern is for trucks which bring refuse to the site which has caught fire inside the truck. Such occurrences are managed by directing the vehicle to an isolated area where the material is dumped, then extinguished with water from the water trucks and smothered with dirt by the scrapers and dozers. The Fire Department is notified at the same time as the on-site fire response measures are initiated.

Another fire concern is that of brush fires. In the event of an on-site brush fire, the landfill operations are stopped, the Fire Department is notified, and water trucks and dozers are mobilized to create fire breaks if necessary. The landfill operator also makes heavy equipment available to the Fire Department as needed to combat off-site brush fires. Although two brush fires which originated off-site have crossed the landfill operation in recent years, Sunshine Canyon operation's personnel have indicated that there have been no on-site occurrences which have required the assistance of the County Fire Department.

Environmental Impacts

The proposed landfill extension will result in the operation of additional vehicles on the site. If an increase in refuse haulers occur, the potential for on-site fires could increase. The gas recovery system will reduce the potential for landfill gas emissions, thereby minimizing the potential risk of fires on the landfill surface. The gas flaring system currently incorporates fire detection and suppression systems in accordance with fire department standards and will continue to do so as part of the extension.

Operation of the proposed extension will include maintenance and expansion of the existing fire detection and suppression system. Extended service lines for fire hydrants and maintenance of the 100 foot fire break around working areas would continue to provide adequate on-site fire prevention measures. No increase in public fire protection assistance is anticipated.

Mitigation Measures

- Project shall maintain and expand existing fire suppression systems consistent with permit requirements of the County of Los Angeles and other applicable codes. These measures shall include as a minimum the following brush clearance requirements:

  For areas within 100 feet of structures and/or 10 feet from road surfaces,

  - All grass and weeds must be cut to 3 inches in height;
  - Native Brush must be reduced in quantity by selectively cutting plants to 3 inches in height and leaving the remaining plants at least 18 feet apart;
  - Those plants left 18 feet apart must have all dead material removed from them, and the lower branches must be removed up to at least 1/3 of the total height of the plant;
  - Trees need not be spaced 18 feet apart. The branches, however, must be removed at least 5 feet up from the ground, and all dead material must be removed;
  - All roof surfaces shall be maintained free of substantial accumulations of leaves, needles, twigs, and any other combustible matter; and

- All cut vegetation, debris, grass and weeds must be removed from the area and disposed of in a legal manner.

° The landfill operation will maintain and expand existing on-site fire response capabilities through use of heavy operating equipment and readily available fire-extinguishing equipment.

° Detailed information as to the number and locations of hydrants and fire extinguishers for mitigation of potential brush fires will be as defined by the Los Angeles County Fire Department personnel.

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3.2.13 Hazardous Materials

Environmental Setting

Disposal of hazardous waste is not permitted at Sunshine Canyon Landfill since it is a Class III facility. The proposed landfill extension will continue to operate as a Class III facility. It is recognized, however, that some household hazardous materials will enter the waste material that is brought to the landfill. This situation generally occurs when refuse is received from households which could include such materials as paint and paint thinner, used motor oil, pesticides and herbicide containers,* lye, bleach, and ammonia. If hazardous wastes in the incoming refuse are discovered by the landfill operators, the hauler is prohibited from dumping the load. Residential waste collection vehicles delivering household wastes might also contain small quantities of the above-mentioned materials.

Even though these household hazardous materials are known to be contained in municipal waste, the relatively small quantities of these materials and the absorption that occurs when they are combined with the larger quantities of non-hazardous wastes minimizes the potential for the creation of a hazardous condition.

Studies have indicated that municipal waste generally contains extremely small quantities of household hazardous materials and therefore the State Water Resources Control Board and the State Department of Health Services regard the hazards presented by disposal of residential refuse in sanitary landfills as insignificant.** Studies by the Los Angeles County Sanitation District estimated the

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* Empty containers less than one gallon in size are considered to be exempt from Hazardous Waste regulations, letter dated 2/26/87 from David J. Leu, Ph.D., Chief, Alternative Technology Section Toxic Substances Control Division, California Department of Health Services.

** Mission Canyon Landfill Draft and Final Environmental Impact Report, The Sanitation Districts of Los Angeles County, 1980.

quantities of household hazardous waste in the waste stream to be between 0.0015 percent and 0.2 percent by weight of municipal waste.

Environmental Impacts

The landfill extension will continue to be operated in the same responsible manner as the existing landfill, in accordance with the requirements of the Federal Resources Conservation and Recovery Act (RCRA), the State Waste Resources Control Board, and the State Department of Health Services.

The proposed Sunshine Canyon landfill operations procedures will include regular inspection of truck loads. In addition, truck loads are routinely monitored for unauthorized materials as they pass through the entry gate. When combined with other inspection programs and notices to customers, such as those included in Appendix G, Volume IIA, the random inspections provide an effective deterrent against disposal of unauthorized wastes at Sunshine Canyon.

Hazardous waste will not be accepted at the proposed landfill extension; however, insignificant quantities of household hazardous materials most likely will be disposed of in the proposed landfill even though the inspection procedures are strictly enforced.

Formation of leachate will be prevented by the previously-noted absorption affect and by the control of surface runoff and percolation. The absorptive capacity of the total landfill refuse far exceeds the quantity of liquid waste that may be illegally disposed of in the residential refuse.

Mitigation Measures

- The landfill will be operated in accordance with the Sunshine Canyon Landfill Waste Load Checking Program provided in Appendix G, Volume IIA. This program incorporates the following mitigation measures and other actions in order to prevent hazardous materials from entering the site.

- The existing refuse inspection program which includes both direct visual inspection and remote television monitors will be enforced by the landfill operator to prohibit the illegal dumping or disposal of liquids and hazardous wastes at the landfill. The television monitor provides the ability to inspect incoming loads from above to observe what cannot be seen from the ground. This inspection process is intended primarily for roll-off type loads and open top vehicles. It provides an efficient, but incomplete, inspection of the refuse. The television monitors, however, are an integral part of the overall inspection program. In addition, the landfill operator will continue to conduct employee training programs on hazardous waste detection. A full time staff inspector will be assigned to inspect materials as they are dumped on the operating face. Drums must be triple rinsed with tops and bottoms removed prior to acceptance. Currently only tops of drums must be removed. These programs are presented during pre-employment and during quarterly reviews for all employees, and include a slide presentation titled "Hazardous Waste Identification and Response," written handouts, and informal discussions.

- In the event that hazardous waste is discovered by the landfill operator at the working face the operator shall 1) detain the vehicle driver and obtain his driver's license and vehicle license number; 2) notify the Hazardous Materials Units of the Los Angeles City Police Department; and 3) notify the County of Los Angeles Department of Health Services, Hazardous Waste Control Program so that these agencies can impose criminal penalties on the hauler(s).

- Procedures for disposal of hazardous material will be provided to waste haulers on a routine basis.* Notices will also be posted at convenient locations on the site to inform waste material haulers of the rules and regulations governing the disposal of hazardous waste.

- The landfill operator will provide a 24-hour emergency hot-line connected directly to an answering service that will notify landfill personnel for immediate response.

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* Copies of posted notices, materials provided to waste haulers and inspection system descriptions are contained in Appendix G, Volume IIA.

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3.3 Environmental Effects Which Cannot Be Avoided

This section lists those unavoidable adverse environmental impacts which cannot be avoided if the proposed Sunshine Canyon Landfill Extension is approved and implemented. The only unavoidable adverse environmental impact which will remain significant after mitigation is the loss of vegetation.

3.3.1 Geology

There will be a change in the Canyon's topography and landform; however, there will be no significant adverse geologic impacts.

3.3.2 Surface Water

During heavy precipitation periods, the active fill areas will be subject to erosion and infiltration.

3.3.3 Groundwater

There will be a decrease in Sunshine Canyon non-potable groundwater recharge; however, there is no beneficial use of the groundwater after the project is in operation.

3.3.4 Biota

Approximately 2-1/2% of the acreage within the County's SEA #20 will be lost as a result of the proposed project's operation. The project will also add to the existing gene flow barrier created by Interstate 5 and Highway 14, between the Santa Susana and San Gabriel Mountain ranges. The flora and much of the fauna in the extension area will be lost: 13 acres of Riparian Woodland, 186 acres of Southern Oak Woodland area, 427 acres of Coastal Sage Scrub, 30 acres of Chaparral, and 50 acres of Annual Grassland. Approximately 8,331± oak trees would be removed by the project. The loss of this vegetation will represent a significant adverse impact.

3.3.5 Archaeological, Historical and Paleontological Resources

The proposed project will require excavation and salvaging of any undetected archaeological sites or fossils which may currently exist on the property.

3.3.6 Air Quality

Localized dust on dry windy days may occur, along with air emission from the flaring of landfill gas if it is not commercially marketed. The flaring could generate up to 5,440 lbs/day of CO, 960 lbs/day of NO_x and between 120 and 160 lbs/day of particulates.

3.3.7 Odor/Landfill Gas

Infrequent detection of odors from solid waste landfill operations may occur.

3.3.8 Traffic/Circulation

An increase in refuse truck traffic (3,180 trip ends) will occur on the major roadways serving the project area. The project will contribute to the cumulative adverse intersection capacity condition at San Fernando Road and Balboa Boulevard intersection.

3.3.9 Noise

Development of the project will cause an incremental increase in the noise levels along San Fernando Road near the site.

3.3.10 Visual

The interior topography of Sunshine Canyon will be altered to a sloped surface. The landfill activity will be seen from distant locations southeast of the site. Views of the landfill activity will occur from specific locations along the hiking trails in O'Melveny Park and portions of the Golden State, Foothill and Antelope Valley Freeways.

3.3.11 Public Utilities

An increase in water consumption will occur, reaching a peak daily use of approximately 200,000 gallons.

3.3.12 Fire Service

No impacts anticipated.

3.3.13 Hazardous Materials

There will be the potential for having small quantities of household hazardous materials illegally disposed of in the landfill.

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4.0 ALTERNATIVES

The California Environmental Quality Act (CEQA) requires that a range of reasonable alternatives to the project or the location of the project be described which could feasibly attain the basic objectives of the project.

Subsection (5) of Section 15126(d) of the CEQA Guidelines states that "The range of alternatives required in an EIR is governed by 'rule of reason' that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice. The key issue is whether the selection and discussion of alternatives fosters informed decision making and informed public participation. An EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative."

The objective of the proposed landfill extension is to provide needed solid waste landfill capacity. Alternatives to the proposed action which are considered in the following discussion include the 'no project' alternative as required by CEQA, an evaluation of alternate sites, resource recovery systems and waste reduction, a reduced scale project, and a landfill limited to the unincorporated County portion of Sunshine Canyon.

4.1 No Project Alternative

Adoption of the 'no project' alternative would restrict use of Sunshine Canyon as a solid waste landfill site. Expiration of the operators' current City variance will result in closure of the landfill site at a date concurrent with that when the existing fill area will reach its maximum permitted capacity. The planned extension of landfill area on the remaining property under ownership would not be permitted. No additional site-specific environmental impacts would occur.

In February, 1988, a report was jointly prepared by the Bureau of Sanitation, City of Los Angeles, Department of Public

Works, County of Los Angeles, and the Solid Waste Management Department, Los Angeles County Sanitation Districts, addressing Solid Waste Management Status and Disposal Options in Los Angeles County. A time-to-crisis analysis was performed in this study assuming a variety of solid waste disposal options including recycling/composting. In all cases, in order to avoid a county-wide solid waste short-fall by the end of 1991, the extension of Sunshine Canyon landfill along with the continued operations of the five (5) other operating landfills will be necessary. The 'no project' alternative would be in conflict with all public agencies' solid waste disposal plans.

According to this study, by 1992 the short-fall in the county area will be 6,400 tons per day, increasing to 45,000 tons per day by 1997.

Because landfill capacity is a necessity for urbanized areas, closure of a currently utilized site places additional demand upon other sites to fulfill the County's waste disposal needs. Adoption of this project alternative would therefore result in increased pressure on other landfill sites. The primary impact of this decision would be a significant accelerated reduction in the available capacity and life of these other landfills. Further landfill needs would not be met. Other environmental impacts which will result may vary with each particular landfill but it is anticipated that increased traffic and air quality and noise impacts would result because of the increased number and length of vehicle trips to other remaining disposal sites. The February 1988 study cited haul costs for expanded landfills and new disposal sites, noting that for those landfill site options having comparable capacities, the haul costs are equal to or greater than those associated with Sunshine Canyon, with the exceptions of the Mission/Rustic-Sullivan Canyon landfill site. If no other additional sites are permitted, some of these landfills may be required to expand their area (if no physical or other constraints occur) with potential resulting environmental impacts to earth, water, biota, archaeology, land use, and visual resources.

The 'no project' alternative would avoid the significant adverse impacts associated with this project, such as the loss of vegetation and oak trees. However, as this alternative decreases the site life of the existing Sunshine Canyon facilities, project-related vehicular impacts (transportation, noise, etc.) would be diverted to other existing landfill sites, as would potential impacts related to the presence of hazardous materials and odors. With or without the expansion project, existing facilities at the site will remain subject to geologic, seismic, ground, and surface water impacts associated with site-specific conditions. As with the proposed project, the potential adverse effects in these impact areas would be reduced as operators comply with California Administrative Code Title 23, Chapter 3, Subchapter 15, and SCAQMD Rule 1150.1.

Under the 'no project' alternative, the reliance on existing facilities and the diversion of impacts to these facilities would be temporary. Impacts would be potentially diverted from site to site as existing capacity is fully utilized. Initially, project-related impacts would be dispersed among all existing facilities. Over time, these impacts would intensify at facilities which remain in operation for the longest period of time.

If the proposed project were not developed, the site could be utilized for other land uses consistent with applicable zoning and general plan designations. The County's Hillside Management and Significant Ecological Area land use designations allow for a variety of residential, commercial, and agricultural uses, depending on site-specific environmental constraints. Similarly, the A-2-2 zoning designation within the County portion of the site provides for residential development and various agricultural uses. That portion of the site within City jurisdiction could be developed with minimum density housing allowed under the applicable District Plan and a variety of agricultural and commercial uses provided for under the A1-1-O zoning designation. Development of the site for other uses than the proposed landfill would also eliminate the availability of the site for future open space/recreation use as is intended after landfill closure under the current proposal.

The 'no project' alternative is not considered a desirable alternative because it would place a severe constraint on the solid waste disposal system in the County of Los Angeles. To fulfill its landfill requirements, the County and City of Los Angeles would need to look for other sites which may not be environmentally desirable. In addition, this alternative would not enable an existing landfill location to utilize its available resource capacity.

4.2 Alternate Project Location

Elsmere Canyon has been mentioned by Los Angeles City officials* as an alternative to the expansion of the Mission Canyon Landfill and the extension of Sunshine Canyon Landfill for meeting the City's landfill needs. Elsmere Canyon is located approximately two miles northeast of Sunshine Canyon and was considered as a potential landfill site by the applicant a number of years ago. It was not pursued further because of a number of constraints that made development of this new landfill site infeasible.

The Elsmere Canyon site is located in the western San Gabriel Mountains in an unincorporated portion of Los Angeles County, immediately southeast of the City of Santa Clarita. The site lies partially within the Angeles National Forest. The area is characterized by high relief, varying in elevation from approximately 1,400 to 2,400 feet.

The following general potential impacts could result from development of Elsmere Canyon as a landfill site:

Land Use

The Elsmere Canyon area is minimally developed at the present time. Current land uses in the vicinity include horse ranches, sale of livestock, and trailer parks. An off-road vehicle park is also anticipated as a future use

* Daily News, May 28, 1987, Ms. Joyce Peterson.

in the area. Elsmere Canyon and the adjacent areas to the north, south and west within unincorporated Los Angeles County are designated as Non-urban (R) with a Hillside Management (HM) overlay by the County General Plan. That portion of Elsmere Canyon within the Angeles National Forest is designated as Open Space by the General Plan.

The City of Santa Clarita borders the west side of the north-south Antelope Valley Freeway adjacent to Elsmere Canyon, and the City of Los Angeles boundary runs east-west approximately one mile south of Elsmere Canyon. The areas of the City of Los Angeles nearest to Elsmere Canyon are designated as Open Space and Minimum Density Housing with accompanying zoning of A1, A2, and RE40.

The County of Los Angeles is currently reviewing a proposed mixed use project (TTM 88139) consisting of single and multi-family residential lots, commercial lots and open space areas on a total of 527 acres located in Whitney Canyon east of the San Fernando Road/Antelope Valley Freeway/Sierra Highway interchange, approximately one-half mile northwest of Elsmere Canyon. The County determined on June 15, 1988 that an Environmental Impact Report is required for the proposed project. The EIR has not been completed at this time.*

If this proposed project is approved and developed, it will place residential and commercial uses in areas adjacent to Elsmere Canyon. The potential use of Elsmere Canyon as a landfill would thus result in landfilling and associated operations being in closer proximity to urban development than the proposed Sunshine Canyon extension would be. Depending on the fill plan for the canyon, the landfill may also be closer to existing urban areas than Sunshine Canyon would be.

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* Los Angeles County Department of Regional Planning, Impact Analysis Section, February 3, 1989.

Development of a landfill at Elsmere Canyon which partially encroaches into National Forest lands may also conflict with the County's Solid Waste Management Plan (CoSWMP). Specifically, the CoSWMP states the following:*

> National forest areas, namely the Angeles National Forest, are not realistic candidates for disposal sites, with certain exceptions. A draft Land Management Plan put out by the Forest Service, released in February 1983, includes a proposed policy concerning siting of solid waste facilities on Forest Service land. This policy has not yet been through the public approval process and is, therefore, subject to change. The policy states that Class II and Class III disposal sites are not permitted in designated and recommended wilderness areas, the San Dimas Experimental Forest, critical threatened and endangered species habitats, Class I and Class II cultural resource areas, riparian areas, and floodplains. Siting of Class II and Class III disposal sites on Forest Service land will be considered only if:
>
> 1. Other reasonable sites and practical resource recovery alternatives on non-National Forest Service land have been exhausted.
>
> 2. The site is designated in the County Solid Waste Management Plan.
>
> 3. The site offers capacity sufficient for ten years or more of use.

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* Los Angeles County, Solid Waste Management Plan Triennial Review, Volume 1: Nonhazardous Waste, March 1984, and Revision A, August 1985.

4. The site design and operations will comply with criteria and guidelines in the Forest Service operations manual.

Siting of a disposal site under these conditions would probably entail land exchange with the Forest Service.

Revisions to the County Solid Waste Management Plan and the National Forest Service's Land Management Plan may be necessary for development of a landfill at Elsmere Canyon.

Geology

Elsmere Canyon is underlain with basement materials of typical composition as those found in canyon areas in the general vicinity. However, previous soil permeability tests indicate that soils on the Elsmere Canyon site do not meet the $1x10^{-6}$ cm/sec permeability requirement stipulated by Title 23, Chapter 3, Subchapter 15 of the California Administrative Code governing waste disposal to land.* Final cover soils and liner material may have to be imported to obtain the required soil permeability characteristics. Adequate daily soil cover may also need to be imported.

Elsmere Canyon was the site of oil recovery operations through the turn of the century and evidence of abandoned oil wells and operations facilities can be observed in the canyon. Oil seeps and tar accumulations exist near the base of the canyon. Basement materials underlying the site of Eocene, Miocene, and Pliocene age show evidence of this oil and tar seepage.** Due to the presence of oil seeps in

* Cooper Engineers. Preliminary Feasibility, Elsmere Canyon Landfill near Newhall, California, May 1984.

** Cooper Engineers, 1984.

need to be implemented to prevent migration of oil into the fill material. Additionally, previous oil recovery activities in Elsmere Canyon would need to be researched to determine the locations of all past drilling operations and the full potential for seepage into the future landfill.

The inactive Whitney Canyon Fault, a north-south trending fault, is present in the eastern portion of the site. There is no surficial evidence that active faults occur within the lower portion of the canyon, however, a detailed fault investigation of the entire site has not been performed. A portion of the San Fernando Fault that had rupture associated with the February 9, 1971 earthquake is about one mile south of the site. The Santa Susana Fault is a westward continuation of the San Fernando Fault zone and is considered to be potentially active. The San Gabriel Fault, an active fault without historic activity is about 2.5 miles northeast of the site. The active San Andreas Fault is about 21 miles northeast of the site.*

Widespread active landsliding occurs on southwest trending dip slopes in the site vicinity. Several landslides were triggered in the site area by the 1971 San Fernando Earthquake.**

On the basis of its proximity to known active and potentially active faults, it can be anticipated that the site will be subjected to strong shaking.*** A detailed fault investigation for the entire fill area would need to be conducted to determine the presence of active faults on the site. Depending on the extent of the fill program in the mouth of the canyon, there may be a potential for washout

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* Ibid.

** Morton, D. M., 1976. Seismically Triggered Landslide in the Area Above the San Fernando Valley in G. B. Oakeshott, ed., San Fernando, California, Earthquake of 9 February 1971, California Division of Mines and Geology Bulletin 196, Sacramento, CA, pp. 145-154.

*** Cooper Engineers, 1984.

of fill material resulting from a rupture in the Los Angeles Aqueduct due to a major seismic event. During a major seismic event, there may also be a potential for sympathetic movement along the Whitney Canyon Fault which could damage subsurface infrastructure and create slide areas on the site.

Surface Water

Elsmere Canyon drains to the north-northwest into Newhall Creek, to the Santa Clara River in Ventura County, and ultimately into the Pacific Ocean. Elsmere Canyon, part of which includes the National Forest area is a 1,200 ± acre drainage area. A 100-year normal isohyetal map shows an annual mean precipitation of approximately 19 inches.* The anticipated discharge from Elsmere Canyon for a 100-year storm is calculated to be approximately 1,600 cubic feet per second, which must be controlled to avoid interaction with fill material.

Surface runoff from National Forest areas within and above the Elsmere Canyon site would require extensive drainage controls, either using surface conveyance facilities or subsurface piping.

Groundwater

The Santa Clarita Valley groundwater basin is localized along the Santa Clara River and its tributaries. Flow is generally in the direction of surface water flow. The groundwater depth near the mouth of Elsmere Canyon is approximately 22 feet; however, the groundwater depth in the canyon itself is not known.** The bedrock underlying the site is considered to be nonwater bearing. Groundwater

* Los Angeles County Flood Control District. Hydrologic Report, 1977-1980, Hydraulic and Water Conservation Divisions, May 1987.
** Los Angeles County Flood Control District, 1987.

may occur in alluvial materials on the canyon floor. No data are available to describe the occurrence or quality of such water.*

The potential for leachate formation due to excess water use on the site for dust control and landscaping would be similar to that for the proposed project. However, since the Elsmere Canyon drainage area (1,200± acres) is larger than that of Sunshine Canyon (890 acres), there would be more potential for leachate formation in Elsmere due to larger surface runoff volumes. The lack of 1 x 10^{-6} cm/sec permeability of on-site soils, as required by State regulations, would also allow greater percolation of this increased leachate into the ground, if not appropriately protected, than would Sunshine Canyon. Potential groundwater impacts could thus be greater at Elsmere Canyon unless effective leachate control measures, including import of adequate cover soils and liner material, are implemented.

Biota

The Elsmere Canyon site contains foothill oak woodland vegetation on canyon bottoms and shaded slopes and chaparral on ridgetops and south-facing slopes. Presence of sensitive or endangered flora and fauna species on the site is not anticipated, but not verified at this time.**

Filling the interior of Elsmere Canyon would destroy or displace existing vegetation and wildlife in the landfill portion of the canyon. The extent of potential impacts to

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* Cooper Engineers, 1984.

** California Department of Fish and Game, 1988. Natural Diversity Data Base, obtained for Burbank, Oat Mountain, San Fernando, Sunland, and Hollywood, California, U.S.G.S. 7.5 Minute Series Maps, Natural Heritage Section.

riparian vegetation is undetermined. Also, there would be a disturbance of vegetation within Angeles National Forest areas for landfilling operations and drainage control measures. Potential impacts due to non-native fauna and vector activity would be similar to those for the proposed project. There would also be potential vegetation disturbances if relocation of up to four (4) electrical transmission lines and support installations is necessary.

Historical/Archaeological/Paleontological Resources

Buildings along the road in Elsmere Canyon date from around 1900, and could potentially be historical sites.* In addition, there are abandoned old oil drilling facilities and recovery equipment within the canyon that may be of historic value. These buildings and oil recovery facilities of potential historic value in the canyon may be relocated or destroyed.

Over 50 species of invertebrate fossils have been identified in Elsmere Canyon; whale and camel bones have also been reported.** Paleontological resources on the site would be disturbed and may be lost.

No archaeological sites have been recorded in the Elsmere Canyon area. However, Native Americans are known to have historically used mountainous areas along the Santa Clara River. There may be a potential for cultural resources in the Elsmere Canyon area associated with these past Native American activities in the region.

* Parker, J., Conversation between Parker, Archaeologist with UCLA Archaeological Survey, and D. Bechtold, Earth Technology, March 1, 1988.

** Oakeshott, G. B., Geology and Mineral Resources of San Fernando Quadrangle, Los Angeles County, California Division of Mines Bulletin 172, San Francisco, CA, 1958.

Air Quality

The Elsmere Canyon site is located between the East San Fernando Valley air monitoring sector (Reseda monitoring station) on the south and the Santa Clarita Valley air monitoring sector (Newhall monitoring station) on the north. During 1986, air quality in the East San Fernando Valley exceeded federal standards for ozone on 72 days and the federal standard for carbon monoxide on 11 days. During 1986, air quality in the Santa Clara Valley air monitoring sector exceeded the federal standard for ozone on 87 days; other pollutants are not monitored at the Newhall station. Winds recorded at the Newhall Station are typically from an easterly direction, blowing down into the Santa Clarita Valley from the mountainous areas to the east.*

There may be a potential increase in localized dust impacts and vehicle exhaust emissions if import of cover soils and liner material is required on a regular basis. Otherwise, air quality impacts from traffic would be similar to those anticipated for Sunshine Canyon. Since the mouth of Elsmere Canyon opens to the west towards the Santa Clarita Valley and winds blow in a westerly direction, dust emissions generated at Elsmere Canyon may also be carried down into urbanized areas of the valley. Emissions from flaring of landfill gas would be similar to those estimated for the proposed project. Potential impacts on adjacent land uses due to landfill gas flaring emissions have not been assessed.

* South Coast Air Quality Management District, 1988. Telephone conversation between Earth Technology personnel and personnel in the SCAQMD Public Information Office.

Odor/Landfill Gas

Potential for odors from surface refuse and sub-surface anaerobic reactions would be similar to that for the proposed project. With proper control, landfill odors or gas migration would not create any impacts.

Traffic

Major north-south access to Elsmere Canyon is provided via the Antelope Valley Freeway and Sierra Highway and east-west access is provided by San Fernando Road. A major interchange connecting these three arterials is located in the vicinity of the base of the canyon, providing direct access to the site. A separate offramp from the Antelope Valley Freeway, southerly of this existing interchange, may be required by the County in response to concerns expressed by the City of Santa Clarita.

Traffic volumes would be comparable to those for the proposed project. There may be a potential increase in traffic volumes if import of cover soils and liner material is required on a regular basis. Traffic congestion on surface streets in the site vicinity would not be anticipated at this time. However, cumulative impacts associated with other developments in the area could be expected.

Noise

Ambient noise conditions in the site area are primarily attributable to the north-south Antelope Valley Freeway and Sierra Highway adjacent to the canyon. Existing residential areas are located on the west side (opposite side from Elsmere Canyon) of the Antelope Valley Freeway/Sierra Highway/San Fernando Road interchange.

Perceptible noise increases along the freeway and surface streets in the site vicinity would be minimal due to ambient noise levels created by freeway traffic and the lack of nearby noise sensitive receptors. Noise generated from on-site fill activities would generally be confined to the site due to its canyon features; however, during certain meteorological conditions noise from the site may be perceptible. Ambient noise from the freeways would also tend to mask noise from the site.

Aesthetics

The Elsmere Canyon area is relatively inaccessible and lies partially within a National Forest area. The canyon interior is generally shielded from view to the north, east and south by surrounding ridgelines; however, landfill operations would be visible from eastbound San Fernando Road approaching the interchange with Sierra Highway and Antelope Valley Freeway, and from other existing and proposed urbanized areas to the west. As the canyon fill height increases the scope of visual impact will broaden.

The potential for stray litter from the disposal area and from refuse-hauling vehicles along access roads would be similar to that for the proposed project. However, there would also be a potential for airborne litter to enter National Forest areas adjacent to Elsmere Canyon.

Public Utilities

Electricity. Numerous electrical transmission lines and support installations are present in the vicinity of Elsmere Canyon. The transmission lines bring electric power from nearby hydroelectrical facilities, the Owens

Valley, the Pacific Northwest, and various generating facilities in Nevada, Arizona, and Utah. These lines include:*

1. Pacific DC Intertie 800kv line supplying Los Angeles with power from the Pacific Northwest. Service was initiated in 1970.

2. Composite Line 115 to 238kv lines carrying hydro power from various nearby and distant facilities. Service was initiated in 1917 with additional lines added through 1971.

3. Victorville Rinaldi line 500kv line for connection to out-of-state generating sources; in service since 1984.

4. Adelanto Rinaldi line 500kv line for connection to out-of-state generating sources; in service since 1984.

Up to four (4) electrical transmission lines may need to be relocated to allow landfilling in the canyon.

Water. Water use requirements for dust suppression, landscape irrigation and fire protection would be similar to those anticipated for the proposed project.

Water Supply Facilities. The Los Angeles Aqueduct flows north-south in the vicinity of Elsmere Canyon and is the primary source of drinking water for the residents of the City of Los Angeles. The aqueduct flows southward along the western margin of the site near the base of the canyon.

* Los Angeles City Council, Office of the Chief Legislative Analyst. Letter from W. M. McCarley, Chief Legislative Analyst, to R. Benell, L.A. County Local Agency Formation Commission, February 1, 1988.

The aqueduct delivers an average of 430 million gallons per day to the City and represents approximately 75 percent of the City's water supply. The aqueduct consists of two parts: (1) Los Angeles Aqueduct No. 1 which crosses the base of the Canyon partially in a shallow cover concrete siphon and partially in a deep tunnel, and (2) Los Angeles Aqueduct No. 2 which runs through the base of the Canyon in a pipe under approximately 57 feet of cover.*

Depending on the extent of the fill program in the mouth of the canyon, there may be a potential for washout of fill material resulting from a rupture in the Los Angeles Aqueduct due to a major seismic event. The proximity of the Elsmere Canyon site to the Los Angeles Aqueduct would necessitate seismic and safety considerations.

Fire Services. The nearest fire station to Elsmere Canyon is Station No. 73 at 24875 North San Fernando Road in Newhall. The station is approximately three miles from Elsmere Canyon with a response time of four to five minutes. Fire Station No. 73 contains the following fire vehicles and equipment: two fire engines, one 12,000-gallon water tanker, two patrol vehicles, and one chief's car.**

* Los Angeles City Council, 1988; U.S. Geological Survey, 1966d. San Fernando, California, 7.5 Minute Series Topographic Map, Scale 1:24,000; U.S. Geological Survey, 1969. Oat Mountain, California, 7.5 Minute Series Topographic Map, Scale 1:24,000.

** Los Angeles County Fire Department. Telephone conversations between Fire Department personnel and S. Krueger, Earth Technology, March 3, and D. Bechtold, Earth Technology, February 29, 1988; Fire Station No. 73, Los Angeles County, 1988. Telephone conversations between S. Krueger, Earth Technology, and D. Schick, Station No. 73.

There may be potential fire hazards due to the location of equipment and landfill operations in areas adjacent to National Forest lands.

Hazardous Materials

Potential for small quantities of household hazardous materials to enter landfill would be similar to that for the proposed project.

Many of these potential impacts are expected to be mitigatable; however, the most critical undesirable features associated with this potential site alternative are the expected longer permitting time normally associated with a new landfill, the lack of appropriate soil materials in the canyon for fill cover and liner material, the applicant's inability to retain the existing Sunshine Canyon waste-flow infrastructure and the lack of existing infrastructure at Elsmere Canyon, land use conflicts and vegetation disturbance associated with landfilling operations within National Forest land, the presence of oil seeps in the lower portion of the canyon, and the lack of detailed geotechnical information for the Elsmere Canyon site. The landfill operation would also be visible to motorists and residents to the west of Elsmere Canyon. The potential need to import cover soils and liner material to meet permeability requirements could also create constraints on fill operations as well as potentially create associated off-site excavation impacts in obtaining the material.

State regulations require that in order for a new permit for expansion to be granted, the landfill be on the County's Solid Waste Management Plan (CoSWMP) and receive a finding of conformance from the County Solid Waste Management Committee. Elsmere Canyon is listed on the Plan for a landfill capacity of 75 million tons. The proposed landfill extension at Sunshine Canyon is listed on the Plan for a 217 million ton additional capacity.* The CoSWMP may have to be amended to allow development of a landfill of similar capacity at Elsmere.

For these reasons, combined with the fact that a landfill development at this alternate site would create many of the same impacts associated with the proposed Sunshine Canyon Extension or any landfill development, the Elsmere Canyon site is not considered as beneficial as the proposed site to meet the basic objectives of the project applicant.

Review of alternate disposal site locations as previously studied by the Los Angeles County Sanitation District in their Mission Canyon Landfill EIR (1980) revealed that limited locations were available. Six potential sites were evaluated using a detailed set of criteria and only three sites were ultimately considered feasible, including the Mission Canyon site itself. The Sunshine Canyon landfill extension was not proposed as an alternative to the Mission Canyon project at the time the LACSD EIR was completed because it was located beyond the distance that was considered acceptable for the Los Angeles west side waste shed. However, eight years have passed, there have been numerous changes in solid waste disposal methods and attitudes toward solid waste, and landfills have become full. Landfill site selections farther from the metropolitan area are now being seriously considered because the need has changed (i.e., Sunshine Canyon, Elsmere, Towsley, and desert areas).

Due to the lack of site-specific data for potential alternative sites, it is not possible to assess alternative sites at the same level of detail as the project. In general terms, however, the impacts associated with the project can be compared to developing new sites and expanding or repermitting existing sites. These "alternatives," in essence, are alternative strategies to provide additional waste disposal capacity.

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* Los Angeles County Solid Waste Management Plan Triennial Review, Volume 1: Nonhazardous Waste, March 1984, and Revision A, August 1985.

The repermitting of existing sites refers to the continuation of landfill facilities at existing disposal sites as permits expire. As repermitting increases capacity within existing disposal areas, a primary impact would be increasing planned landfill elevations. Without mitigation, potential visual and noise impacts may be greater than under existing conditions. Whether these impacts would be significantly adverse depends on on-site specific conditions. If repermitting is used to the exclusion of other strategies, the increased demand for facilities would eventually result in higher daily inflows at these facilities as others are closed. This would result in increased traffic impacts at repermitted sites, with the nature and intensity of these impacts dependent on conditions in the vicinity of these sites. Increased impacts related to the presence of hazardous materials and odors would also be experienced at these locations.

As repermitting delays the planned closure of existing facilities, this strategy would delay the conversion of landfills to planned future uses. Depending on the site, extended use may conflict with local land use policy. Assuming repermitting does involve the use of new disposal areas, the incremental effects on geology and ground and surface water would be less than those related to new facilities.

The development of new sites would result in many of the same generic impacts associated with using undeveloped areas at existing facilities. A major difference, however, is that traffic impacts would be diverted to these facilities. The type and intensity of these impacts would vary greatly from site to site.

Since a number of potential sites are closer to the project's service area than the Sunshine Canyon extension, the development of these sites may be slightly more advantageous from the perspective of minimizing vehicle miles travelled, mobile air emissions, and energy consumption. However, landfill development areas at other sites would be in close proximity to adjacent urban developments, since there is a lack of availability of buffer areas around these sites. Whether the same advantages accrue in terms of biotic resources, geology, ground and surface water, visual quality, and the other impacts assessed in this document cannot be determined without a site-specific comparison of impacts.

Sites for alternative landfill locations have been extensively studied by the County of Los Angeles. While many locations have been previously reviewed, as of this date no new landfill locations have been recently approved. The Los Angeles County Solid Waste Management Plan indicates that there are no planned landfill sites or planned landfill expansions in the County which have received a Finding of Conformance from the Solid Waste Management Committee. The County has received proposed locations for landfill expansions and new landfills for potential feasibility. Three of the six proposed new landfill sites are located on Catalina Island.* No permits have been issued for any of these sites.

Proposals for alternative landfill sites have been regularly denied. In the City of Los Angeles, proposals for sites in Griffith Park, La Tuna Canyon, Browns Canyon, and Mission Canyon have been denied. In the last 10 years the only substantial permitted extension has been for the Bradley West site. In the County of Los Angeles, only the LACSD Puente Hills site and the BKK site have received limited approval for continued acceptance for Class III waste.

4.3 Resource Recovery Systems

A resource recovery system is not an alternative project to the extension of a landfill. A resource recovery operation, no matter how effective it is, will still require landfills of the type being proposed.

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* Los Angeles County Solid Waste Management Plan, Triennial Review. Volume 1: Non-hazardous Waste. March 1984 and Revision A, August 1985.

The primary resources recoverable from municipal solid waste are reusable materials and energy. The materials most commonly recovered at this time are ferrous metals, aluminum, copper, paper, and glass. Natural gas (methane) is recovered at the landfill sites and either converted directly into steam or electricity, or treated and transferred to the natural gas supply lines for domestic and/or commercial uses. Energy may also be recovered from direct combustion of the waste material. This energy is also converted to steam or electricity. The applicant is in the process of initiating a pilot resource recovery program at Newby Island Landfill near San Jose, and will consider a resource recovery program at Sunshine Canyon Landfill based on the pilot plant results.

Waste-to-energy facilities (incineration) and centralized waste processing can decrease the volume of waste taken to landfills. Within the County, approximately 75 percent of all municipal solid waste is composed of combustible materials. The status of high-volume waste-to-energy facilities in the Los Angeles area is uncertain at this time, primarily because of questions surrounding the health effects of the air emissions from high-volume incineration of the waste products. About 20 percent of the combustible and non-combustible residential waste stream such as glass, newsprint, and metals can be reclaimed or recycled. One refuse-to-energy facility is in operation, one is under construction, and several others are planned. Material recovery/waste-to-energy programs are discussed in more detail in Section 4.3.1.

Implementation of a successful residential recycling program could also reduce the need, on a regional basis, for landfill capacity. According to a study by the Bureau of Sanitation (City of Los Angeles), up to 15 percent of the household waste stream could be reduced by recycling newspapers, aluminum cans, and bottles, with an additional 30 percent reduction from composting yard wastes, assuming 100 percent participation in recycling programs.*

* City of Los Angeles, Bureau of Sanitation Recycling 88: Mandatory Recycling for the City of Los Angeles. September 1987, page 10.

A comprehensive recycling and waste minimization policy and plan for the City and County of Los Angeles is not an alternative to this project. However, a recycling/compacting plan was taken into consideration during the analysis for the Solid Waste Management Status and Disposal Options in Los Angeles County agencies (February, 1988). As concluded in this report, without the extension of landfills in the county (with Sunshine Canyon being the major landfill), a solid waste disposal crisis will occur after 1991 even considering recycling efforts. The applicant, however, is willing to cooperate with the City and County to develop a joint recycling plan.

The study, included in Appendix L, Volume IIB, indicates that the maximum levels of recycling would comprise 20 percent of the residential waste stream. In the commercial and industrial waste stream, recyclable and compostable materials represent 15 percent of the waste stream. Therefore, this study concluded that the maximum amount of recyclable material in the Los Angeles area is 20 percent of the total waste stream. It is further pointed out in this report that a more practical level of recycling is 7 percent of the total waste stream and would require every political jurisdiction in the County to implement curbside recycling programs. Recycling programs are discussed in more detail in Section 4.3.2.

Although these two methods of resource recovery are viable options for potential reduction of the total waste stream requiring landfill disposal, they do not in themselves provide "alternative projects" to the expansion of landfills or development of new landfill sites. The implementation of such programs in conjunction with landfill capacity expansion at Sunshine Canyon could prolong the life of the landfill and potentially reduce the intensity of the operation as the daily waste stream into the landfill is reduced. However, resource recovery systems may create many of the same environmental effects as landfill activities. The following is a brief discussion of potential impacts associated with resource recovery systems, in particular waste-to-energy facilities and material recovery/processing centers.

Traffic

On a per-unit basis, these facilities may create additional vehicle trips beyond those typically associated with landfill disposal because of the need to both deposit and collect recoverable materials. Depending on the location of such facilities these increased vehicle trips could impact local roadway systems. Establishment of a resource recovery facility as part of a landfill operation could alleviate some of these extra trips; however, there would still be an increase in total traffic into and out of the landfill site.

Noise

Traffic and equipment associated with various types of resource recovery programs may create noise impacts depending on the location of facilities relative to sensitive receptors such as residential communities.

Aesthetics

The visual effects and compatibility of storing recoverable goods at facilities for extended periods of time could become a controversial issue. Depending on the location of resource recovery facilities and/or recycling centers, surrounding land uses may be affected by the presence and aesthetic appearance of such facilities, especially if they are regularly open to the general public as deposit centers.

Air Quality

High-volume waste-to-energy facilities generate air emissions which may affect local air basins. Currently there are a number of unresolved questions surrounding the health effects of these air emissions. Such facilities would need to meet strict pollutant regulations before being developed.

Odors

The deposit and storage of recoverable goods at facilities for extended periods of time could produce various odors depending on the types of waste. The length of storage, the method of receiving and storage, and the general upkeep of a facility would determine the likelihood that malodorous smells would affect surrounding uses.

Land Use

The siting of resource recovery facilities would need to be compatible with land use designations and allowable uses. Depending on the location of such facilities, land use compatibility with surrounding uses could become an issue. Resource recovery facilities, especially recycling centers, would need to be conveniently located relative to likely users yet not present significant land use conflicts.

The operation of these types of facilities would not result in the same type of potential geologic, groundwater, and biota impacts associated with the landfill project. However, as discussed above, such facilities are not without their own set of potential impacts and constraints. This should not be construed to mean that an on- site recovery or recycling facility could not be operated in conjunction with the project. If the project's inflow was scaled to account for potential additional trips and vehicular impacts associated with an on-site resource recovery facility, and if other potential adverse impacts (odors, aesthetics, land use) were determined not to be significant, an on-site facility could be incorporated into the project design. This type of determination would require supplemental environmental documentation, prepared pursuant to CEQA.

4.3.1 Material Recovery

In addition to the basic metals and paper and glass that have the potential for being economically recoverable, there are other materials which can best be described as combustibles and non-combustibles.

The combustibles are items such as cardboard, newsprint, mixed paper, plastics, leather, rubber, textiles, lumber, food wastes, and yard and tree trimmings. These items make up approximately 75% by weight of the Municipal Solid Waste (MSW) in Los Angeles County, or 7.5 million tons per year in 1982. In the year 2002, this figure is expected to increase to nearly 11 million tons per year.*

Non-combustibles make up the remaining 25 percent, or 2.6 million tons per year in 1982, and are comprised of ferrous metals, non-ferrous metals, glass, ceramics and stone, dirt, and miscellaneous. By the year 2002, the amount of material is expected to reach approximately 3.8 million tons per year.**

Other than for newsprint and cardboard, the combustibles have little recyclable value. Therefore, the recovery aspects of these materials can be assumed to be directed either toward direct combustion for energy recovery or indirect recovery through methane generation. In any case, direct energy recovery from the combustibles of MSW should be viewed only as a secondary benefit, with the primary benefit coming from volume and weight reduction, thereby providing increased life for waste disposal sites. The actual amount of potential electricity generated from solid waste in Los Angeles County represents approximately 3 percent of the peak electrical loads in the County.***

Recovery of non-combustibles also reduces the volume of MSW which must be disposed of in landfills. With today's technology and market demand for some materials this presents a viable on-going operation; however, with large swings in material prices and infrastructure cost (material retrieval and collection), the viability of such operation will change and companies involved with these types of

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* Los Angeles County Solid Waste Management Plan Triennial Review, Revision A, 1985.

** Ibid.

*** Ibid.

recovery operations will change accordingly. The long-term stability of material recovery operations will eventually be recognized as the demand for the specific resources increases into the next century.

4.3.2 Recycling

Recycling accomplishes the same basic objectives relative to landfills as resource recovery activities except that it is more effective and requires public acceptance of the program and the infrastructure to support it.

Recycling is defined by the California Waste Management Board as:

> "The process of collecting and turning used products such as newspapers, cans, scrapped automobiles, corrugated cardboard, bottles, and old tires into new products by reprocessing or remanufacturing them instead of throwing them away as refuse. Recycling is also the marketing of products made by recycled and recyclable materials."

In accomplishment of the objectives of recycling there are currently certain operations on-going at this time in the County. The most obvious with which most are familiar is related to the return of glass bottles and cans which originally contained soft drinks and beer. The "Bottle Bill" recently passed most certainly enforces the commitment and/or acceptance of the people to respond to this recycling approach.

The Drop-off and Buy-back centers are recycling centers located throughout the County for accepting separated materials brought to the centers by individuals. The drop-off centers accept donated materials while the buy-back centers pay for the material.

Many industries collect scrap material as a by-product from their ongoing manufacturing operation. This material is usually sold before it enters the waste-stream and therefore isn't considered waste, although it would be if a market did not exist.

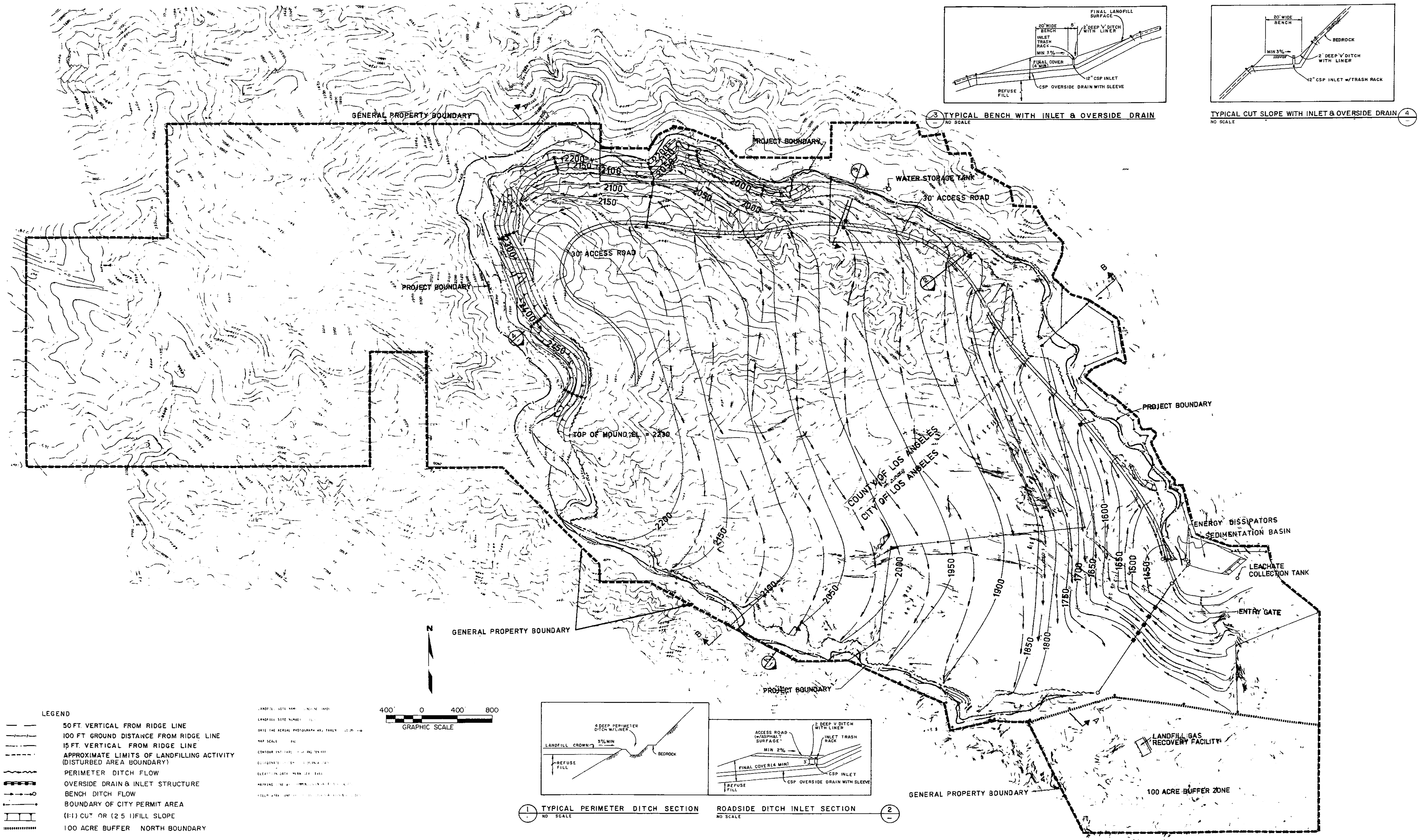
Other recycling activities involve curbside collection programs, paper drives, and general fundraisers by schools and private groups. Cities also operate curbside recycling programs; however, most are in the planning or trial stage.

For the recycling programs to be successful and contribute a significant beneficial amount to the existing landfill problems public acceptance must occur and legislative action must be taken. The County and cities, in turn, can promote recycling by exerting influence through fees that provide an inducement to recycle, requiring separated material collection in private trash collection bins, conducting recycling education programs, procuring grants for recycling programs, modifying zoning regulations to allow recycling centers in locations close to residential areas, considering vehicle design, designating separate trash cans for glass and metal containers in parks and other public facilities, and developing equipment and expertise to implement an effective recycling program.

4.4 Smaller Landfill Alternative

The proposed landfill extension evolved from an initial larger project concept that included ridgelines and canyons west of the existing site, down to its current proposed size and shape. An alternative to the currently proposed project is a landfill in the same location with a reduced total airspace capacity. The boundaries of the fill area would remain the same as those proposed; however, the ultimate height of the fill would be lower. This smaller landfill alternative is presented in Figure 48, with cross sections in Figure 49, and assumes a reduction of 30 feet in elevation of the final cover material. This alternative would reduce the airspace or capacity of the project extension as proposed by 42 million cubic yards or 30 million tons.

The daily waste stream disposed of at a smaller landfill would probably be the same as for the proposed project. Because of the immediate and ongoing need for additional landfill space, as



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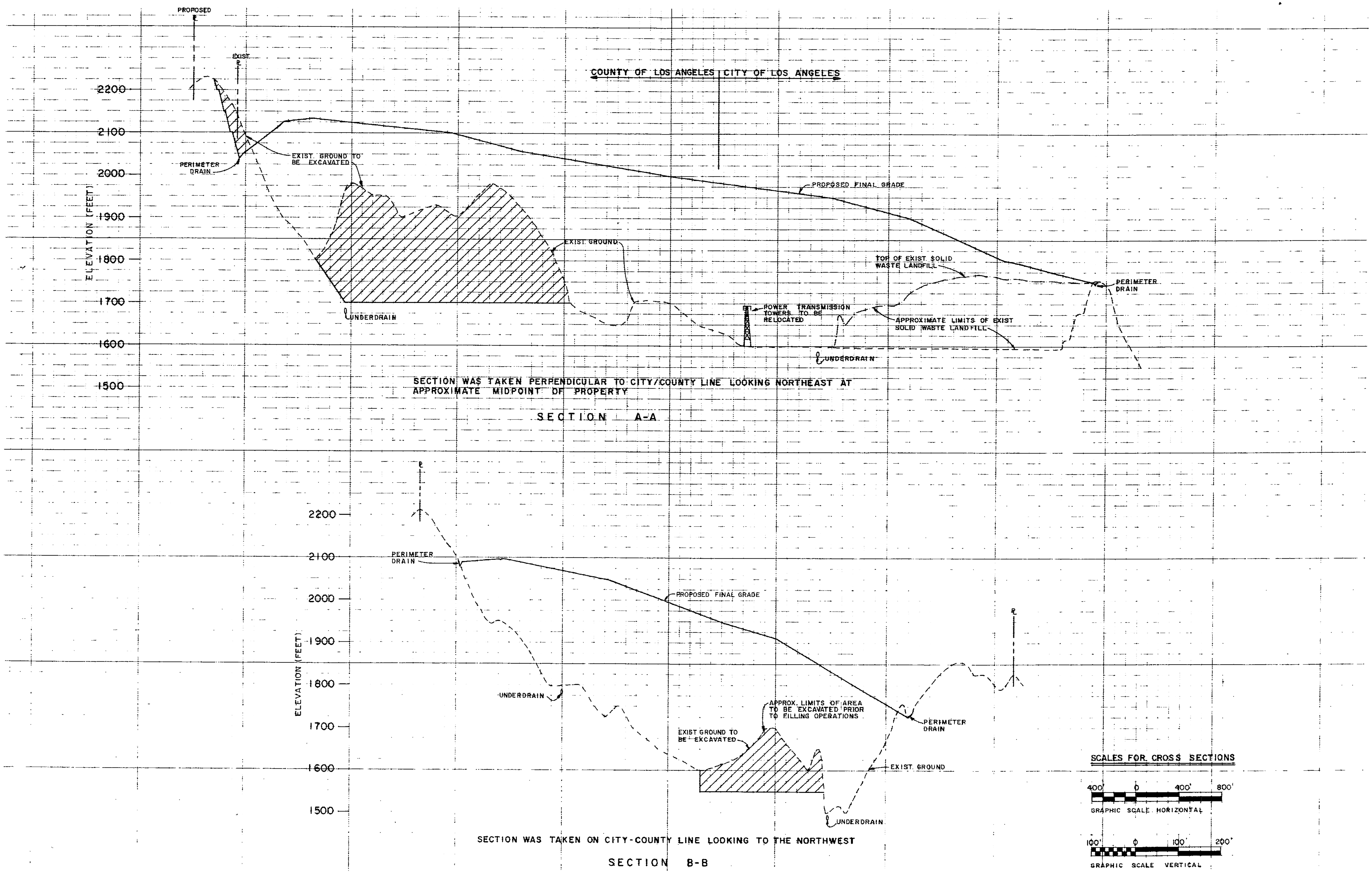
BRIAN, KANGAS, FOULK & ASSOCIATES	SMALLER LANDFILL ALTERNATIVE	48



Source: BRIAN, KANGAS, FOULK & ASSOCIATES

Title: CROSS SECTIONS FOR SMALLER LANDFILL ALTERNATIVE discussed previously in this report, the smaller landfill alternative would most likely be operated in a manner such that the actual fill program is shortened and the number of trucks accessing the site would not change from the levels projected for the proposed landfill configuration. The maximum disposal capacity would thus remain at 17,500 tons per day, with a probable daily waste stream of between 12,000 and 14,000 tons per day as other existing landfill sites reach capacity. This operational plan could thus reduce the life of the landfill extension by approximately 15 percent.

This alternative project would result in many of the same potential impacts as the proposed project. In general, this is due to the fact that the majority of natural resource impacts will occur in the bottom valley portion of the canyon, regardless of the ultimate landfill capacity, and because the intensity of the daily operation would most likely be the same for both these landfill scenarios. The following discussion briefly analyzes changes in potential impacts that would be attributable to the smaller landfill alternative.

Biota

There would be a reduction in the area of vegetation that would be lost in the upper portions of the canyon near the ridgelines. However, the majority of oak trees, the species of most concern, exist in the bottom valley portion of the canyon and not along the canyon walls. Similarly, the greatest disturbance to other flora and fauna habitats will occur in the base of the canyon. Thus, although there would be some reduction in the total area of disturbance, the smaller landfill would have nearly the same impact on biota as would the proposed project because the base of the canyon would be the first to be filled. Additionally, of the 15± acres of vegetation along the canyon slopes that could potentially be left undisturbed with this alternative, approximately one-third or five acres would have to be graded for the surface water runoff system; therefore, the potential reduction to the biota impact would have little value.

Surface Water

The surface water run-off control system would be more difficult and expensive to install with this alternative because the exposed natural canyon walls would have to be benched and vee-ditched to collect the surface run-off so that it could be diverted away from the fill areas in the lower portions of the canyon. This action must be taken to minimize the potential for leachate formation.

Traffic

A smaller landfill operation would most likely be operated at the same daily capacity as is anticipated for the proposed project. Daily vehicle trips to the site would, therefore, not be reduced, and traffic impacts would be unchanged from those articulated in the traffic section of the EIR. However, if the operator did scale down the daily operation in order to preserve the life of the landfill, an associated reduction in the number of trucks entering the site could be expected. Depending on the actual number of trips eliminated, effects on the local roadway system could be reduced. However, such a reduction in vehicle trips is purely speculative and a worst-case scenario should be assumed for this analysis.

Visual

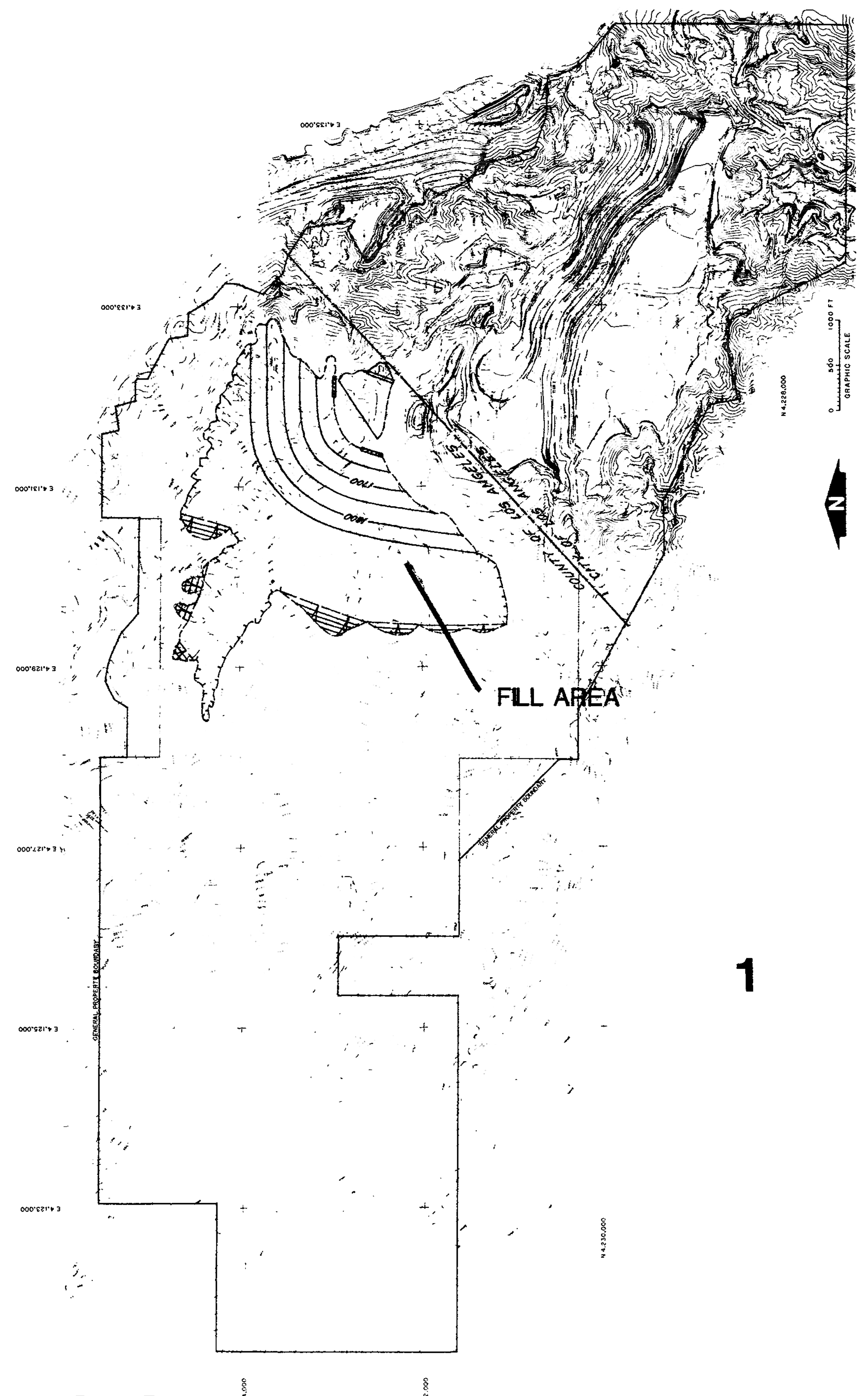
The ultimate fill height would be lower by approximately 30 feet under this alternative, making it potentially less visible from surrounding areas. However, the visual impact of this alternative would not change significantly because, as with the proposed project, it would be designed to minimize the visual intrusion of the landfill by locating nearly all of the landfill operations below the sight-line of existing ridges surrounding the project (see Figure 49).

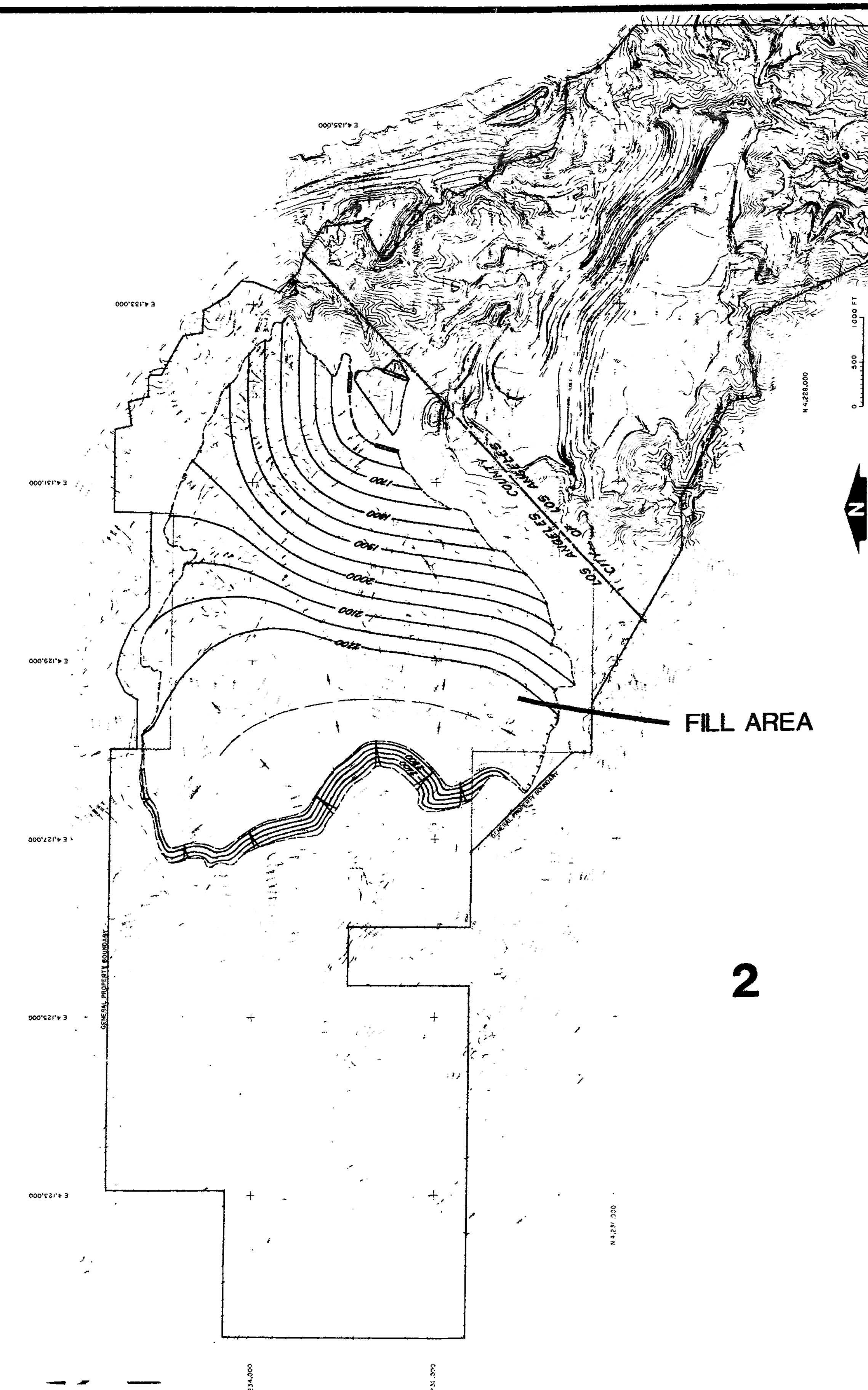
Other potential project-related environmental effects from this alternative such as geology, groundwater, archaeology and paleontology, air quality, noise, odors, public services and utilities, and hazardous materials would be relatively unchanged from those articulated in this EIR for the proposed project. Thus, the net environmental benefits that could be realized by the smaller landfill alternative are a slight reduction in total area of vegetation disturbance, a lower final fill height, and a possible but not probable reduction in the number of daily vehicle trips. The one identified unavoidable significant impact for the proposed project (loss of vegetation and oak trees) would not be mitigated to an acceptable level by implementation of this alternative.

The smaller landfill alternative is not considered a reasonable alternative as intended by CEQA Section 15126(d) for the following reasons: 1) there are no significant adverse impacts that can be reduced to levels of insignificance by this smaller landfill alternative; 2) there is a degree of resource utilization inefficiency that exists with the use of Sunshine Canyon for a smaller landfill; and 3) other landfills would have to be developed in the area to accept the surplus waste material that will be generated in the future. This alternative is less desirable than the proposed-project to meet the objective of serving the landfill needs of the Los Angeles area.

4.5 Unincorporated County Area-Only Alternative

The proposed landfill development will ultimately extend into both unincorporated County and Los Angeles City portions of Sunshine Canyon owned by BFI. However, the project will initially commence in only the unincorporated County portion of the site. If permits for extension into City lands are not granted in the future, an alternative to the landfill ultimately being on both County and City lands, as shown by the proposed fill sequence in Figures 3a and 3b, is that the landfill could be confined to the unincorporated County portion of the canyon only, resulting in a fill sequence as





Source:
PURCELL, RHOADES & ASSOCIATES

Title: UNINCORPORATED COUNTY AREA-ONLY LANDFILL ALTERNATIVE FILL SEQUENCE (1 and 2)

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shown in Figure 50. The current landfill operation in the City portion of the canyon would close once it reached permitted capacity and the operation would proceed in the upper unincorporated County portion of the canyon only. Since the landfill extension will begin in unincorporated County land, regardless of the ultimate approval of City permits to extend back into City lands, this alternative could be implemented after the initial extension has commenced if it proves to be the most effective strategy. This alternative does not affect permits being sought at this time.

The landfill operations would be accessed by a surfaced road extending through City property along the floor of the canyon. No other facilities or improvements would be developed on City land. This alternative would significantly reduce the total capacity of the landfill extension by 162 million cubic yards or approximately 115 million tons. Thus, a total capacity of approximately 100 million tons, or less than one-half the total capacity of the ultimate envisioned landfill, could be provided by this alternative.

The daily waste stream disposed of at such a limited landfill would probably be the same as for the proposed project. Because of the immediate and ongoing need for additional landfill space, as discussed previously in this report, the unincorporated County-only landfill alternative would most likely be operated in a manner such that the actual fill program is shortened, similar to the smaller landfill alternative, and the number of trucks accessing the site would not change from the levels projected for the proposed landfill configuration. The maximum disposal capacity would thus remain at 17,500 tons per day with a probable daily waste stream of between 12,000 and 14,000 tons per day as other existing landfill sites reach capacity. This operational plan could reduce the life of the landfill extension by over 50 percent or by approximately 30 years based on the volume of daily waste anticipated in the future.

This limited landfill extension would reduce some potential impacts associated with the proposed ultimate landfill development, but would also result in some of the same effects as the proposed project. Additionally, such an operation limited to only the upper County portions of the canyon would still create some disturbances to the City lands in the lower portion of the canyon. The following is a brief discussion of changes in potential impacts that would be attributable to a landfill limited to unincorporated County lands.

Geology

Less area of the geologic substructure would be disturbed; the original topographic features of the lower portion of Sunshine Canyon would be preserved. All other geologic effects would be relatively unchanged from those articulated for the complete landfill development.

Groundwater

A larger area of the canyon's drainage basin would be able to percolate into the groundwater system. However, it should be noted that Sunshine Canyon is not considered a groundwater recharge area and the groundwater beneath the canyon is not potable.

Biota

There would be a reduction in the total area of vegetation disturbance in the canyon. However, portions of the riparian areas along the base of the canyon on City land would still incur changes in water flow because the natural drainage patterns in the upper reaches of the canyon would be altered by the landfill operation. Thus some impacts to vegetation in areas preserved by this alternative landfill scenario may still occur.

More area would be retained for existing wildlife. However, the character of foraging areas throughout the canyon would still be disturbed by on-site operations in the upper portion of the canyon and by vehicle traffic traveling through the base of the canyon to access the landfill, although not all species would necessarily be affected by these disturbances.

Air Quality

Pollutant emissions from gas flaring activities would be reduced in the future once the fill area was completed since there would be less total tonnage of waste material available for gas generation. However, daily flaring emissions would increase at a similar rate as for the proposed project until the landfill was closed because the anticipated daily waste stream under this scenario would be unchanged from that assumed in the EIR analysis. There would be no change in other project-related air quality emissions due to this alternative.

Odors

There would be a reduction in the potential for odor problems from a landfill limited only to unincorporated County land because the distance from the landfill operation to sensitive receptors (primarily residential neighborhoods) would increase.

Traffic

Traffic impacts would be unchanged since it is anticipated that such a limited landfill would still be operated with the same daily waste stream as projected for the proposed project in order to meet increasing disposal demands. However, if the operator did scale down the daily operation in order to preserve the life of the landfill, a reduction in the number of trucks entering the site could be expected, with an associated reduction in effects on the local roadway system. However, such a reduction in vehicle trips is purely speculative and a worst-case scenario should be assumed for this analysis.

Noise

A probable reduction in perceptible noise from on-site activities since the landfill operation would be farther from surrounding sensitive receptors.

Visual

There would be an increase in undisturbed areas of the canyon visible from hiking trails, the Foothill Freeway, and urban areas to the east. However, views from residential areas to the southeast would not change since only the existing landfill operation would be visible.

Other potential project-related environmental effects from this alternative approach to the project such as surface water, archaeology and paleontology, public utilities and services, and hazardous materials would be relatively unchanged from those articulated in this EIR for the ultimate project development. In general, the net environmental benefit of this alternative would be that the life of the landfill would be shortened and thus the duration of potential operational effects from the project would be shortened. The one identified unavoidable significant impact for the proposed project (loss of vegetation and oak trees) would not be significantly mitigated; a large area of vegetation in the upper canyon would still be disturbed by the operation, and adjacent areas in the lower portion of the canyon may also incur some impacts.

A landfill extension limited to unincorporated County lands within Sunshine Canyon is not considered the most reasonable approach to attaining the basic objectives of the project, as intended by CEQA Section 15126(d), which is to meet a rapidly growing existing and future need for landfill disposal capacity in the Los Angeles metropolitan area. This conclusion is made for the following reasons: 1) There are no significant adverse impacts that can be effectively eliminated or significantly reduced by this alternative; 2) This alternative would still leave the County with a landfill shortage in the future when the Sunshine Canyon project reached capacity in the unincorporated County portion of the canyon and was forced to close down. Other landfills would most likely have to be developed to accept the additional waste material in the future; 3) This alternative would reduce the potential for beneficial uses of landfill gas (methane) because of a reduction in total quantity; and 4) Development of only a portion of the canyon is not considered an efficient use of the canyon resource as a landfill.

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5.0 GROWTH-INDUCEMENT, LONG-TERM PRODUCTIVITY, IRREVERSIBLE CHANGES

5.1 Growth-Inducing Impacts

There are two aspects of the proposed project that could be considered to have an impact on growth. One pertains to the physical changes that could be expected to occur relative to the properties surrounding the project, and the other growth factor relates to the solid waste disposal feature of an area's infrastructure.

Landfills generally do not introduce features that immediately draw new development toward their boundaries. The extension of Sunshine Canyon will not open new roads, require new sewers or extensions of infrastructures which would normally be associated with residential or commercial developments entering into undeveloped areas. Because of the nature of landfills they tend to be located, at least while they are active, in isolated areas as is the case with the proposed project. However, after the fill operations begin residential uses of the surrounding property may occur if the other infrastructures are able to support such uses. This is at least true in the Southern California area. As an example, the BKK Landfill in West Covina, a privately operated site, has nearly been surrounded by new homes in the past few years. The same is true for the Palos Verdes Landfill and for most of the area along the rims of Mission Canyon Landfill.

While the landfill operations are generally not considered to be an inducement for immediate new development on adjacent properties, neither have landfill operations significantly discouraged development. Waste disposal is not restricted by the availability of local landfills in the same way that sewage disposal and water supply needs must be accommodated by the local in-place systems; solid waste can be hauled to other distant areas (i.e., by long-haul trucks or rail haul) to meet waste disposal needs. Therefore, an increase in local landfill capacity neither directly restricts nor promotes new development.

The other growth-related feature that a landfill provides is a source for disposal of municipal waste, without which development would have to cease. Therefore, by providing this infrastructure resource the proposed project could be considered growth-inducing for home construction within its service areas. This point would be true if it were not for the fact that the project will serve more as an alternative source for solid waste disposal for the existing urban land uses in 1991 rather than providing additional disposal capacity for the waste stream from new development. Because of the impending closure of many of the local landfills in the area which cannot be expanded due to physical or economic constraints, the project will be serving an existing need or demand over the next several years regardless of any new development that may be approved in the metropolitan area.

This project is a small part of the total solid waste disposal system which serves both existing and new development which may occur in the metropolitan area. The proposed retention of Sunshine Canyon, therefore, should not be considered growth-inducing to the area, but as a project which will be meeting the ongoing need for refuse and municipal solid waste disposal sources in the Southern California area.

5.2 Short-Term Uses vs. Long-Term Productivity

The proposed project would provide a current disposal source for the City and County's municipal solid waste stream available into the next century if other sources for waste disposal are concurrently developed. In return for use of Sunshine Canyon as a sanitary landfill, a loss of the existing natural vegetation and wildlife habitat within the Canyon will be experienced. Alternative uses of the Canyon over the near term will also be lost as well as over the long-term. The site use will be restricted to basically open space after the landfill operations have terminated.

There will be the potential for the long-term environmental impacts described in the text of this report if proper operational procedures are not employed. Methods for controlling the potential for such impacts have been thoroughly discussed in the report and therefore the risks to public safety and well-being are insignificant.

In addition to providing a long-term disposal source for municipal solid waste for the area, the project could provide for: 1) a reduction in vehicle trip miles; 2) a savings in fuel use; and 3) a decrease in air pollutants if alternative disposal sites located farther from the waste shed must be selected to solve the demand for landfill space. Due to the lack of success in permitting new landfills and expansions of existing landfills by proponents of such projects, as stated in the Los Angeles County Solid Waste Management Plan, Triennial Review Revision A, 1985, it is logical to assume that any new facility will be located in more rural and as yet undeveloped areas of Southern California. Under these circumstances, the distance from the wasteshed which is expected to be served by Sunshine Canyon will increase, which will result in additional traffic on the road system, more air emissions from waste-hauling vehicles, and more fuel consumption. The land will also be a sizable source of energy as the methane recovery effort is expanded. The methane could either be converted to electricity on-site or transferred, as is currently the case, to a local refinery.

5.3 Irreversible Environmental Changes

The proposed landfill extension would further alter the canyon landform which has already been partially modified by the existing landfill activity.

The biological resources within the watershed of the canyon will be permanently lost. Retention of the remaining properties under the future operator's ownership as undisturbed open space will preclude further disturbances of these resources.

Use of the canyon for future construction of buildings on the areas filled will be permanently eliminated. The filled portion of the canyon would remain as open space which could be used for recreational purposes.

There will be a loss of waste materials that could otherwise be recycled at a savings in energy and virgin materials. This, however, may be a short-term situation as trends towards recycling and reuse (bottles and containers) become more acceptable to the general population. Implementation of such recovery activity must be supported by the appropriate infrastructure and solutions to existing technical problems to the Southern California basin, i.e. air pollution control, financial support, and public participation.

6.0 ORGANIZATIONS AND PERSONS CONSULTED

Agencies, Organizations, Members of the Public Contacted During the Preparation of the Draft EIR

Federal

1. United States Forest Service, Angeles National Forest, Dick Modee
2. Department of the Army, Los Angeles District Corps of Engineers, Regulatory Branch

State

1. State Solid Waste Management Board Staff, John Smith, Jeanie Blakeslee
2. State Department of Fish and Game, Bernard Aquila, Elaine Hamby, Fred Worthley
3. California Air Resources Board, Industrial Projects Section, Jim Boyd, Bob Fletcher
4. State Department of Transportation (CALTRANS), W. B. Ballantine, Jeff Bingham
5. State Department of Parks and Recreation, Environmental Review Section, Bonnie Porter, Mike Doyle
6. State Water Resources Control Board, Ross Swenerton
7. State Department of Health, Arlene Chance
8. State Highway Patrol
9. State Department of Water Resources, Charles R. White, Nadell Gayou
10. Santa Monica Mountains Conservancy, Sonia Thompson
11. California Regional Water Quality Control Board - Los Angeles, Rod Nelson, Raymond Delacourt
12. Office of Historic Preservation, Environmental Review Section, Hans Kreutzberg
13. Department of Conservation, Office of Environmental and Governmental Relations, Dennis O'Bryant
14. Department of Food and Agriculture, Steve Shaeffer, Vashek Cervinka
15. Public Utilities Commission, Advisory and Environmental Division, George Hersh
16. Native American Heritage Commission, William Johnson

ORGANIZATIONS AND PERSONS CONSULTED (Continued)

County - Regional

1. Sanitation Districts of Los Angeles County, Solid Waste Management Department, Sandra Mathias

2. Southern California Association of Governments

3. County Flood Control District

4. County Chief Administrative Officer

5. County Department of Public Works,
   - Solid Waste Management Division, Mike Mohajer
   - Sewer Maintenance Division, Brian Scanlon
   - Traffic and Lighting Division, Traffic Studies Unit
   - Land Development Division, Geology and Soils Group, Dave Poppler
   - Land Development Division, Drainage and Grading Section, Randal Calabray
   - Planning Division, Brian Sasaki, Anna-Marie Gilmore

6. County Department of Parks and Recreation, Jim Park

7. County Department of Regional Planning, Frank Kuo, Kerwin Chi

8. County Department of Health Services, Solid Waste Management Program, Chuck Coffee, Richard Hanson

9. South Coast Air Quality Management District, Brian Farris

10. County Significant Ecological Area Technical Advisory Committee - (SEATAC), Ken Krammen, Chris Nagano, Walter Sakai, Gary Wallace

11. County Board of Supervisors (Antonovich's office), Jo Anne Darcy

12. County Department of Forester and Fire, Michael Wilkinson

ORGANIZATIONS AND PERSONS CONSULTED (Continued)

City of Los Angeles

1. Department of Water and Power, Laurent McReynolds, H. Hamanaka

2. Department of Planning, Melanie Fallon, Sue Chang

3. Department of Transportation, Allyn Rifkin, William Beckham, Martha Williams, Naomi Lomsky

4. Bureau of Sanitation, Solid Waste Management Division, Delwin Biagi, Sheila Molyneux, Penny Weiand, Carl Haase

5. City Councilman Hal Bernson's office, Greig Smith

Other Cities

1. City of Burbank, Public Works Department, Joy Hamilton

2. City of Whittier, Tony Portalese, Ann Hayashi

3. City of West Covina, Director of Administrative Services, Mike Miller

4. City of Avalon, Public Works Department

5. City of Long Beach, Solid Waste Section, Steve Miller

Organizations

1. North Valley Coalition

2. Citizens for a Better Environment

3. Sierra Club, Los Angeles Chapter

4. The California Native Plant Society

5. Los Angeles Solid Waste Citizen's Advisory Group

6. Southern California Edison Company, Real Properties Department, Alan Taylor

7. SEACOP, Helen Treend

ORGANIZATIONS AND PERSONS CONSULTED (Continued)

Members of the Public

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Ted Goldstein
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Greg Smith
Steve Watson
Rosalie Black
Elaine and Philip Bush

7.0 QUALIFICATIONS OF PERSONS PREPARING THE EIR

Ultrasystems, Inc., is a management, environmental and energy engineering, social science and research firm with a particular specialization and expertise in the field of environmental science and technology. The qualifications of the professional staff and background information of the individuals involved in the preparation of this report are available in the Environmental Planning and Engineering Capabilities Statement of that firm.